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CHERWELL DISTRICT LOCAL PLAN REVIEW
Land East of Skimmingdish Lane Bicester
Oxfordshire

Agricultural Land Classification
ALC Map and Report

November 1998

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

CHERWELL DISTRICT LOCAL PLAN REVIEW
LAND EAST OF SKIMMINGDISH LANE BICESTER OXFORDSHIRE

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 20 hectares of land east of Skimmingdish Lane north east of Bicester Oxfordshire The survey was carried out during November 1998

2 The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)[1] on behalf of the Ministry of Agriculture Fisheries and Food (MAFF) The survey was carried out in connection with MAFF s statutory input to the Cherwell District Local Plan Review This survey supersedes any previous ALC information for this land

3 The work was conducted by members of the Resource Planning Team in the Eastern Region of 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 all the agricultural land on the site was in oilseed rape The areas mapped as Other land include trackways woodland and two derelict former access runways of Bicester aerodrome

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

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3a	3 1	18 1	16 2
3b	14 0	81 9	72 9
Other land	2 1	N/A	10 9
Total surveyed area	17 1	100	89 1
Total site area	19 2		100

7 The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land In total 20 borings 3 soil pits and 3 sieve measurements were described

[1] FRCA is an executive agency of MAFF and the Welsh Office

8 The agricultural land on this site has been classified as Subgrade 3a (good quality) and Subgrade 3b (moderate quality) The principal limitations to land quality include soil wetness and soil droughtiness

9 Good quality land is located in two separate areas Soils are typically calcareous throughout and comprise fine loamy topsoils overlying lighter stony sandy subsoils with some clays at depth This combination of soil properties interacting with the local climate results in land which experiences a soil droughtiness limitation The effect of a soil droughtiness limitation may cause a reduction in crop yield and limit the flexibility of the land particularly in drier years In addition other land in this mapping unit comprises soils with moderately deep slowly permeable clayey subsoils This results in a combined soil wetness and droughtiness limitation

10 Moderate quality land is classified over most of the site and is of two contrasting types To the south the land suffers from a significant soil wetness limitation The soils are calcareous with fine loamy or fine silty topsoils passing to slowly permeable clays at shallow depth which impede the movement of water down the profile This limitation will affect the range and yield of crops that can be grown on this land as well as restricting the number of days when the land is in a suitable condition for cultivation trafficking by machinery or grazing by livestock Along the north western boundary the remainder of the soils rest over limestone and suffer from a significant soil droughtiness limitation The soils are calcareous and comprise slightly to moderately stony fine loamy or fine silty topsoils over similar textured but very stony subsoils These pass to solid limestone at shallow to moderate depth These soils hold only small reserves of available water which in the prevailing climate combine to cause a soil droughtiness limitation Crop growth and yield may be adversely affected especially in drier years

FACTORS INFLUENCING ALC GRADE

Climate

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

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

13 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

14 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

Table 2 Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SP 601 236	SP 603 241
Altitude	m AOD	70	72
Accumulated Temperature	day C (Jan June)	1423	1421
Average Annual Rainfall	mm	676	681
Field Capacity Days	days	145	146
Moisture Deficit Wheat	mm	104	104
Moisture Deficit Potatoes	mm	96	95
Overall climatic grade	N/A	Grade 1	Grade 1

15 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation Local climatic factors such as exposure and frost risk do not affect land quality at this location The site is climatically Grade 1 However climatic factors do interact with soil properties to influence soil wetness and soil droughtiness At this locality the climate is about average in regional terms

Site

16 The site is relatively flat lying at an altitude of approximately 70 m AOD It is not affected by any site restrictions such as gradient or microrelief However there is evidence of localised ponding along ditch margins to the south and seepage from a spring adjoining the airfield to the north which indicate significant drainage problems As such land with this wetness problem cannot be graded higher than Subgrade 3b

Geology and soils

17 The most detailed published geological information for the site (GS of Gt Britain 1863) maps the eastern half of the site as Oxford Clay and the western half as Cornbrash

18 The most detailed published soils information covering the area (SSEW 1983) maps most of it as soils of the Aberford association These soils are described as shallow locally brashy well drained calcareous fine loamy soils over limestone Some deeper calcareous soils in colluvium (SSEW 1983) To the south of the site soils of the Wickham 2 association are mapped These are described as slowly permeable seasonally waterlogged fine loamy over clayey fine silty over clayey and clayey soils Small areas of slowly permeable calcareous soils on steeper slopes (SSEW 1983) Soils consistent with these descriptions were observed across the site with soils of the Wickham 2 type more prevalent In addition fine loamy over stony medium sandy or similar over slowly permeable clay was observed on the better quality land

