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KENT MINERALS LOCAL PLAN REVIEW
Land north of Conningbrook, Kennington

Agricultural Land Classification
ALC Map and Report

September 1998

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

KENT MINERALS LOCAL PLAN REVIEW
LAND NORTH OF CONNINGBROOK, KENNINGTON

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 94.4 ha of land to the east of the A28 and north of Conningbrook at Kennington, near Ashford in Kent. The survey was carried out during September 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), in connection with its statutory input to the Kent Minerals 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, the land use on the site comprised a mixture of arable (ploughed land and stubble) and permanent pasture (to the east of the Great Stour and to the south of the Bourne Dyke). The areas mapped as 'Other land' comprise woodland, disused buildings, watercourses and the railway line. Two blocks of land have been mapped as 'Agricultural land not surveyed', as the landowner wished to avoid any possible damage to recently drilled crops (to the immediate east of the A28) or standing crops (a field near the Stour had yet to be harvested).

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 overleaf in Table 1.

7. The fieldwork was conducted at an average density of 1 boring per hectare. In total, 84 borings and five soil pits were described.

8. Approximately one-third of the agricultural land surveyed has been classified as 'best and most versatile', namely Grades 1 and 2 (excellent and very good quality, respectively) and Subgrade 3a (good quality). This land tends to occur in conjunction with geological deposits of head brickearth and river terrace gravels. Just over half of the site has been classified as Subgrade 3b (moderate quality), including a small area in the west of the site which has been worked for minerals and since restored to agricultural use. The remaining land has been assessed as Grade 4 (poor quality).

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

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
1	9.1	11.3	9.6
2	13.8	17.2	14.6
3a	6.6	8.2	7.0
3b	44.4	55.2	47.0
4	6.5	8.1	6.9
Agricultural land not surveyed	11.1	-	11.8
Other Land	2.9	-	3.1
Total surveyed area	80.4	100.0	85.1
Total site area	94.4	-	100.0

9. The majority of land on the site suffers from soil wetness problems to varying degrees; there are some more limited areas of well drained soils having droughtiness limitations, particularly where the river terrace deposits are found. Soil wetness acts to restrict the flexibility of cropping, stocking and cultivations and adversely affects yields. Across much of the site, the topsoils are medium textured. To the west of the Great Stour, these topsoils overlie similar upper subsoils and generally pass into poorly structured clay loams or clays which act to impede soil drainage. In general, the depth to these poorly structured horizons determines the final ALC grade. Where these horizons are absent or deep, the land is classified as Grades 1 and 2. Such land is largely coincident with the head brickearth deposits.

10. Elsewhere, where clay subsoils occur at moderate depths within the profile, the land is classified as Subgrade 3a. Where they occur at shallow depths or directly below the topsoil, the land is classified as Subgrade 3b. To the south of Bourne Dyke, peaty and humified soils occur. Here, seasonally high groundwater levels give rise to Subgrade 3b and Grade 4 land; the latter is mapped where the land is waterlogged for much of the year.

11. The alluvial land adjacent to the Great Stour is restricted to a classification of Subgrade 3b by both soil wetness limitations and risk of flooding. This land is flatter, lower-lying and flooding is believed to regularly occur. This risk of flooding significantly restricts that range of crops which could be grown.

12. Some of the Grade 2 land is limited by minor soil droughtiness. The soils are also deep and well drained but have a lower silt content. These soils have a slightly lower available moisture content, compared with the land in Grade 1. Given the dry local climate, this acts to impart slight soil droughtiness which may act to slightly lower the level and consistency of crop yields. Across parts of this mapping unit, soil droughtiness limitations act in conjunction with soil wetness restrictions. To the west of the railway line, the Subgrade 3b land is subject to both significant soil droughtiness and wetness limitations. Here, land disturbed following mineral working gives rise to variably textured topsoils which overlie compact gravelly subsoils.

FACTORS INFLUENCING ALC GRADE

Climate

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

14. 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).

