MINERALS APPLICATION
ASHLEY MANOR FARM, NEW MILTON, HAMPSHIRE

STATEMENT OF SITE PHYSICAL CHARACTERISTICS
REPORT OF SURVEY

Resource Planning Team
Guildford Statutory Group
ADAS

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1. Introduction

In October 1992, ADAS was commissioned by MAFF to determine the land quality affected by the application for the extraction of sand and gravel on land adjacent to Ashley Manor Farm near New Milton in Hampshire. An Agricultural Land Classification (ALC) survey was carried out over the 80 hectare site. The whole of the application area has been classified as high quality agricultural land and a statement of the physical characteristics of the site has been drawn up to support to restoration of the land.

2. Agricultural Land Classification

2.1 The ALC survey was carried out by members of the Resource Planning Team within the Guildford Statutory Group using 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.

A total of 6 soil pits were described across the site together with supporting auger boring descriptions in order to characterise the types of soil that occur on the site and to pinpoint the most limiting factors affecting land quality. The majority of the survey area has been classified as Grade 2 with soil droughtiness as the main limitation, with an area of Subgrade 3A land in the north of the survey area where droughtiness is more significant. All of the site is therefore placed in the category of best and most versatile land.

Table 1 : Distribution of ALC Grades

Grade	Area (ha)	% of Agricultural Area
2	67.3	84.4
3A	12.4	15.6
Non Agric	0.7	100% (79.7 ha)
	80.4 ha	

2.2 Topography and geology very little across the site. The whole of the area is underlain by pleistocene and recent Plateau Gravel deposits. There is a slight north-east to south-west gradient across the site with the highest land forming a minor ridge in the north which runs parallel to the A337 at Ashley Manor.

2.3 Climate : The climatic criteria are considered first when grading land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable soil or site conditions.

The main parameters used in the assessment of a 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.

Detailed assessments of the prevailing climate were made for 2 representative locations on the site by interpolation from a 5 km gridpoint dataset. Details of the interpolations are given in the table below. These show that there is no overall climatic limitation affecting the site. The area is moderately droughty but it is climatically Grade 1.

Table 2 : Climatic Interpolations

Grid Reference :	SZ 254 9345	SZ 248 942
Altitude (m) :	30	35
Average Annual Rainfall (mm) :	810	818
Accumulated Temperature (°days) :	1534	1528
Field Capacity (days) :	169	171
Moisture Deficit, Wheat (mm) :	110	109
Moisture Deficit, Potatoes (mm) :	106	103

2.4 Grade 2 : Pit numbers 1, 2, 3, 5 and 6 (details of which are attached) show the range of soils that exist within this grade. All the soils have droughtiness as the main limitation related to the presence of stony subsoil horizons with up to 25% hard stone at depth. Roots are able to extend to depth to extract water from lower subsoil textures which may vary from Coarse Sandy Loam to Clay. All the soils fall into Wetness Class I (ie. the soil profile is wet within 70 cm for less than 30 days in most years) as there

is no evidence of gleying or slowly permeable layers in any of the profiles.

2.5 Subgrade 3A : The soils in the top of the slight ridge have been downgraded due to a more significant droughtiness limitation than elsewhere on the site. Pit 4 is typical of these soils which exhibit stone contents of approximately 35% in the lower subsoil. Stone contents may actually increase below approximately 80 cm depth as at this point the soil profile was impenetrable to both spade and auger. The subsoil characteristics are therefore unassessed below this depth. These soils are also placed in Wetness Class I.

2.6 Part of the site is crosssed by an old lane and this has been classified as Non-agricultural.

3. Soil Resources

3.1 Topsoil : 'Topsoil' is described as the darker more organic-rich surface horizons. Colour, texture and depth varied little across the site and only one topsoil mapping unit has been recognised. This is typically a dark grey (10YR42) Medium Clay Loam to approximately 25 cm depth. This results in a Total topsoil resource of 199,250 m^3.

Subsoil : 'Subsoil' is described as the non-organic-rich lower horizons of soil. Three different subsoil types have been recognised across the site each with an upper and lower subsoil division. The attached subsoil resource map indicates the location and extent of each type. Type A is found on the Grade 2 land with an upper subsoil mix of Sandy Clay Loam and Heavy Clay Loam with approximately 20% hard stone extending to 90 cm. Beneath, there is a lower subsoil resource of Coarse Sandy Loam textures, again with approximately 20% stone, extending to 120 cm.

