

**A1**  
**Canterbury District Local Plan**  
**RUR 3: Land south of Island Road,**  
**Hersden**  
**Agricultural Land Classification**  
**ALC Map and Report**  
**September 1995**

# AGRICULTURAL LAND CLASSIFICATION REPORT

## CANTERBURY DISTRICT LOCAL PLAN RUR 3: LAND SOUTH OF ISLAND ROAD, HERSDEN

### 1. Summary

- 1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality for a number of sites in the Canterbury district of Kent. The work forms part of MAFF's statutory input to the Canterbury District Local Plan.
- 1.2 RUR 3 comprises 20.9 hectares of land to the south of Island Road, at Hersden, north-east of Canterbury, Kent. An Agricultural Land Classification (ALC) survey was carried out during September 1995. The survey was undertaken at a detailed level of approximately two borings per hectare of agricultural land. A total of 12 borings and one soil inspection pit were described in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose a long term limitation on its use for agriculture.
- 1.3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.
- 1.4 At the time of survey the agricultural land use was a mixture of alfalfa, cereal stubble and permanent grass. Areas mapped as Urban include metalled roads, a vehicle testing station and residential dwellings. Land mapped as Non-Agricultural comprises a former colliery yard. Within this area, there are some concrete hardstandings. However, the scattered distribution of these hardstandings means that they have not been delineated as Urban. Due to incomplete access information, the area around Hoplands Farm is shown as Not Surveyed.
- 1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas and extent are given in the table below. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading. This survey supersedes previous ALC surveys on this land.

**Table 1 : Distribution of Grades and Subgrades**

Grade	Area (ha)	% of Site	% of Agricultural Land
3b	7.6	36.4	100.0 (7.6 ha)
Urban	2.1	10.0	
Non-agricultural	9.4	45.0	
Not Surveyed	<u>1.8</u>	<u>8.6</u>	
Total area of site	20.9	100.0	

- 1.6 Appendix I gives a general description of the grades, subgrades and land use categories identified in the survey. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.
- 1.7 All of the agricultural land has been classified as Subgrade 3b, moderate quality. The land is limited by significant soil droughtiness, arising from comparatively shallow soils over gravel. Topsoils typically comprise medium clay loams which are slightly or moderately stony. These overlie similarly textured subsoils which, in association with underlying gravel deposits, become increasingly stony with depth. The interaction between these soil properties and the prevailing local climate, which is relatively dry in a regional context, acts to impart a significant soil droughtiness limitation. This land will be subject to lower and inconsistent yield potential.
- 1.8 In addition, a very small area to the south of the vehicle testing station is subject to a topsoil stone content limitation. The top 25 cm of the soil profile contains significant amounts of flints larger than 2 cm. Such topsoil stoniness may act to significantly impede cultivation, harvesting and crop growth and cause excessive implement and tyre wear.

## 2. Climate

- 2.1 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.
- 2.2 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.
- 2.3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met. Office, 1989). The details are given in the table below and these show that there is no overall climatic limitation affecting the site. However climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations. The soil moisture deficits are relatively high, in a regional context, at this locality. High soil moisture deficits increase the likelihood of soil droughtiness limitations.

**Table 2 : Climatic Interpolation**

Grid Reference	TQ 206 620
Altitude (m)	30
Accumulated Temperature (degree days, Jan-June)	1482
Average Annual Rainfall (mm)	653
Field Capacity (days)	137
Moisture Deficit, Wheat (mm)	117
Moisture Deficit, Potatoes (mm)	113
Overall Climatic Grade	1

2.4 No other local climatic factors, such as exposure or frost risk, are believed to affect the site.

### **3. Relief**

3.1 The north of the site is flat, and lies at approximately 30m AOD. The land then falls gently to the south, through gradients of 4-6°, to lie at approximately 15m AOD.

### **4. Geology and Soil**

4.1 The relevant geological sheet (BGS, 1974) shows most of the agricultural land on the site to be underlain by drift deposits of head gravel over London Clay. The most easterly field, adjacent to 'The Villas', is shown to be underlain by London Clay.

