A1

Newbury District Local Plan
Site 018: Compton
Agricultural Land Classification
ALC Map and Report
November 1993

NEWBURY DISTRICT LOCAL PLAN
SITE 018: COMPTON
AGRICULTURAL LAND CLASSIFICATION, REPORT

1. Summary

1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on a number of sites in Berkshire. The work forms part of MAFF's statutory input to the preparation of the Newbury District Local Plan.

1.2 Approximately 4 hectares of land relating to site 018 north of Mayfield Farm, Compton was surveyed in October 1993. The survey was undertaken at a detailed level of approximately 2 borings per hectare. A total of 3 soil auger borings and 1 soil inspection pit were assessed in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land. These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long term limitations on its use for agriculture.

1.3 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS.

1.4 At the time of the survey the land use on the site was cereals with the remainder being non-agricultural land and farm buildings.

1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:5,000. It is accurate at this scale, but any enlargement would be misleading. This map superseded any previous survey information for this site.

Table 1: Distribution of Grades and Subgrades

Grade	Area/ha	% of site
3b	2.7	51.9
Non-agricultural land	1.6	30.8
Agricultural buildings	0.9	17.3
Total	5.2 ha	100%

1.6 Appendix 1 gives a general description of the grades and 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 on the site has been classified as Subgrade 3b with topsoil stoniness as the key limitation. This area of moderate quality land contains moderately stony topsoils overlying clay loam subsoils which are slightly stony throughout.

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 the 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 5 km 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.

2.4 No local climatic factors such as exposure or frost risk affect the site.

Table 2: Climatic Interpolations

Grid Reference:	SU513799
Altitude (m):	105
Accumulated Temperature (days):	1405
Average Annual Rainfall (mm):	669
Field Capacity (days):	142
Moisture Deficit, Wheat (mm):	107
Moisture Deficit, Potatoes (mm):	98
Overall Climatic Grade:	1

3. Relief

3.1 The site lies between 103 to 110 m AOD with land being very gently sloping to level. Nowhere on the site does relief affect agricultural land quality.

4. Geology and Soil

4.1 The relevant geological sheet (Geological Survey of Great Britain (England and Wales) Sheet 267), for the site shows the drift geology to be River and Valley Gravel.

4.2 The published soils information from the Soils of South East England (Soil Survey, 1:250,000, 1983) indicate the soils to fall into the Coombe 1 series. These are described as "well drained calcareous fine silty soils, deep in valley bottoms, shallow to chalk on valley sides in places. Slight risk of water erosion."

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 is shown on the attached sample point map.

5.3 **Subgrade 3b**

The whole of the agricultural area of the site has been classified as Subgrade 3b, moderate quality agricultural land. Soil profiles typically comprise topsoils of medium silty clay loam texture to 28 cm depth containing 20% total flints, 16% of which are greater than 2 cm diameter, over upper subsoils of permeable unmottled heavy clay loam containing approximately 10% total flints to 80 cm depth. Lower subsoils consist of permeable unmottled medium silty clay loams containing approximately 2-3% total flints to a depth of 120 cm. Very few roots are found below the upper subsoil. Profiles are typically well drained and are placed in Wetness Class I. Topsoil stoniness is the key factor limiting the agricultural land to Subgrade 3b.

5.4 **Non-agricultural**

Non-agricultural land consists of a strip of woodland to the west of the site and an area of scrub and recently planted trees located to the north of the farm buildings.

5.5 **Agricultural Buildings**

Agricultural Buildings cover the remainder of the site, situated to the south.

ADAS Reference: 0202/223/93
MAFF Reference: EL02/287

Resource Planning Team
Guildford Statutory Group
ADAS Reading

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB-GRADES

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 on the 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.

Grade 3 : Good To Moderate Quality Agricultural Land

Land with moderate limitations which affect the choice of crops, 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.

Sub-grade 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.

Sub-grade 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 (eg. 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 very 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 : 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/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland.

Agricultural Buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg. 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, eg. 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

References

* 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.

