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WYCOMBE DISTRICT LOCAL PLAN
Abbey Barn Lane (South-west)
High Wycombe
Agricultural Land Classification

ALC Map and Report

April/May 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

WYCOMBE DISTRICT LOCAL PLAN
ABBEY BARN LANE (SOUTH-WEST)
HIGH WYCOMBE.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 30 hectares of land to the south of High Wycombe adjacent to the M40 motorway. The survey was carried out during April and May 1997.

2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA) for the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with the Wycombe Local Plan. This survey supersedes any previous ALC information for this land including a reconnaissance survey (ADAS Ref: 0305/1/77) covering a wider area of land of which this site forms only a part. This reconnaissance survey was undertaken in 1977 at a comparatively low sampling density. Since the 1977 survey, MAFF has updated the ALC system (MAFF, 1988) and consequently a new and more detailed survey was undertaken using the revised 1988 guidelines.

3. The work was conducted by members of the Resource Planning Team in the Eastern Region of the FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.

4. At the time of survey the land-use was permanent grass and arable cultivation (comprising wheat and barley). The areas of the site shown as 'Other Land' consist of a recreational area, parkland trees, woodland and scrub.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading.

6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1 overleaf.

7. The fieldwork was conducted at an average density of 1 boring every hectare. A total of 29 borings and 4 soil pits were described.

8. The area under agricultural use has been classified as Grade 2 (very good quality) to Subgrade 3b (moderate quality). The areas are predominantly limited by topsoil stoniness and soil droughtiness, and occasionally gradient.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	7.9	32.6	25.6
3a	14.0	45.3	45.3
3b	2.1	8.8	6.8
Other Land	6.9	-	22.3
Total Surveyed Area	24.0	100	-
Total site area	30.9	-	*100*

9. The area of Grade 2 (very good quality) land occupies the south and south-west of the site. The soils typically comprise slightly stony, fine loamy or fine silty topsoils overlying similar or slightly heavier textured upper subsoils. At depth, reddish brown clay occurs which is variably stony. The majority of these areas are very slightly limited by soil droughtiness due to varying stone contents in the profile limiting the water availability for crops, causing a lower yield potential. Occasionally, stone content in the topsoil alone is sufficient to limit the classification to Grade 2. The presence of large stones in the topsoil has the effect of increasing production costs caused by extra wear and tear to equipment and reducing crop quality and establishment.

10. The majority of the site is Subgrade 3a (good quality). These areas are predominantly limited by topsoil stoniness, with soil droughtiness being a factor in places. Profiles are of two main types. The first consist of deep, well drained coarse and fine loamy soils with little or no droughtiness restrictions, but with the presence of up to 15% flints larger than 2cm diameter in the topsoil. The second group of soils have similar topsoil stone measurements, but consist of well drained, fine silty soils, which lie over chalk deposits at variable depths. The degree of drought restriction is largely dependent upon depth to underlying chalk and profile stone content.

11. A discrete area to the north-east corner of the site is limited to Subgrade 3b (moderate quality) on the basis of high topsoil stone content and gradient. Where gradient is limiting, the safe and efficient use of farm machinery will be affected.

FACTORS INFLUENCING ALC GRADE

CLIMATE

12. Climate affects the grading of the land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

13. The key climatic variables used for grading this site are given in Table 2 overleaf and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

14. 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*

Table 2: Climatic and altitude data

Factors	Units	Values	Values	Values
Grid reference	N/A	SU 875 915	SU 874 914	SU 873 915
Altitude	m,AOD	135	140	146
Accumulated Temperature	day°C	1357	1352	1345
Average Annual Rainfall	mm	733	735	738
Field Capacity Days	days	156	156	157
Moisture Deficit, Wheat	mm	93	93	92
Moisture Deficit, Potatoes	mm	82	81	80
Overall Climatic Grade	N/A	Grade 1	Grade 1	Grade 1

15. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality. The figures above suggest that overall, the site is comparatively cool (in regional terms) as a result of being located at a relatively high altitude. At this locality, moisture deficit figures are lower than the national average, reflecting the elevated altitude. The likelihood of restrictions associated with soil droughtiness may therefore be reduced.

16. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. Other local climatic factors such as exposure and frost risk are not believed to have a significant adverse effect on the site. The site is climatically Grade 1.

