~~SFC 63590~~

SFC 6395

53/94

ALLER BARTON FARM, CULLOMPTON.

AGRICULTURAL LAND CLASSIFICATION

Report of Verification Survey

A verification survey was carried out on 18 May 1994. A detailed ALC survey had been carried out by M J Reeve of Land Research Associates (Derby). The original survey was carried out using auger and pits, although the location of the pits is unknown. The record of sampling points provides a reasonable amount of information.

The main limitation identified in the original survey was wetness, caused by slowly permeable layers in the subsoil at varying depths across the site. Topsoil stone contents and steeper slopes are also limitations at parts of the site.

The verification survey took the form of inspecting the site, digging two profile pits and 6 auger borings. The original boring data showed the soils to be variable and this was borne out by the verification survey. The borings were located to pick out the different soils mapped. Generally the gradings matched, but differences were probably due to the variability of the soils. The soil pits locations were chosen to be representative of the soil units in which they were dug and they confirmed the gradings (based on wetness) that had been assigned to that unit.

Whilst a new survey may produce a slightly different map, based on soils sampled at different locations the basic ALC map of the site is expected to be similar. It was felt that a new detailed survey would not be necessary and that the grading as presented by M Reeve should stand.

The soil resources are slightly more difficult based on evidence from the pits, versus the profile information from the original survey. A pit was dug in soil Unit A which tied in with the description for that unit. A pit was dug in Unit C. This is meant to have a stony subsoil, but was found to be no more stony than the pit in Unit A. The original boring data does suggest that Unit C is more stony. A boring was carried out at both the pit locations and these were impenetrable. If the soil resource map was being drawn on the basis of the evidence from the two pits and the original boring data then Units A and C may well have been combined. Without knowing whether M Reeve dug a pit in Unit C on which to base his Unit it may be simpler to leave Units A and C separate, based on the fact that the topsoils according to the borings are stonier. The pit does suggest that the subsoils are similar to Unit A.

ALLER BARTON FARM, CULLOMPTON

STATEMENT OF SITE PHYSICAL CHARACTERISTICS

1. TOPSOIL

Topsoil is defined as the organic rich surface horizon. A broad distinction can be made between the medium and heavy textures and the stonier topsoils. These three types of topsoil which exist at the site should be handled separately as they are significantly different in terms of workability. Over the whole site the topsoil is typically 25cm deep.

A total topsoil resource of 48000m^3 is available, distributed as shown in Table 1.

Table 1 Topsoil resources

Unit	Area (ha)	Depth (cm)	Stones %	Soil	Volume (m^3)
A	10.2	0-25	5	MCL/FSL	25500
B	3.8	0-25	<1	HCL	9500
C	5.2	0-25	10-20	MCL/FSL	13000
Total	19.2				48000

2. SUBSOIL

Subsoil is defined as the less organic rich lower horizons.

Two types of subsoil are found at the site. In Units A and C the upper subsoil is stony (about 20% hard stones) heavy clay loam although sometimes heavier or lighter. These soils are moderately well developed and have coarse subangular blocky structures. They have good porosity and common rooting. This subsoil extends to an average depth of 55cm.

The second type of subsoil is found as a lower subsoil in Units A and C and as the single subsoil in Unit B. This reddish clay is slightly stony and is weakly developed. The coarse subangular structure has low porosity with few roots. This subsoil extends to depth.

A total subsoil resource of 182400m^3 is available, distributed as shown in Table 2.

Table 2 Subsoil Resources

Unit	Area (ha)	Depth (cm)	Stones %	Soil	Volume (m^3)
A	10.2	25-55	20	HCL	30600
A	10.2	55-120	2	C	66300
B	3.8	25-120	2	C	36100
C	5.2	25-55	20	HCL	15600
C	5.2	55-120	2	C	33800
Total	19.2				182400

The above assessment applies to the agricultural land at the site. The areas of woodland amount to eleven hectares and this land will have significant soil resources beneath it.

SOIL RESOURCES: Soil Units

TEXTURE	DEPTH (cm)	STONES	AREA (ha)	VOLUME (m^3)
Unit A				
MCL/ FSL	0-25	5%HR	10.2	25500
HCL	25-55	20%HR	10.2	30600
C	55-120	2%HR	10.2	66300
Unit B				
HCL	0-25	<1%HR	3.8	9500
C	25-120	2%HR	3.8	36100
Unit C				
MCL/ FSL	0-25	10-20%HR	5.2	13000
HCL	25-55	20%HR	5.2	15600
C	55-120	2%HR	5.2	33800
TOTAL			**19.2**	**182400**

Abbreviations

MCL Medium clay loam
HCL Heavy clay loam
C Clay
SL Sandy loam
HR Hard rock

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Aller Barton Farm	Pit 1	1°	PGR	Av Rainfall: 927 mm ATO: 1517 day °C	Lower Lias
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 189 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
53/94	18/5/94	ST 044 062	GMS		

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	28	MCL	7.5YR42	5% >2cm sieved	None	None	MCSAB	Friable	-	Good	MVF		Clear/ smooth
2	39-43	HCL	7.5YR54	10% >2cm 13% >2mm sieved/ displ	FFFO	Few	MCSAB	Friable	Moderate	Good	CVF		Clear/wavy
3	70	C	5YR46	10% >2cm	CDFO	Common	WCSAB	Friable	Moderate	Low	FVF		Clear/wavy
4	100+	C	2.5YR46	2% Visual	CDFO	Few	WCSAB	Friable	Moderate	Low	FVF		

Profile Gleyed From: 40+ cm

Depth to Slowly Permeable Horizon: 40+ cm

Wetness Class: III

Wetness Grade: 3a

Available Water Wheat: 127 mm

Potatoes: 101 mm

Moisture Deficit Wheat: 98 mm

Potatoes: 89 mm

Moisture Balance Wheat: 29 mm

Potatoes: 12 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3a

Main Limiting Factor(s): Wetness

Remarks:

NL336h

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Aller Barton	Pit 2	0°	PGR	Av Rainfall: 934 mm ATO: 1517 day °C	Valley Gravels
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 189 Climatic Grade: 1 Exposure Grade: 1	SOIL SAMPLE REFERENCES
53/94	18/5/94	ST 047 062	GMS		

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	25	FSL	7.5YR42	5% HR >2cm sieved	None	None	WCSAB	Friable		Good	MVF		Clear/ smooth
2	40	FSC	7.5YR53	10% HR >2cm sieved 10% HR <2cm visual	CDFO	Few	MM+CSAB	Friable	MOD	Good	CVF		Clear/ smooth
3	65	C	10YR63	2% Visual	MDMO	None	WCSAB	Firm	Poor	Low	FVF		Clear/ smooth
4	100+	C	5YR46	2% Visual	MFMO	None	WCSAB	Firm	Poor	Low	FVF		

Profile Gleyed From: 25 cm

Depth to Slowly Permeable Horizon: 40 cm

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 126 mm

Potatoes: 103 mm

Moisture Deficit Wheat: 98 mm

Potatoes: 89 mm

Moisture Balance Wheat: 28 mm

Potatoes: 14 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks:

NL336h