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EAST PARK FARM, CHARVIL, BERKSHIRE
AGRICULTURAL LAND CLASSIFICATION
REPORT OF SURVEY

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1. Introduction

In November 1992 a detailed Agricultural Land Classification (ALC) was carried out on 71 hectares of land on the southern edge of Charvil in Berkshire. ADAS was commissioned by MAFF to determine the land quality affected by the application for planning permission for residential development on the agricultural land adjacent to Charvil and the creation of an adjoining country park. Much of the application area had been previously worked for minerals and had been restored to a water use; the current application therefore affects only 30 hectares of agricultural land and the ALC fieldwork concentrated on this area.

The work was conducted by members of the Resource Planning Team within the Guildford Statutory Group. The site had been previously surveyed in 1984 using MAFF's Original ALC guidelines. These guidelines have been subsequently revised and the field survey took the form of checking the original soils data and describing the soil characteristics in more detail via soil pits. The current guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long term limitations on its agricultural use.

The distribution of the grades and subgrades is shown on the attached ALC map and the area of each grade is given in the table below. The map has been drawn at a scale of 1:10,000; the information is accurate at this level but any enlargement would be misleading.

The majority of the agricultural land has been placed in Grade 2 with soil droughtiness as the main physical limitation. The areas of Subgrade 3B pinpoint lower quality where soil wetness, surface waterlogging and poor outfalls combine to produce a severe wetness limitation.

Table 1 : Distribution of Grades and Sub-grades

Grade	Area (ha)	% of Agricultural Area
2	16.5	55.0
3B	13.5	45.0
Non Agric	2.1	100% (30.0 ha)
Urban	2.2	
Open Water	36.8	
	71.1 ha	

2. Climate

The climatic criteria are considered first when classifying land. Climate can be over-riding in the sense that a severe limitation would restrict land to low grades irrespective of favourable soil or site conditions.

The main parameters used in the assessment of the 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.

A detailed assessment of the prevailing climate has been made by interpolation from a 5 km gridpoint dataset. Details are presented in the table below and show that there is no overall climatic limitation affecting the site. In addition, no local climatic factor is significant. The site is climatically Grade 1.

Table 2 : Climatic Interpolations

Grid Reference	SU 778755
Altitude (m)	36
Accumulated Temperature (° days)	1480
Average Annual Rainfall (mm)	672
Field Capacity (days)	141
Moisture Deficit, Wheat (mm)	116
Moisture Deficit, Potatoes (mm)	110

3. Agricultural Land Classification

3.1 Grade 2

Two soil pits have been placed in this map unit to confirm the classification. Both show that droughtiness is the most limiting factor. The two pits show the range of profiles that exist in this map unit; topsoil textures are typically Medium Sandy Loams overlying upper subsoils of similar textures with Clay lower subsoils or with upper and lower subsoils of Sandy Clay Loam textures. The soils show no evidence of wetness throughout the profile and are therefore placed in Wetness Class I (ie. the soil profile is not wet within 70 cm depth for more than 30 days in most years). Given the moisture deficits which prevail in this area, the slightly sandy profiles and the occurrence of slightly stony lower subsoils restrict the amount of water available in the profile for extraction by roots. Consequently, this slightly restricts the range of crops that may be grown on such land. Typically, the subsoil structures are moderately developed coarse subangular blocky.

3.2 Subgrade 3B

The northern map unit of this grade relates to heavy soils developed over alluvial deposits adjacent to a meandering stream flood plain. Soil wetness is the most limiting factor with the soils being placed in Wetness Class IV (ie. the soil profiles are 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) as a result of clear evidence of shallow

gleying and shallow Clay slowly permeable layers. Part of this map unit also experiences a significant microrelief limitation and, at the time of survey, many of the hollows were waterlogged due to a combination of surface ponding and some localised flooding.

The southern map unit of this grade identifies the area of poor quality land adjacent to the flooded gravel pit. These heavy profiles also suffer from a significant wetness limitation; the soils are probably not drainable due to the creation of the gravel pit with a high water level and the latter also causes localised raised ground water levels which further increase seasonal waterlogging of soils. This land falls into Wetness Class III at least (ie. it is probably wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31 and 90 days in most years). There is also some surface irregularity causing a microrelief limitation and part of the land which rises up to the road experiences a 3B limitation on gradient alone.

3.3 The buildings and the Lodge associated with East Park Farm have been removed but some foundations and associated disturbance remain. These areas have been classified as non-agricultural.