* British Geological Survey (1947), Sheet No. 267, Hungerford, 1:63360.

* Soil Survey of England and Wales (1982), Sheet No. 6, Soils of South East England, 1:250,000, and accompanying legend.

APPENDIX III

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 90 days, but not wet within 40cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 180 days, but only wet within 40cm depth for 31-90 days in most years.

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer within 80cm depth, it is wet within 40cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40cm depth for more than 335 days in most years.

(The number of days is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.)

APPENDIX IV

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents :

SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

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

Boring Header Information

1. **GRID REF** : national 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 **HRT** : Horticultural Crops **PGR** : Permanent Pasture **LEY** : Ley Grass **RGR** : Rough Grazing
SCR : Scrub **CFW** : Coniferous Woodland **DCW** : Deciduous Woodland **HTH** : Heathland **BOG** : Bog or Marsh
FLW : Fallow **PLO** : Ploughed **SAS** : Set aside **OTH** : Other

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

4. **GLEY/SPL** : Depth in cm to gleying or slowly permeable layers.

5. **AP (WHEAT/POTS)** : Crop-adjusted available water capacity.

6. **MB (WHEAT/POTS)** : Moisture Balance.

7. **DRT** : Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, an entry of 'Y' will be entered in the relevant column.

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

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

OC : Overall Climate **AE** : Aspect **EX** : Exposure **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** : Soil Erosion Risk **WD** : Combined Soil Wetness/Droughtiness **ST** : Topsoil Stoniness

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
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 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

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

6. **STONE LITH** : One of the following is used.

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

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

7. **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

8. **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

9. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness.

G : good **M** : moderate **P** : poor

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

11. **IMP** : If the profile is impenetrable a 'Y' will appear in this column at the appropiate horizon.

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

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

14. 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 : NEWBURY DLP.COMPTON Pit Number : 1P

Grid Reference: SU51387994
Average Annual Rainfall : 669 mm
Accumulated Temperature : 1405 degree days
Field Capacity Level : 142 days
Land Use : Cereals
Slope and Aspect : 01 degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 28	MZCL	10YR33 00	16	20		MDCSAB
28- 80	HZCL	10YR44 00	0	10		MDCSAB
80-120	MZCL	10YR46 00	0	3		WDCSAB

Wetness Grade : 1
Wetness Class : I
Gleying :000 cm
SPL : No SPL

Drought Grade : 2
APW : 143mm MBW : 36 mm
APP : 108mm MBP : 10 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Topsoil Stoniness

MPLE 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	SU51308000	PLO	01	000		1	1	079	-28	083	-15	3B				DR	3B	HR-40
1A	SU51357996	PLO	01	000		1	1	075	-32	077	-21	3B				DR	3B	HR-35
1P	SU51387994	CER	01	000		1	1	143	36	108	10	2				ST	3B	TS-STNS
3	SU51407990	PLO	01	000		1	1	108	1	111	13	3A				DR	3A	HR-70

COMPLETE LIST OF PROFILES 05/11/93 NEWBURY DLP.COMPTON

				----MOTTLES-----			PED		----STONES----				STRUCT/	SUBS			
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
1	0-20	mzcl	10YR34 00						0	0	HR	10						
	20-40	mzcl	10YR44 00						0	0	HR	10				M		
	40-60	mzcl	10YR44 00						0	0	HR	50				M		
1A	0-20	mzcl	10YR34 00						0	0	HR	10						
	20-35	mzcl	10YR44 00						0	0	HR	5				M		
	35-55	mzcl	10YR44 00						0	0	HR	50				M		
1P	0-28	mzcl	10YR33 00						15	5	HR	20	MDCSAB	FM				
	28-80	hzcl	10YR44 00						0	0	HR	10	MDCSAB	FR	M			
	80-120	mzcl	10YR46 00						0	0	HR	3	WDCSAB	FM	M			
3	0-30	mzcl	10YR33 00						0	0	HR	15						
	30-70	hzcl	10YR46 00						0	0	HR	10				M		
	70-90	hzcl	10YR46 00						0	0	HR	50				M		