Table 2: Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	TQ 043 446	TQ 036 453
Altitude	m, AOD	40	35
Accumulated Temperature	day°C (Jan-June)	1460	1465
Average Annual Rainfall	mm	774	765
Field Capacity Days	days	163	161
Moisture Deficit, Wheat	mm	115	116
Moisture Deficit, Potatoes	mm	111	112
Overall climatic grade	N/A	Grade 1	Grade 1

15. 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.

16. 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.

17. The combination of rainfall and temperature within this survey area means that there is no overall climatic limitation. However, climatic factors do interact with soil properties to influence soil wetness and soil droughtiness. At this locality, the soil moisture deficit values are slightly above average for this region. As a result the likelihood of soil droughtiness problems may be increased. No climatic factors, such as exposure or frost risk, are believed to adversely affect the land quality on the site. This site is climatically Grade 1.

Site

18. The survey area is situated in the Great Stour valley. The lowest lying land (approximately 32m AOD) occurs either side of the Stour watercourse, extending between the railway and to the south of the Bourne Dyke. To the north of the Dyke, the land rises through gentle gradients of 2-4° to lie at 44m AOD, the highest point on the site, along the eastern site boundary. To the west of the railway line, the land gently rises to 40m AOD. Nowhere on the site do gradient or microrelief adversely affect agricultural land quality.

Geology and soils

19. The published geological information for this area (BGS, 1978) shows most of the site to be underlain by Gault Clay. Small areas of Folkestone Beds are mapped along parts of the southern site boundary. However, drift deposits are shown to overlie much of the site, except for the gently sloping, higher land in the east of the site. Third terrace river gravels are mapped across the higher land in the west of the site and across a smaller area in the south-west of the site. Head brickearth is mapped to the immediate west and east of the railway line. Alluvial deposits are shown to overlie much of the flatter, lower-lying land found either side of the Stour and to the south of Bourne Dyke. Peat deposits are mapped across the south-east corner of the site and in isolated pockets just to the west of this area. Formation of the latter was 'influenced by a sand bar flanking the Stour floodplain which partially blocked the valley and its stream', (SSEW, 1973).

20. The most detailed published soils information, at 1:25,000 scale, covering the area (SSEW, 1973) shows eight different soil series across the site. The Racton Series is mapped in the extreme west of the site and is described as 'Ground-water gley soil in thin silty alluvium over and within river gravels', (SSEW, 1973). Soils of the Ditton Series are mapped over the river gravels in the south of the site. These soils are described as 'Gleyed brown earth....in loamy drift over and partly from Folkestone Beds', (SSEW, 1973). The Hook Series occur over much of the head brickearth, described as 'Gleyed brown earth...in silty drift (brickearth)', (SSEW, 1973). The Park Gate Series, mapped where the head brickearth occurs proximate to the alluvial deposits, is similar to the Hook Series but with 'a fluctuating water-table....drainage is imperfect, locally poor', (SSEW, 1973).

21. Two soil types, the Fladbury Series and the Enborne-Conway Map Unit, are mapped in association with the alluvium. The former, mapped either side of the Stour, is described as 'Ground-water gley soil in clayey riverine alluvium', (SSEW, 1973). The latter, which tends to occur south of the Bourne Dyke, is described as 'Ground-water gley soil (non-calcareous) in loamy...silty riverine alluvium', (SSEW, 1973). Soils of Adventurer Series, 'Organic soil in humified fen', (SSEW, 1973) are shown in connection with the peat deposits. On the higher land in the east of the site soils of the Denchworth Series are mapped. These soils are described as 'Non-calcareous surface-water gley soil in Gault', (SSEW, 1973). Detailed field examination found the distribution and description of the soils on site to accord with that outlined above.

AGRICULTURAL LAND CLASSIFICATION

22. 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 2.

23. 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.