Site

17. The agricultural land at this site lies at an altitude of 130-150m AOD. The majority of the land at the site is flat or gently sloping with slight undulations and gradients measuring between 0°-5°. The land quality is limited to Subgrade 3b by steep gradients in the range 7.5-10° in a small localised area of the site to the north-east.

Geology and soils

18. The published geological information for the site (Geological Survey of England and Wales, 1948) shows the majority of the site to be underlain by Clay-with-flints in the central, southern and western parts. Two small areas of Upper Chalk are exposed at the surface in the north-east; one of which tends to follow the line of the dry valley feature which runs from the centre of the site to the east; the other lies in the extreme north east where the land begins to fall on the valley slope. Superficial drift deposits of pebbly clay and sand also occur in the north-east flanking the chalk areas.

19. The most recently published soil information for the site (SSEW,1983) shows the Marlow association is most likely to cover the site with the possibility of the Newmarket 2 association occurring in the north-east of the area. The former soils are described as 'well drained fine loamy over clayey soils. Some coarse and fine loamy over clayey soils with slowly

permeable subsoils and slight seasonal waterlogging' (SSEW, 1983). The latter soils are described as 'shallow well drained calcareous coarse loamy and sandy soils over chalk rubble associated with well drained deeper coarse loamy and sandy soils often in an intricate pattern. Slight risk of water erosion' (SSEW, 1983 and 1984).

20. Upon detailed field examination, soils broadly consistent with the above description were found to exist across the site although the soils over the chalk and chalk rubble were fine loamy rather than coarse loamy.

AGRICULTURAL LAND CLASSIFICATION

21. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1.

22. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix II.

Grade 2

23. The south-west area of the site on the flatter ridge crest has been mapped as Grade 2 (very good quality agricultural land). The soils in these areas are deep and developed in Plateau Drift and Clay-with-flints, which cap the underlying chalk. The depth to the chalk is variable, as is the amount of stone in the topsoil horizons. In approximately half of the profiles, topsoil stone is limiting in terms of ALC grading as it amounts to 6% or more flints larger than 2cm. The soils typically have non-calcareous medium clay loam or medium silty clay loam topsoils which are very slightly to slightly stony (up to 12% total flints, 8% > 2cm and 4% > 6cm). These overlie similar or slightly heavier textured upper subsoils which are also slightly to moderately stony (containing between 5% and 25% total flints). At depth, reddish brown clay occurs in the majority of profiles which tends to be variably stony throughout. Consequently, many of the profiles are impenetrable to the auger between 45cm and 85cm. The soils are generally well drained (Wetness Class 1) and suffer from a slight droughtiness limitation and/or a topsoil stoniness limitation. These profiles may have reserves of available water which can be insufficient for crop requirement in some years, which given the local climatic conditions, leads to Grade 2 being appropriate. Soil pit 1 is representative of these soils. Despite these slight limitations described above, this land is capable of supporting a wide range of arable and horticultural crops whose yields are generally high but may be lower or more variable than Grade 1 land.

Subgrade 3a

24. Good quality agricultural land is mapped to the north and central areas of the site. The soils fall into two main variants.

25. Firstly, profiles with light topsoils that are impenetrable to the auger at variable depths (between 25cm and 30cm) have been assigned to Subgrade 3a on the basis of a topsoil stoniness. Typical soil observations comprise non-calcareous, slightly or moderately stony (up to 19% total flints, 12% > 2cm and 8% > 6cm in size) fine and medium sandy silt loam topsoils. On occasion, these topsoil textures are lighter. Soil inspection pit 3 (Appendix 2) is typical of these soil types in this mapping unit. The pit observations (pits 2 and 3, Appendix 2) indicate

that the subsoils comprise non-calcareous, sandy clay loams which are variable, both in their stone content (0-15% total flints) and in their textural distribution. Upper subsoils consist of inter-mixed sand and clay. The profiles are permeable and well drained (Wetness Class 1). These deep soils have good reserves of available water for plant growth. Given the local climate there is consequently little or no drought risk as a result. The amount of topsoil stone is the major limitation associated with these soils, typically amounting to up to 12% flints larger than 2 cm diameter. This has the effect of, (in addition to reducing available water) impeding cultivation, harvesting and crop growth, and increasing the cost of cropping in terms of machinery wear and tear, and yield reduction. Despite this, land of this quality is expected to produce moderate to high yields of a narrow range of crops.