SOIL PIT DESCRIPTION

Site Name : E PARK FM CHARVIL BERKS Pit Number : 1P

Grid Reference: SU77887540 Average Annual Rainfall : 672 mm
Accumulated Temperature : 1480 degree days
Field Capacity Level : 141 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 24	MSL	10YR42 00	0	2		
24- 58	MSL	75YR43 00	0	2		WDCSAB
58- 70	MSL	10YR43 44	0	1		MDCSAB
70-110	C	75YR54 00	0	1		MDCSAB
110-120	C	75YR54 00	0	5		

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

Drought Grade : 2 APW : 146mm MBW : 30 mm
APP : 115mm MBP : 5 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : E PARK FM CHARVIL BERKS Pit Number : 2P

Grid Reference: SU77807560 Average Annual Rainfall : 672 mm
Accumulated Temperature : 1480 degree days
Field Capacity Level : 141 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 26	MSL	10YR33 00	0	2		
26- 48	SCL	10YR43 00	0	1		MCSAB
48- 60	SCL	10YR56 00	0	1		MCSAB
60-105	SCL	10YR56 66	0	2		MCSAB
105-120	SCL	10YR56 00	0	20		

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

Drought Grade : 2 APW : 145mm MBW : 29 mm
APP : 109mm MBP : -1 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

(i) TEXTURE:-

Soil texture classes are denoted by the following abbreviations (all Upper case*):

S	Sand
LS	Loamy Sand
SL	Sandy Loam
SZL	Sand Silt Loam
ZL	Silt Loam
MZCL	Medium Silty Clay Loam
MCL	Medium Clay Loam
SCL	Sandy Clay Loam
HZCL	Heavy Silty Clay Loam
HCL	Heavy Clay Loam
SC	Sandy Clay
ZC	Silty Clay
C	Clay

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

F	fine (more than $\frac{2}{3}$ of sand less than 0.2 mm)
C	coarse (more than $\frac{1}{3}$ of sand greater than 0.6 mm)
M	medium (less than $\frac{2}{3}$ fine sand and less than $\frac{1}{3}$ coarse sand)

The sub-divisions of clay loam and silty clay loam classes according to clay content are indicated as follows:-

M	medium (less than 27% clay):
H	heavy (27-35% clay)

Other possible texture classes include:

P	Peat
SP	Sandy Peat
LP	Loamy Peat
PL	Peaty Loam
PS	Peaty Sand
MZ	Marine Light Silts

* There are two exceptions to the Upper Case rule:-

- The prefix "**Calc**" is used to identify naturally calcareous soils containing more than 1% Calcium Carbonate
- For organic mineral soils, the texture of the mineral fraction is prefixed by "**Org**".

(ii) STRUCTURE:-

Nature and size of structural units are denoted by the following abbreviations:

SAB	Subangular Blocky
AB	Angular Blocky
P	Prismatic

(single grain, granular and platy are not abbreviated)

F	Fine
M	Medium
C	Coarse
VC	Very Coarse

eg Weak **MSAB** = Weakly developed medium subangular blocky

(iii) OTHER

f	few	=	less than 2% of the matrix or surface described
c	commom	=	2-20% of the matrix or surface described
m	many	=	20-40% of the matrix or surface described
vm	very many	=	+40% of the matrix or surface described
f	faint	=	indistinct mottles, evident only on close examination
d	disinct	=	although not striking, the mottles are readily seen
p	prominent	=	the mottles are conspicuous, and the mottling is one of the outstanding features of the horizon
gm	grey mottling		
om	ochreous mottling		

eg **cdom** = common distinct ochreous mottles

rrc =	rusty root channels
ppf =	pale ped faces
mn =	manganese
st =	stones 6 cm
sst =	stones 2-6 cm
vsst=	stones 2 cm
WC =	Wetness Class (use Roman numerals, eg WC IV)
SPL =	Slowly Permeable Layer
WT =	Water Table
I =	Impenetrable if used in Depth Column
IMP =	Impenetrable if used in soil profile notes

(IMP 2 x 40 cm = 2 additional borings, both impenetrable at 40 cm)

ASP = Auger Sample Point

APPENDIX 1
DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. In practice, the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

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 and horticultural crops can usually be grown but on some land in 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. Where 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 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.

Descriptions of other land categories used on ALC maps

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/airfields. 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 (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 land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.