4.2 The most recent published soils information (SSEW, 1983) shows the agricultural land on the site to comprise soils of the Sonning 2 Association. These soils are described as 'well drained flinty coarse loamy and gravelly soils. Associated with slowly permeable seasonally waterlogged fine loamy over clayey soils, and coarse loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging' (SSEW, 1983).

4.3 Detailed field examination found well drained and moderately well drained flinty loamy soils across all of the agricultural land surveyed.

### **5. Agricultural Land Classification**

5.1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map.

5.2 The location of the soil observation points are shown on the attached sample point map.

#### **Subgrade 3b**

5.3 All of the agricultural land surveyed has been classified as Subgrade 3b, moderate quality. This land is subject to significant soil droughtiness limitations. Topsoils and subsoils comprise non-calcareous medium clay loams. Topsoils are either slightly or moderately stony, typically containing 3-9 % of flints > 2cm, 2-4% of flints > 6 cm and 10-20 % total flints by volume. Upper subsoils are generally slightly stonier, containing 15-35% total flints by volume. Due to the gravelly nature of the subsoils all of the auger borings proved impenetrable to a soil auger between 40 and 50 cm depth and, occasionally, shallower. Consequently, a soil inspection pit (Pit 1) was dug to assess subsoil conditions.

5.4 The lower subsoil of Pit 1 was found to be very stony, containing approximately 55% total flints by volume. The flinty nature meant that it was only possible to dig about 20 cm into the lower subsoil, to a depth of 60 cm. Roots should be able to

extend further in search of available water but the exact depth of penetration below 60 cm is unknown. It is also possible that below 60 cm the soil profile may pass into pure gravel (that is, greater than 70% stone by volume), or that the stony lower horizon may extend to depth. Assuming deep penetration into either gravel or a stony horizon, these soils can be graded no higher than Subgrade 3b. It is unclear, though, as to what role the water table might play throughout the growing season in providing an additional source of moisture to roots that cannot penetrate to depth. The fluctuating groundwater levels result in gleying within 40 cm in some of the profiles (Wetness Class II). However, given the high soil moisture deficits at this locality, the land has been placed in Subgrade 3b because of a significant risk of drought stress. Consequently, this land will be subject to lower yield potential and inconsistent crop yields.

- 5.5 To the south of the vehicle testing station, the land is also subject to a topsoil stone limitation. The high percentage of flints larger than 2 cm within the top 25 cm of the soil (approximately 19%) acts to significantly impede cultivation, harvesting and crop growth plus increase implement and tyre wear.

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Resource Planning Team  
Guildford Statutory Group  
ADAS Reading

## **SOURCES OF REFERENCE**

British Geological Survey (1974), Sheet No. 273, Faversham, 1:50,000 Series (solid and drift edition).

MAFF (1988), Agricultural Land Classification of England and Wales : Revised guidelines and criteria for grading the quality of agricultural land.

Meteorological Office (1989), Climatological Data for Agricultural Land Classification.

Soil Survey of England and Wales (1983), Sheet 6, Soils of South East England, 1:250,000 and accompanying legend.

## APPENDIX I

### DESCRIPTIONS OF THE GRADES AND SUBGRADES

#### **Grade 1: Excellent Quality Agricultural Land**

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

#### **Grade 2: Very Good Quality Agricultural Land**

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural or horticultural crops can usually be grown but on some land of this grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1 land.

#### **Grade 3: Good to Moderate Quality Land**

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When more demanding crops are grown, yields are generally lower or more variable than on land in Grades 1 and 2.

#### **Subgrade 3a: Good Quality Agricultural Land**

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

#### **Subgrade 3b: Moderate Quality Agricultural Land**

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass, or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

#### **Grade 4: Poor Quality Agricultural Land**

Land with severe limitations which significantly restrict the range of crops and/or the level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

#### **Grade 5: Very Poor Quality Agricultural Land**

Land with severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

## **Urban**

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

## **Non-agricultural**

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

## **Woodland**

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

## **Agricultural Buildings**

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (e.g. polythene tunnels erected for lambing) may be ignored.