26. The second group of soils are also well drained (Wetness Class 1), and typically consist of calcareous, medium silty clay loam topsoils which are moderately stony (approximately 16-18% total flint, 12% > 2cm, 5% > 6cm with occasionally 5% chalk fragments in addition to this). These fine silty topsoils lie over chalk at variable depths (35cm to 80cm). Subsoils vary in nature, ranging from medium silty clay loam to clay depending on the depth of drift over the chalk and the extent of weathering of the chalk. Pit 4 is typical of these soil types. This means that these profiles will tend to suffer from a slight to moderate soil droughtiness limitation due to the restricted rooting depth over the chalk. Topsoil stone is the major limitation, with 10-12% flints larger than 2cm diameter. Like the soils described above, this restricts the land to Subgrade 3a.

Subgrade 3b

27. A small, discrete area of moderate quality agricultural land is mapped towards the north-east of the site. The principal limitations are topsoil stone content and gradient. Within the area limited by topsoil stones, profiles typically comprise moderately stony, non-calcareous medium silty clay loams that are impenetrable to the soil auger at 25cm depth. The presence of more than 20% flints larger than 2 cm diameter restricts the land quality to Subgrade 3b. A small area of land has also been mapped as Subgrade 3b where it is more steeply sloping. The gradients were measured (with an optical reading clinometer) between 7° and 10°. Slopes in this gradient range are sufficient to compromise the safe and efficient operation of farm machinery.

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SOURCES OF REFERENCE

Geological Survey of England and Wales (1948) *Sheet No. 255, Beaconsfield 1:63,360 scale* (Drift Edition). GSEW.

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Met. Office (1989) *Climatological Data for Agricultural Land Classification.* Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South East England 1:250,000 scale.* SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England* SSEW: Harpenden.

M.S Temple (1929) *The Soils of Buckinghamshire.* Bulletin XXXVIII, University Of Reading.

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.

APPENDIX II

SOIL DATA

Contents:

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:

ARA:	Arable	**WHT:**	Wheat	**BAR:**	Barley
CER:	Cereals	**OAT:**	Oats	**MZE:**	Maize
OSR:	Oilseed rape	**BEN:**	Field beans	**BRA:**	Brassicae
POT:	Potatoes	**SBT:**	Sugar beet	**FCD:**	Fodder crops
LIN:	Linseed	**FRT:**	Soft and top fruit	**FLW:**	Fallow
PGR:	Permanent pasture	**LEY:**	Ley grass	**RGR:**	Rough grazing
SCR:	Scrub	**CFW:**	Coniferous woodland	**OTH**	Other
DCW:	Deciduous woodland	**BOG:**	Bog or marsh	**SAS:**	Set-Aside
HTH:	Heathland	**HRT:**	Horticultural crops	**PLO:**	Ploughed

3. **GRDNT**: Gradient as estimated or measured by a hand-held optical clinometer.

4. **GLEY/SPL**: 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:

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

Soil Pits and Auger Borings

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

S:	Sand	**LS**:	Loamy Sand	**SL**:	Sandy Loam
SZL:	Sandy Silt Loam	**CL**:	Clay Loam	**ZCL**:	Silty Clay Loam
ZL:	Silt Loam	**SCL**:	Sandy Clay Loam	**C**:	Clay
SC:	Sandy Clay	**ZC**:	Silty Clay	**OL**:	Organic Loam
P:	Peat	**SP**:	Sandy Peat	**LP**:	Loamy Peat
PL:	Peaty Loam	**PS**:	Peaty Sand	**MZ**:	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:

F: Fine (more than 66% of the sand less than 0.2mm)
M: Medium (less than 66% fine sand and less than 33% coarse sand)
C: 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. **GLEY**: 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:

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

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		
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 : WYCOMBE DLP ABB BARN SW Pit Number : 1P

Grid Reference: SU97739112 Average Annual Rainfall : 735 mm
Accumulated Temperature : 1352 degree days
Field Capacity Level : 157 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MZCL	10YR42 00	8	12	HR					
30- 45	HCL	10YR44 56	0	25	HR		MDCSAB	FR	M	
45- 73	C	10YR54 58	0	20	HR		MDCSAB	FM	M	
73- 87	C	10YR54 58	0	20	HR		MDCSAB	FM	M	
87-120	C	75YR46 58	0	15	HR		MDCSAB	FM	M	Y