Grade 1

24. Grade 1, excellent quality, land occurs on the higher land associated with the head brickearth deposits. This land has no or very minor limitations to agricultural use. Profiles comprise

non-calcareous silt loam topsoils which overlie similarly textured or medium silty clay loam upper subsoils. At approximately 55-85 cm depth, these profiles pass into silty textured (silt loam, medium/heavy silty clay loam) lower subsoils which are gleyed. Topsoils are very slightly stony, containing 0-5% total flints (all of which are smaller than 2 cm). Subsoils have a similar stone content. From Pit 1, which represents such profiles, the subsoils were found to be moderately structured and permeable. These profiles were assessed as well drained (Wetness Class I). The combination of medium textured topsoils, free soil drainage and the prevailing climate means that this land has no or very minor restrictions on the flexibility of cropping, stocking and cultivations. In addition, the high silt content of the topsoils means that these profiles have high reserves of soil available water to support a wide range of agricultural or horticultural crops throughout the growing season in most years. Consequently Grade 1 is appropriate.

Grade 2

25. Grade 2, very good quality, land occurs to the south and immediate north of the railway. This land is limited by minor soil wetness or by soil droughtiness; across parts of the site, the two limitations act equally to restrict land to this grade. Where soil wetness is the key limitation, the soils are similar to those assigned to the Grade 1 mapping unit, but sometimes have medium silty clay loam, instead of silt loam, topsoils. However, these profiles occur across slightly lower-lying land and, as such, are subject to seasonally fluctuating groundwater levels. Although gleyed within 40 cm depth, these profiles are permeable and, consequently, are assessed as moderately well drained (Wetness Class II). The interaction between the medium textured topsoils and soil drainage characteristics at this locality means that this land will be subject to slight restrictions on the flexibility of cropping, stocking and cultivations.

26. Where soil droughtiness is the overriding limitation, the soil profiles contain less silt. Profiles typically comprise non-calcareous medium clay loam or sandy clay loam topsoils which overlie similarly textured or heavy clay loam subsoils. Topsoils are stoneless to very slightly stony, containing 0-2% total flints. Subsoils are stoneless. All of these profiles are well drained (Wetness Class I), with gleying sometimes observed below 40 cm depth. In comparison to the land classified as Grade 1, the presence of loamy, rather than silty, profiles means that this land has slightly lowered amounts of profile available water for uptake by crop roots. The resulting soil droughtiness limitation means that this land may have slightly lower and less consistent crop yields. Where soil wetness and soil droughtiness are equally limiting, the profiles are loamy in texture and gleyed within 40 cm depth.

Subgrade 3a

27. All of the land classified as Subgrade 3a (good quality) is limited by soil wetness. Topsoils typically comprise non-calcareous medium clay loams. These overlie permeable heavy clay loam upper subsoils, which are sometimes gleyed. At approximately 45 to 60 cm depth, these pass into clay lower subsoils which are poorly structured and slowly permeable. The combination of depth to gleying and to the clay results in imperfect soil drainage conditions (Wetness Class III). Such profiles are represented by Pit 3. The interaction between these soil drainage characteristics, medium textured topsoils and the prevailing climate means that this land will have some restrictions on the flexibility of cropping, stocking and cultivations.

Subgrade 3b

28. The majority of land classified as Subgrade 3b is subject to significant soil wetness and workability limitations. Across much of this mapping unit, poorly drained profiles arise from slowly permeable subsoils which occur directly below the topsoil. Topsoils are variably textured; typically medium/heavy clay loams and clays. These pass into clay subsoils which are poorly structured and slowly permeable. The surface water movement through these layers will be significantly reduced. This results in poor soil drainage (Wetness Class IV), as indicated by gleying either from the surface or below the topsoil. Such profiles are typified by Pit 5.

29. To the south of Bourne Dyke, the land is also subject to fluctuating groundwater levels. Here, seasonally high groundwater levels are likely to result in significant soil wetness limitations. Across parts of this area, the soil wetness limitation will arise from both groundwater and surface-water problems. Topsoils comprise medium/heavy clay loams. These overlie similarly textured or clay upper subsoils which pass into loamy (sandy/medium/heavy clay loam) lower subsoils at approximately 55-75 cm depth. Most of these subsoils are permeable and moderately structured, though the clay horizons are permeable in parts and poorly structured. All of these profiles are gleyed directly from the surface. In most of these profiles, no slowly permeable layer occurs within 80 cm. However, the flat and low-lying nature of this land means that artificial drainage measures are likely to prove inadequate due to lack of falls and freeboard, and that groundwater levels would be high for much of the year. At the time of survey (September 1998), these profiles were very moist from the surface and saturated from below the topsoil. The lower subsoils were very blue in colour and humified, due to permanent waterlogging. Consequently, this land was assessed as being poorly drained (Wetness Class IV).