AGRICULTURAL LAND CLASSIFICATION

19 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 page 1

20 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

Subgrade 3a

21 Land of good quality is mapped over the central area of the site with a smaller tract located along the north eastern boundary It appears to be roughly coincident with the junction of the underlying Oxford Clay and Cornbrash lithologies

22 All of the land classified as Subgrade 3a is affected by a soil droughtiness limitation often in combination with a less severe wetness limitation Soils comprise calcareous medium clay loam topsoils which may contain up to 8% total hard limestone by volume (1–4% >2 cm in size) Topsoils overlie loamy medium sand or pass through a thin horizon of heavy clay loam to loamy medium sand (LMS) beneath Stone content in this coarser horizon is estimated to be 15% total hard limestone and proved to be impenetrable to the soil auger from 60 to 71 cm Pit 2 (see Appendix II) is typical of these soils and proved the existence of stony subsoils which were measured at 27% increasing to 42% total hard limestone with depth Due to the high stone content soil structure could not be determined Consequently a moderate assessment of structural conditions has been assumed At 85 cm the LMS passed to a slowly permeable clay which was also present at some of the auger borings in this unit from 68–100 cm This results in this pit and most of the auger borings being assigned to Wetness Class II Moisture balance calculations which assume rooting to 120 cm at this location take account of soil texture structure depth and stone content interact with the local climate to result in land with a slight to moderate soil droughtiness limitation The resulting drought stress may cause the level and consistency of yields to be depressed Subgrade 3a is therefore appropriate Within this mapping unit there is some better less droughty land which could not be distinguished separately

Subgrade 3b

23 Land of moderate quality has been mapped over most of the site It occurs in conjunction with two main soil types

24 Much of the land classified as Subgrade 3b suffers from a significant soil wetness limitation Soils comprise calcareous medium or heavy silty clay loam or medium clay loam topsoils Topsoil stone estimates were calculated to be in the region 2–5 % hard limestone by volume These overlie stoneless slowly permeable clay subsoils Pit 1 (see Appendix II) confirmed the existence of these poorly structured clay horizons These profiles all exhibited evidence of severely impeded drainage in the form of gleying within 40 cm The depth to these slowly permeable subsoils (between 24 and 33 cm) results in soils being assigned to Wetness Class IV This combination of poor drainage topsoil texture and the prevailing field capacity level (145 days) gives rise to a land classification of Subgrade 3b Excessive soil wetness adversely affects seed germination and survival partly by a reduction in soil temperature and partly because of anaerobism It also inhibits the development of a good root system all of which can affect the range of crops that can be grown and the level of yield Soil wetness also influences the sensitivity of the soil to structural damage and is therefore a major factor in determining the number of days when the soil is in a suitable condition for cultivation trafficking by machinery or grazing by livestock

25 The remainder of the Subgrade 3b land is affected by a significant soil droughtiness limitation and is located along the north western boundary Soils are calcareous throughout and typically comprise medium or heavy silty clay loam topsoils Topsoil stone measurements were estimated to be in the region 12–15% total hard limestone by volume (4–6% >2 cm in size) Additional sieve measurements (see S1–S3 Appendix II) confirmed the estimates From 29 to 33 cm soil profiles were impenetrable to the soil auger Pit 3 (see Appendix II) is typical of this subgrade and proved the existence of very stony subsoils From 28 to 35 cm the pit revealed a heavy clay loam with up to 55% hard brashy limestone by volume This passed to a medium silty clay loam from 35 to 55 cm with a similar stone content This gave way to a gritty sandy clay loam with up to 28% total hard limestone by volume it is believed that this layer is weathered limestone in which few roots were observed From 69 cm solid limestone was encountered and rooting into this was considered to be limited and the drought assessment stopped at this point The soils are typically well drained (WC I) but the stony subsoils restrict the amount of available water in the soil profile and the combination of these soil properties interacting with the local climate results in a significant soil droughtiness limitation This will affect the consistency and level of yields particularly in drier years

26 A significant soil wetness problem associated with ponding was seen in two areas at the time of survey Along the south eastern boundary waterlogged profiles caused surface water problems adjacent to a drainage ditch Surface water was also observed close to a spring along a short section of the north western boundary These flat lying areas may be difficult to be effectively drained and it is therefore considered that this land cannot be classified any better than Subgrade 3b

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SOURCES OF REFERENCE

Geological Survey Of Great Britain (1863) *Sheet No* 45 S E *(Old Series) Banbury* 1 inch to 1 mile Solid Edition
London