Wetness Grade : 1 Wetness Class : I
Gleying : cm
SPL : cm

Drought Grade : 2 APW : 118mm MBW : 25 mm
APP : 099mm MBP : 17 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : WYCOMBE DLP ABB BARN SW Pit Number : 2P

Grid Reference: SU87299148
Average Annual Rainfall : 735 mm
Accumulated Temperature : 1352 degree days
Field Capacity Level : 157 days
Land Use : Permanent Grass
Slope and Aspect : 02 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MCL	10YR42 43	12	18	HR					
28- 60	SCL	75YR54 58	0	2	HR		MDCAB	FM	M	
60-120	SCL	75YR44 56	0	0			MDCAB	FR	M	

Wetness Grade : 1
Wetness Class : I
Gleying : cm
SPL : cm

Drought Grade : 1
APW : 144mm MBW : 51 mm
APP : 104mm MBP : 22 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Topsoil Stoniness

SOIL PIT DESCRIPTION

Site Name : WYCOMBE DLP ABB BARN SW Pit Number : 3P

Grid Reference: SU87309130 Average Annual Rainfall : 735 mm
Accumulated Temperature : 1352 degree days
Field Capacity Level : 157 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 20	MSZL	10YR42 00	12	18	HR					
20- 40	SCL	10YR44 54	0	15	HR		MDCSAB	FR	M	
40- 67	SCL	75YR56 00	0	7	HR		MDCSAB	FR	M	
67-120	SCL	75YR56 00	0	15	HR		MDCSAB	FR	M	

Wetness Grade : 1 Wetness Class : I
Gleying : cm
SPL : cm

Drought Grade : 1 APW : 133mm MBW : 40 mm
APP : 099mm MBP : 17 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Topsoil Stoniness

SOIL PIT DESCRIPTION

Site Name : WYCOMBE DLP ABB BARN SW Pit Number : 4P

Grid Reference: SU87409170 Average Annual Rainfall : 735 mm
Accumulated Temperature : 1352 degree days
Field Capacity Level : 157 days
Land Use : Cereals
Slope and Aspect : 04 degrees NE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MZCL	10YR42 00	12	17	HR					Y
28- 36	MZCL	10YR53 00	0	60	CH				M	Y
36- 85	CH	10YR81 00	0	8	HR				P	Y