Type B comprises the rest of the Grade 2 soils with Heavy Clay Loam textures to approximately 60 cm depth with only a very slight stone content (2%). This upper subsoil is underlain by Clay textures with stone contents of approximately 20%. Due to the high stone contents

in these subsoils and the very dry and compact nature of the Clay these soils could not be examined below approximately 85 cm depth and the subsoil resource has only been assessed to this depth although it may extend beyond.

Type C relates to the Subgrade 3A soils with Heavy Clay Loam upper subsoil textures which extend to approximately 45 cm depth with only a slight stone percentage (4%). The Heavy Clay Loam textures extend to at least 80 cm depth but are stony in the lower subsoil (85%). Again, given the stony nature of these subsoils the subsoil resource has only been assessed to 80 cm and may extend beyond.

Details of the areas and volumes of each subsoil map unit are contained on the attached subsoil resource map.

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 include 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 an 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.

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.

SOIL PIT DESCRIPTION

Site Name : ASHLEY MANOR FM HANTS Pit Number : 1P

Grid Reference: SZ260 941
Average Annual Rainfall : 818 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 171 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 25	MCL	10YR42 00	0	3		WDCSAB
25- 45	HCL	10YR44 00	0	4		MDCSAB
45- 60	SCL	75YR46 00	0	20		
60- 90	SCL	75YR46 44	0	25		
90-120	CSL	75YR56 00	0	23		

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

Drought Grade : 2
APW : 137mm MBW : 27 mm
APP : 104mm MBP : -2 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : ASHLEY MANOR FM HANTS Pit Number : 2P

Grid Reference: SZ258 937
Average Annual Rainfall : 818 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 171 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 25	HCL	10YR32 00	0	3		WCSAB
25- 55	HCL	75YR44 00	0	22		
55- 90	SCL	10YR54 00	0	22		
90-120	MSL	75YR56 00	0	18		

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

Drought Grade : 2
APW : 134mm MBW : 24 mm
APP : 100mm MBP : -6 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

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SOIL PIT DESCRIPTION

Site Name : ASHLEY MANOR FM HANTS Pit Number : 3P

Grid Reference: SZ254 936 Average Annual Rainfall : 818 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 171 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 30	MCL	10YR43 00	0	1		MVCSAB
30- 60	HCL	75YR46 00	0	2		MDCSAB
60- 85	C	75YR46 00	0	2		

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

Drought Grade : APW : 000mm MBW : 0 mm
APP : 000mm MBP : 0 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : ASHLEY MANOR FM HANTS Pit Number : 4P

Grid Reference: SZ256 944 Average Annual Rainfall : 818 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 171 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 25	MCL	10YR42 00	0	3		WCSAB
25- 45	HCL	10YR44 00	0	4		MCSAB
45- 80	HCL	75YR44 00	0	35		

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

Drought Grade : 3A APW : 100mm MBW : -10 mm
APP : 101mm MBP : -5 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

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SOIL PIT DESCRIPTION

Site Name : ASHLEY MANOR FM HANTS Pit Number : 5P

Grid Reference: SZ261 945
Average Annual Rainfall : 818 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 171 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 26	MCL	10YR42 00	0	3		WDCSAB
26- 46	HCL	75YR43 00	0	2		MDCSAB
46- 75	HCL	75YR46 00	0	2		MDCSAB
75- 88	SCL	10YR56 00	0	16		

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

Drought Grade : 2
APW : 119mm MBW : 9 mm
APP : 115mm MBP : 9 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : ASHLEY MANOR FM HANTS Pit Number : 6P

Grid Reference: SZ250 941
Average Annual Rainfall : 818 mm
Accumulated Temperature : 1528 degree days
Field Capacity Level : 171 days
Land Use : Bare Soil
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 30	MCL	10YR43 00	0	1		WDCSAB
30- 60	HCL	10YR44 00	0	2		MDCSAB
60- 75	C	10YR56 00	0	20		

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

Drought Grade : 3A
APW : 104mm MBW : -6 mm
APP : 114mm MBP : 8 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

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