Ministry of Agriculture Fisheries and Food (1988) *Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land*
MAFF London

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
SSEW Harpenden

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

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	**FM** firm	**EH** extremely hard
VF very friable	**VM** very firm	
FR friable	**EM** extremely firm	

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

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS CLASS	WETNESS GRADE	WHEAT AP	WHEAT MB	POTS AP	POTS MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	ALC LIMIT	ALC	COMMENTS
1	SP60302410	OSR							54	50	54	-42	3B				DR	3A	DRCALC N/3P
2	SP60402410	OSR			31		2	2	78	26	82	14	3B				DR	3A	DRCALC N/2P
3	SP60202400	OSR							47	57	47	-49	4				DR	3B	AT 3P
4	SP60302400	OSR			26	26	4	3B	93	11	101	5	3A				WE	3B	SEE 1P
5	SP60402400	OSR			28		1	1	63	31	65	31	3B				DR	3A	DRCALC N/2P
5	SP60402400	OSR			28		2	2	63	31	65	31	3B				DR	3A	DRCALC N/2P
6	SP60202390	OSR	NW	1					51	53	51	-45	4				DR	3B	DRCALC N/3P
7	SP60302390	OSR			33	33	4	3B	87	17	92	-4	3A				WE	3B	SEE 1P
8	SP60402390	OSR			27	27	4	3B	84	20	90	6	3A				WE	3B	SEE 1P
9	SP60102380	OSR			41	50	3	2	106	0	114	18	3A				WD	2	DRCALC N/1P
10	SP60202380	OSR			22		1	1	60	-44	63	33	3B				DR	3A	AT 2P
11	SP60302380	OSR			26	66	3	2	125	19	96	0	2				WD	2	DRCALC N/2P
12	SP60102370	OSR			26	26	4	3B	96	-8	104	8	3A				WE	3B	SEE 1P
13	SP60202370	OSR			85	85	2	2	101	3	80	16	3A				DR	3A	DRCALC N/2P
15	SP60102360	OSR			27	27	4	3B	87	17	93	3	3A				WE	3B	SEE 1P
16	SP60202360	OSR			24	24	4	3B	87	17	93	3	3A				WE	3B	SEE 1P
17	SP60102350	OSR			28	28	4	3B	109	3	116	20	3A				WE	3B	SEE 1P
18	SP60202350	OSR			29	29	4	3B	102	2	107	11	3A				WE	3B	SEE 1P
19	SP60202340	OSR			27	27	4	3B	95	11	103	7	3A				WE	3B	SEE 1P
20	SP60042390	OSR							51	53	51	45	4				DR	3B	DRCALC N/3P
1P	SP60202360	OSR			27	27	4	3B	91	13	103	7	3A				WE	3B	AT AB16
1S	SP60042390	OSR								0		0						1	4% 2 CM
2P	SP60202390	OSR			31	68	2	2	85	19	79	22	3A				DR	3A	3ADR TO120CM
2S	SP60182381	OSR								0		0					TS	2	8% 2 CM
3P	SP60202400	OSR					1	1	74	30	81	15	3B				DR	3B	AT AB3
3S	SP60263397	OSR								0		0					TS	2	7% 2 CM