Wetness Grade : 1 Wetness Class : I
Gleying : cm
SPL : cm

Drought Grade : 3A APW : 088mm MBW : -5 mm
APP : 084mm MBP : 2 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	ASPECT USE		GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU87409170	CER	NE	04			1	1	088	-5	082	2	3A				DR	3A	also ST see 4p
1P	SU97739112	CER					1	1	118	25	099	17	2				DR	2	also stones
2	SU87309160	CER	NE	01			1	1	050	-43	050	-32	3B				ST	2	I25, see pit 2
2P	SU87299148	PGR	SE	02			1	1	144	51	104	22	1				ST	3A	
3	SU87409160	CER					1	1	039	-54	039	-43	4				ST	3B	Imp 25
3P	SU87309130	PGR					1	1	133	40	099	17	1				ST	3A	
4	SU87499163	PGR	NE	02			1	1	033	-60	033	-49	4				ST	3B	Imp 25
4P	SU87409170	CER	NE	04			1	1	088	-5	084	2	3A				DR	3A	also stones
7	SU87299148	PGR	SE	02			1	1	047	-46	047	-35	3B				ST	3A	I25, see pit 2
8	SU87409150	PGR	SE	03			1	1	057	-36	057	-25	3B				ST	2	I30, see pit 3
9	SU87509150	PGR	SE	08			1	1	047	-46	047	-35	3B				GR	3B	Imp 25
12	SU87309140	PGR	NE	02			1	1	042	-51	042	-40	4				ST	3A	I25, see pit 3
13	SU87409140	PGR	NE	03			1	1	051	-42	051	-31	3B				ST	3A	I27, see pit 3
14	SU87509140	PGR	NE	05			1	1	040	-53	040	-42	4				ST	3A	I25, see pit 3
15	SU87609140	CER	NE	03			1	1	109	16	105	23	2				ST	3A	
16	SU87189128	CER				030	2	2	088	-5	100	18	3A				DR	3A	Imp 65
17	SU87309130	PGR					1	1	058	-35	058	-24	3B				ST	3A	I30, see pit 3
18	SU87389130	PGR					1	1	047	-46	047	-35	3B				ST	3A	I25, see pit 3
19	SU87509130	PGR	NW	01			1	1	115	22	118	36	2				DR	2	see pit 1
20	SU87609130	PGR	NE	01			1	1	121	28	105	23	2				DR	2	also stones
21	SU87689130	CER	NE	02			1	1	095	2	094	12	3A				DR	3A	also stones
22	SU87789129	CER	NE	02			1	1	092	-1	087	5	3A				DR	3A	also ST, see 4
23	SU87309120	CER					1	1	092	-1	102	20	3A				ST	2	I67, see pit 1
24	SU87409120	PGR					1	1	099	6	107	25	2				DR	2	I65, poss GR 1
25	SU87509120	PGR					1	1	089	-4	096	14	3A				DR	2	I50, see pit 1
26	SU87619122	CER					1	1	087	-6	095	13	3A				DR	2	I60, see pit 1
27	SU87709120	CER	NE	02			1	1	085	-8	093	11	3A				DR	2	I60, see pit 1
28	SU87809120	CER					1	1	078	-15	078	-4	3A				DR	2	I50, also ST
29	SU87899119	CER	NE	01			1	1	099	6	091	9	2				ST	3A	
30	SU87489111	PGR					1	1	096	3	096	14	3A				DR	2	Imp 50
31	SU87609110	PGR					1	1	069	-24	069	-13	3B				ST	3A	I45, see pit 1
32	SU87739112	CER					1	1	104	11	115	33	2				DR	2	also ST see 1p
33	SU87499156	PGR	SE	04			1	1	000	0	000	0					ST	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0-25	mzcl	10YR42 00						12	5	HR	18					Y		+5% ch
	25-35	mzcl	10YR54 00						0	0	CH	60		M			Y		Chalky +5%hr
	35-85	ch	10YR81 00						0	0	HR	4		P			Y		Imp, chalk
1P	0-30	mzcl	10YR42 00						8	4	HR	12							
	30-45	hcl	10YR44 56				00MN00 00		0	0	HR	25	MDCSAB	FR	M				
	45-73	c	10YR54 58				00MN00 00		0	0	HR	20	MDCSAB	FM	M				
	73-87	c	10YR54 58				00MN00 00		0	0	HR	20	MDCSAB	FM	M				+20% chalk
	87-120	c	75YR46 58				00MN00 00		0	0	HR	15	MDCSAB	FM	M		Y		+30% chalk
2	0-25	fszl	10YR42 00						6	2	HR	10							Imp, flints
2P	0-28	mcl	10YR42 43						12	4	HR	18							
	28-60	scl	75YR54 58				00MN00 00		0	0	HR	2	MDCAB	FM	M				Mixed S and C
	60-120	scl	75YR44 56						0	0		0	MDCAB	FR	M				Mixed S and C
3	0-25	fszl	10YR42 00						20	4	HR	30							Imp, flints
3P	0-20	mszl	10YR42 00						12	5	HR	18							
	20-40	scl	10YR44 54						0	0	HR	15	MDCSAB	FR	M				Mixed S and C
	40-67	scl	75YR56 00				10YR43 53		0	0	HR	7	MDCSAB	FR	M				
	67-120	scl	75YR56 00						0	0	HR	15	MDCSAB	FR	M				
4	0-25	mzcl	10YR42 00						22	5	HR	33							Imp, flints
4P	0-28	mzcl	10YR42 00						12	4	HR	17					Y		+5% chalk
	28-36	mzcl	10YR53 00						0	0	CH	60		M			Y		Chalky +8%hr
	36-85	ch	10YR81 00						0	0	HR	8		P			Y		Imp, chalk
7	0-25	fszl	10YR42 43						12	3	HR	19							Imp, flints
8	0-30	fszl	10YR42 43						8	3	HR	15							Imp, flints
9	0-25	fszl	10YR42 43						8	3	HR	15							Imp, flints
12	0-25	mszl	10YR42 53	10YR46 56	F				11	4	HR	15							Imp, flints
13	0-27	zl	10YR42 00						12	3	HR	18							Imp, flints
14	0-20	mzcl	10YR42 00						12	4	HR	15							
	20-25	mzcl	10YR43 00						0	0	HR	15		M					Imp, flints
15	0-25	mzcl	10YR42 00						12	4	HR	18					Y		
	25-55	hzcl	10YR43 00						0	0	HR	5		M			Y		+10% flints
	55-70	hzcl	10YR54 00						0	0	CH	50		M			Y		Chalky +6%hr
	70-80	hzcl	10YR53 00						0	0	CH	60		M			Y		Chalky +3%hr
	80-90	ch	10YR81 00						0	0	HR	3		P					Imp, chalk