## **Open Water**

Includes lakes, ponds and rivers as map scale permits.

## **Land Not Surveyed**

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above, e.g. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.



## APPENDIX II

### FIELD ASSESSMENT OF SOIL WETNESS CLASS

#### SOIL WETNESS CLASSIFICATION

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

#### Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging <sup>1</sup>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. <sup>2</sup>
II	The soil profile is wet within 70 cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but only wet within 40 cm depth for 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.

<sup>1</sup>The number of days specified is not necessarily a continuous period.

<sup>2</sup>'In most years' is defined as more than 10 out of 20 years.

## **APPENDIX III**

### **SOIL PIT AND SOIL BORING DESCRIPTIONS**

#### **Contents :**

**Soil Abbreviations - Explanatory Note**

**Soil Pit Descriptions**

**Database Printout - Boring Level Information**

**Database Printout - Horizon Level Information**

## SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

### Boring Header Information

1. **GRID REF** : national 100 km grid square and 8 figure grid reference.
2. **USE** : Land use at the time of survey. The following abbreviations are used.

<b>ARA</b> : Arable	<b>WHT</b> : Wheat	<b>BAR</b> : Barley
<b>CER</b> : Cereals	<b>OAT</b> : Oats	<b>MZE</b> : Maize
<b>OSR</b> : Oilseed rape	<b>BEN</b> : Field Beans	<b>BRA</b> : Brassicae
<b>POT</b> : Potatoes	<b>SBT</b> : Sugar Beet	<b>FCD</b> : Fodder Crops
<b>LIN</b> : Linseed	<b>FRT</b> : Soft and Top Fruit	<b>FLW</b> : Fallow
<b>PGR</b> : Permanent Pasture	<b>LEY</b> : Ley Grass	<b>RGR</b> : Rough Grazing
<b>SCR</b> : Scrub	<b>CFW</b> : Coniferous Woodland	<b>DCW</b> : Deciduous Wood
<b>HTH</b> : Heathland	<b>BOG</b> : Bog or Marsh	<b>FLW</b> : Fallow
<b>PLO</b> : Ploughed	<b>SAS</b> : Set aside	<b>OTH</b> : Other
<b>HRT</b> : Horticultural Crops		
3. **GRDNT** : Gradient as estimated or measured by a hand-held optical clinometer.
4. **GLEYSPL** : Depth in centimetres (cm) to gleying and/or slowly permeable layers.
5. **AP (WHEAT/POTS)** : Crop-adjusted available water capacity.
6. **MB (WHEAT/POTS)** : Moisture Balance. (Crop adjusted AP - crop adjusted MD)
7. **DRT** : Best grade according to soil droughtiness.
8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

**MREL** : Microrelief limitation    **FLOOD** : Flood risk    **EROSN** : Soil erosion risk  
**EXP** : Exposure limitation    **FROST** : Frost prone    **DIST** : Disturbed land  
**CHEM** : Chemical limitation

9. **LIMIT** : The main limitation to land quality. The following abbreviations are used.

<b>OC</b> : Overall Climate	<b>AE</b> : Aspect	<b>EX</b> : Exposure
<b>FR</b> : Frost Risk	<b>GR</b> : Gradient	<b>MR</b> : Microrelief
<b>FL</b> : Flood Risk	<b>TX</b> : Topsoil Texture	<b>DP</b> : Soil Depth
<b>CH</b> : Chemical	<b>WE</b> : Wetness	<b>WK</b> : Workability
<b>DR</b> : Drought	<b>ER</b> : Erosion Risk	<b>WD</b> : Soil Wetness/Droughtiness
<b>ST</b> : Topsoil Stoniness		

## Soil Pits and Auger Borings

1. **TEXTURE** : soil texture classes are denoted by the following abbreviations.