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
1	0 33	MZCL	10YR54						6	0	HR	15						Y	IMP HARD LMST
1S	0 25	MZCL							4	0	HR	8							
2	0 31	MCL	10YR42						1	0	HR	6						Y	STR SEE1P
	31 36	HCL	10YR52	10YR46	C	D		Y	0	0		0		M				Y	
	36 71	LMS	25Y62	25Y68	M	D		Y	0	0	HR	15		M				Y	IMP GRITTY LMST
2S	0 25	MCL							8	0	HR	15							
3	0 29	MZCL	10YR54						6	0	HR	15						Y	IMP HARD LMST
3S	0 25	HZCL							7	3	HR	15							
4	0 26	HZCL	10YR54						2	0	HR	6						Y	
	26 60	C	10YR53	75YR56	C	D		Y	0	0		0		M		Y		Y	
5	0 28	MCL	10YR42						1	0	HR	6						Y	
	28 60	LMS	25Y62	25Y68	M	D		Y	0	0	HR	15		M				Y	IMP GRITTY LMST
6	0 32	MCL	10YR44						4	0	HR	12						Y	IMP HARD LMST
7	0 33	HCL	10YR5444						4	0	HR	12						Y	
	33 50	C	10YR5153	10YR58	M	D		Y	0	0		0		M		Y		Y	STR SEE1P
	50 57	MZCL	10YR63	10YR56	C	D		Y	0	0	HR	15		M				Y	IMP GRITTY LMST
8	0 27	MCL	10YR43						0	0	HR	3						Y	
	27 60	C	10B51	25Y66	C	D		Y	0	0		0		P		Y			PLASTIC
9	0 28	MCL	10YR42						2	0	HR	8						Y	
	28 41	MCL	10YR54						0	0		0		M				Y	
	41 50	HCL	10YR51	10YR46	M	D		Y	0	0		0		M				Y	
	50 80	C	25Y63	10YR56	C	D		Y	0	0		0		M		Y		Y	STR SEE1P
10	0 22	MCL	10YR42						0	0	HR	5						Y	
	22 62	LMS	25Y62	25Y68	M	D		Y	0	0	HR	15		M				Y	IMP GRITTY LMST
11	0 26	MCL	10YR42						0	0	HR	4						Y	
	26 47	HCL	10YR51	10YR46	M	D		Y	0	0		0		M				Y	
	47 66	LMS	25Y62	25Y68	M	D		Y	0	0	HR	15		M				Y	
	66 120	C	10B51					Y	0	0		0		P		Y		Y	PLASTIC
12	0 26	HZCL	10YR42						0	0		0							
	26 60	C	25Y51	10YR68	C	D		Y	0	0		0		M		Y			STR SEE1P
13	0 32	MCL	10YR42						0	0	HR	2						Y	
	32 85	LMS	25Y62						0	0	HR	15		M				Y	
	85 100	C	10B51						0	0		0		P		Y		Y	PLASTIC
	100 120	LMS	25Y62	25Y68	M	D		Y	0	0	HR	15		M				Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
14	0 27	HCL	10YR42						0	0	HR	5						Y	
	27 55	C	05Y51	25Y66	C	D		Y	0	0		0		P			Y	Y	
	55-75	MCL	25Y62	25Y68	M	D		Y	0	0	HR	15		M				Y	IMP HARD LMST?
15	0 27	MZCL	10YR42						0	0	HR	2							
	27 60	C	25Y64	10YR68	M	D		Y	0	0		0		M			Y		PLASTIC
16	0 24	MZCL	10YR42						0	0	HR	2						Y	
	24 36	C	25Y64	10YR68	M	D		Y	0	0		0		M			Y		STR SEE1P
	36 60	C	10B51					Y	0	0		0		P			Y		PLASTIC
17	0 28	MZCL	10YR42						0	0	HR	2						Y	
	28 58	C	25Y53	10YR56	C	D		Y	0	0		0		M			Y	Y	STR SEE1P
	58-80	C	10B51	25Y66	C	D		Y	0	0		0		P			Y	Y	PLASTIC
18	0 29	MZCL	10YR42						0	0	HR	2						Y	
	29 46	C	10B51	10YR58	M	D		Y	0	0		0		P			Y		PLASTIC
	46 80	C	10B51					Y	0	0		0		P			Y		WATER LEVEL 46CM
19	0 27	MZCL	10YR42						0	0	HR	2						Y	WATER LEVEL 25CM
	27 60	C	25Y64	10YR58	C	D		Y	0	0		0		M			Y		STR SEE1P
20	0 28	MCL	10YR43						4	0	HR	12						Y	
	28 32	HCL	10YR5456						0	0	HR	2		M				Y	IMP HARD LMST
1P	0 27	MCL	10YR42						0	0	HR	4						Y	
	27 52	C	25Y63	25Y66	M	D		Y	0	0		0	MDCAB	FR M	Y		Y	Y	PLASTIC
	52 70	C	10B51	25Y68	M	C		Y	0	0		0	MDCAB	FM P	Y		Y	Y	PLASTIC
2P	0 31	MCL	10YR42						0	0	HR	4						Y	
	31 42	LMS	25Y62	10YR56	C	D		Y	0	0	HR	27	WK	L M				Y	
	42 52	LMS	75YR53						0	0	HR	27	WK	L M				Y	
	52 68	LMS	75YR54						0	0	HR	42		M				Y	
	68 100	C	10YR6451	75YR58	M	D		Y	0	0	HR	35	MASS	FM P	Y		Y	Y	WATER LEVEL 79CM
3P	0 28	HCL	10YR44						7	0	HR	15						Y	
	28 35	HCL	10YR68						0	0	HR	55		M				Y	
	35-55	MZCL	10YR68						0	0	HR	55	MDCSAB	FR M				Y	
	55-69	SCL	25Y64						0	0	HR	28	WKCSAB	FR M				Y	FEW ROOTS/IMP LMS