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
16	0-30	mcl	10YR42 00						6	3	HR	15							
	30-65	c	10YR54 58	75YR46	C		00MN00 00	Y	0	0	HR	5		M					Heavy, Imp
17	0-30	mszl	10YR42 00						13	4	HR	17							Imp, flints
18	0-25	fszl	10YR42 00						14	8	HR	20							Imp, flints
19	0-30	mzcl	10YR42 43						2	0	HR	5							
	30-45	mzcl	10YR43 53						0	0	HR	5		M					
	45-65	hzcl	10YR54 58				00MN00 00		0	0	HR	4		M					
	65-85	c	10YR54 58				00MN00 00		0	0	HR	3		M					Imp, flints
20	0-20	mcl	10YR42 00						6	3	HR	12							
	20-40	hcl	10YR43 00						0	0	HR	7		M					
	40-85	c	10YR54 58				00MN00 00		0	0	HR	10		M					
	85-95	scl	10YR56 00						0	0	HR	5		M					
	95-120	ms	10YR68 00						0	0	HR	3		M					
21	0-20	mzcl	10YR42 00						11	4	HR	15							
	20-35	c	10YR43 00	75YR46 00	F				0	0	HR	3		M					
	35-48	hzcl	10YR56 00						0	0	CH	60		M			Y		Chalky
	48-80	ch	10YR81 00						0	0	HR	4		P			Y		Imp, chalk
22	0-30	mzcl	10YR42 00						12	4	HR	16					Y		+5% chalk
	30-38	mzcl	10YR53 00						0	0	CH	60		M			Y		+5%hr, chalky
	38-85	ch	10YR81 00						0	0	HR	4		P			Y		Imp, chalk
23	0-30	mcl	10YR42 00						6	2	HR	12							
	30-62	hcl	10YR54 58				00MN00 00		0	0	HR	8		M					
	62-67	c	10YR54 58				00MN00 00		0	0	HR	10		M					Imp, flints
24	0-25	mzcl	10YR42 00						0	0	HR	5							
	25-40	mzcl	10YR53 54						0	0	HR	5		M					
	40-65	hcl	10YR54 00						0	0	HR	6		M					Imp, flints
25	0-30	mzcl	10YR42 00	10YR56 00	F				0	0	HR	8							
	30-60	c	10YR54 46				00MN00 00		0	0	HR	10		M					Imp, flints
26	0-20	mzcl	10YR42 00						5	3	HR	10							
	20-40	hcl	10YR46 56						0	0	HR	6		M					
	40-60	c	75YR54 58				00MN00 00		0	0	HR	5		M					Imp, flints
27	0-25	mcl	10YR42 00						6	2	HR	10							
	25-35	hcl	10YR54 00						0	0	HR	6		M					
	35-60	c	10YR54 58	75YR58 00	F		00MN00 00		0	0	HR	8		M					Imp, flints
28	0-30	mzcl	10YR42 00						6	2	HR	8							+3% chalk
	30-50	hzcl	10YR54 00						0	0	CH	50		M			Y		+4%hr, Imp50

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
29	0-28	mzcl	10YR42 00						12	5	HR	17						Y	+5% chalk
	28-40	hzcl	10YR53 54						0	0	CH	10		M				Y	+2% flints
	40-50	ch	10YR81 00						0	0	HR	5		M				Y	
	50-90	ch	10YR81 00						0	0	HR	5		P				Y	Imp, chalk
30	0-30	fszl	10YR42 00						0	0	HR	5							
	30-50	mzcl	10YR53 54						0	0	HR	5		M					Imp, flints
31	0-25	mzcl	10YR42 00	10YR56 00	F				12	4	HR	16							
	25-45	c	10YR53 00				00MN00	00	0	0	HR	10		M				Y	Imp, flints
32	0-30	mzcl	10YR42 00						7	2	HR	11							
	30-45	hcl	10YR44 56				00MN00	00	0	0	HR	5		M					
	45-75	c	10YR54 58				00MN00	00	0	0	HR	5		M					Imp, flints
33	0-25	mzcl	10YR42 00						25	6	HR	33							Topsoil stone