<b>S</b> :	Sand	<b>LS</b> :	Loamy Sand	<b>SL</b> :	Sandy Loam
<b>SZL</b> :	Sandy Silt Loam	<b>CL</b> :	Clay Loam	<b>ZCL</b> :	Silty Clay Loam
<b>ZL</b> :	Silt Loam	<b>SCL</b> :	Sandy Clay Loam	<b>C</b> :	Clay
<b>SC</b> :	Sandy Clay	<b>ZC</b> :	Silty Clay	<b>OL</b> :	Organic Loam
<b>P</b> :	Peat	<b>SP</b> :	Sandy Peat	<b>LP</b> :	Loamy Peat
<b>PL</b> :	Peaty Loam	<b>PS</b> :	Peaty Sand	<b>MZ</b> :	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

<b>F</b> :	Fine (more than 66% of the sand less than 0.2mm)
<b>M</b> :	Medium (less than 66% fine sand and less than 33% coarse sand)
<b>C</b> :	Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M** : Medium (<27% clay) **H** : Heavy (27-35% clay)

2. **MOTTLE COL** : Mottle colour using Munsell notation.
3. **MOTTLE ABUN** : Mottle abundance, expressed as a percentage of the matrix or surface described.

**F** : few <2% **C** : common 2-20% **M** : many 20-40% **VM** : very many 40% +

4. **MOTTLE CONT** : Mottle contrast

**F** : faint - indistinct mottles, evident only on close inspection  
**D** : distinct - mottles are readily seen  
**P** : prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL** : Ped face colour using Munsell notation.
6. **GLEYS** : If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.
7. **STONE LITH** : Stone Lithology - One of the following is used.

<b>HR</b> :	all hard rocks and stones	<b>SLST</b> :	soft oolitic or dolimitic limestone
<b>CH</b> :	chalk	<b>FSST</b> :	soft, fine grained sandstone
<b>ZR</b> :	soft, argillaceous, or silty rocks	<b>GH</b> :	gravel with non-porous (hard) stones
<b>MSST</b> :	soft, medium grained sandstone	<b>GS</b> :	gravel with porous (soft) stones
<b>SI</b> :	soft weathered igneous/metamorphic rock		

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

8. **STRUCT** : the degree of development, size and shape of soil peds are described using the following notation:

degree of development    **WK** : weakly developed            **MD** : moderately developed  
   **ST** : strongly developed

ped size                            **F** : fine                                    **M** : medium  
   **C** : coarse                                **VC** : very coarse

ped shape                            **S** : single grain                        **M** : massive  
   **GR** : granular                            **AB** : angular blocky  
   **SAB** : sub-angular blocky        **PR** : prismatic  
   **PL** : platy

9. **CONSIST** : Soil consistence is described using the following notation:

**L** : loose    **VF** : very friable    **FR** : friable    **FM** : firm    **VM** : very firm  
**EM** : extremely firm            **EH** : extremely hard

10. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness : **G** : good    **M** : moderate    **P** : poor

11. **POR** : Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.

12. **IMP** : If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.

13. **SPL** : Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

14. **CALC** : If the soil horizon is calcareous, a 'Y' will appear in this column.

15. Other notations

**APW** : available water capacity (in mm) adjusted for wheat  
**APP** : available water capacity (in mm) adjusted for potatoes  
**MBW** : moisture balance, wheat  
**MBP** : moisture balance, potatoes

SOIL PIT DESCRIPTION

Site Name : CANTERBURY LP RUR 13 Pit Number : 1P

Grid Reference: TR17606140 Average Annual Rainfall : 628 mm  
 Accumulated Temperature : 1443 degree days  
 Field Capacity Level : 129 days  
 Land Use :  
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	MCL	10YR43 42	6	10	HR					
27- 40	MCL	10YR44 00	0	30	HR				M	
40- 60	MCL	10YR54 00	0	45	HR				M	
60- 65	MCL	10YR54 00	0	55	HR				P	

Wetness Grade : 1 Wetness Class : I  
 Gleying : 999 cm  
 SPL : No SPL

Drought Grade : 3B APW : 76 mm MBW : -44 mm  
 APP : 80 mm MBP : -37 mm

FINAL ALC GRADE : 3B  
 MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	SPL	--WETNESS--		-WHEAT-		-POTS-		M. REL		EROSN	FROST		CHEM	ALC	COMMENTS
					CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT			
1	TR20696209	ARA			1	1	46	-77	46	-74	4					DR	3B	Imp32 Re 1P
1P	TR20906210	STB			1	1	65	-58	68	-52	4					DR	3B	Pit60 Q roots
2	TR20856233	STB		028	2	2	69	-54	69	-51	4					DR	3B	Imp45 Re 1P
3	TR20906210	STB			1	1	58	-65	58	-62	4					DR	3B	Imp40 Re 1P
4	TR20506200	ARA			1	1	61	-62	61	-59	4					DR	3B	Imp45 Re 1P
5	TR20606200	ARA			1	1	65	-58	65	-55	4					DR	3B	Imp45 Re 1P
6	TR20706200	ARA	S	01	1	1	48	-75	48	-72	4					DR	3B	Imp35 Re 1P
7	TR20686214	STB		028	2	2	53	-70	53	-67	4					DR	3B	Imp40 Re 1P
8	TR20966243	PGR			1	1	54	-69	54	-66	4					DR	3B	Imp40 Re 1P
9	TR20506190	ARA			1	1	63	-60	63	-57	4					DR	3B	Imp48 Re 1P
10	TR20606190	ARA	S	01	1	1	64	-59	64	-56	4					DR	3B	Imp45 Re 1P
11	TR20606180	PGR	S	03	1	1	45	-78	45	-75	4					DR	3B	Imp30 Re 1P
12	TR20656175	PGR	SE	06	1	1	54	-69	54	-66	4					DR	3B	Imp38 Re 1P

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLEY >2	>6	LITH TOT		STR	POR	IMP	SPL	CALC	
1	0-25	mc1	10YR43 00					6	2	HR	15						
	25-32	mc1	10YR43 00					0	0	HR	35		M				Impen 32 flinty
1P	0-28	mc1	10YR43 00					6	2	HR	15						
	28-38	mc1	10YR44 43					0	0	HR	30		M				
	38-60	mc1	10YR44 00					0	0	HR	55		P				Q gravel60;Q roots
2	0-28	mc1	10YR42 00					<del>4</del> 1			10						
	28-45	mc1	10YR53 00	10YR56 00 C			Y	0	0	HR	15		M				Impen 45 flinty
3	0-30	mc1	10YR43 00					6	2	HR	15						
	30-40	mc1	10YR43 44					0	0	HR	30		M				Impen 40 flinty
4	0-25	mc1	10YR43 00					9	3	HR	20						
	25-45	mc1	10YR54 00					0	0	HR	25		M				Impen 45 flinty
5	0-28	mc1	10YR43 00					6	2	HR	15						
	28-45	mc1	10YR54 00	10YR56 00 C			S	0	0	HR	20		M				Impen 45 flinty Sl. gleyed
6	0-28	mc1	10YR42 00					9	3	HR	20						
	28-35	mc1	10YR44 00					0	0	HR	35		M				Impen 35 flinty
7	0-28	mc1	10YR43 00					19	5	HR	30						
	28-40	mc1	10YR53 00	75YR58 00 C			Y	0	0	HR	15		M				Impen 40 flinty
8	0-25	mc1	10YR42 00	75YR58 00 C				6	2	HR	20						
	25-40	mc1	10YR58 00	75YR58 00 C			S	0	0	HR	30		M				Root mottles Sl. gleyed Imp40
9	0-25	mc1	10YR42 00					8	3	HR	20						
	25-48	mc1	10YR43 00					0	0	HR	30		M				Impen 48 flinty
10	0-30	mc1	10YR42 00					6	2	HR	15						
	30-45	mc1	10YR44 00					0	0	HR	30		M				Impen 45 flinty
11	0-20	mc1	10YR43 00					1	0	HR	5						
	20-30	mc1	10YR43 00					0	0	HR	35		M				Impen 30 flinty
12	0-25	mc1	10YR42 00					6	2	HR	12						
	25-38	hc1	10YR44 54					0	0	HR	35		M				Impen 38 flinty