30. Across this entire mapping unit, the interaction between the soil drainage characteristics, the topsoil textures and the prevailing climate means that all of this land is classified as Subgrade 3b because of soil wetness. Soil wetness of this degree adversely affects seed germination and survival, and inhibits the development of a good root system. Soil wetness also imposes restrictions on cultivations, trafficking by machinery or grazing by livestock.

31. Land immediately adjacent to the Great Stour has been classified as Subgrade 3b because of a flooding risk. This land is flat and low-lying and the floods tend to occur regularly, 1-10 times, each year, between late autumn and early spring (personal communication with a farm labourer). Land at risk from flooding tends to be unsuitable for arable cropping, both due to potential crop damage and the restrictions placed on the timings of cultivations.

32. Land to the west of the railway line has been classified as Subgrade 3b because of significant soil droughtiness limitations, arising from soils developed in gravelly deposits. This land has undergone gravel extraction in the past and has been re-instated for at least five years. The topsoils are calcareous and comprise medium (silty) clay loams. Topsoils are slightly stony (3-6% flints >2 cm and 6-13% total flints). Most of these profiles proved impenetrable to a soil auger directly below the topsoil. Consequently, Pit 2 was dug to assess the subsoil conditions. From Pit 2, it could be seen that the subsoils comprise calcareous medium (silty) clay loams. The upper subsoils are very stony (about 35% total flints together with 10% total

chalk fragments) but pass into very slightly stony (2% total chalk fragments) lower subsoils at approximately 105 cm.

33. The compact nature of these subsoils, together with the relatively dry subsoil conditions at the time of survey, means that the size and shape of soil peds and their degree of development could not be assessed; however, a poor subsoil structure has been assigned. The lack of gleying within 70 cm depth means that these profiles are likely to be relatively permeable, despite subsoil conditions being compact. In comparison to soil, flints retain much less water available for uptake by crop roots. Consequently, the interaction between the soil characteristics (particularly, the high stone content and poor subsoil structure) and the prevailing climate leads to a restriction in water availability for plants in most years. Consequently, Subgrade 3b is appropriate on the basis of soil droughtiness. This land will be subject to low and inconsistent crop yields.

Grade 4

34. Land classified as Grade 4 occurs in the south of the site in association with the area mapped as peat deposits and is limited by soil wetness and workability. Organic and peaty loam topsoils overlie peaty textured subsoils, namely peaty loam, loamy peat and peat. At the time of survey, these non-calcareous profiles were moist from the surface and often saturated below the topsoil. This land is flat and low-lying. Given the lack of outfalls and insufficient freeboard means that the land is therefore difficult to drain successfully. The presence of hydrophilic vegetation, such as rushes and sedges, and raised bogs across parts of this land is indicative of long periods of waterlogging. Consequently, it is considered that these drainage characteristics are appropriate with Wetness Class V, Grade 4. This land will present severe difficulties in terms of cropping and cultivations and will be best suited to seasonal grazing.

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SOURCES OF REFERENCE

British Geological Survey (1978) *Sheet No. 289, 1:50,000, Canterbury, (solid and drift edition).* BGS: 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 (1973) *Sheet TR04 (Ashford), Soils in Kent I, 1:25,000 and accompanying book.* 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	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
8	TR03404550	PLO					1	1	75	-41	75	-37	3B				DR	3B	Imp36 See 2P
9	TR03304550	PLO			0		1	1	67	-49	67	-45	3B				DR	3B	Imp39 See 2P
11	TR03504550	PLO					1	1	70	-46	70	-42	3B				DR	3B	I40 gravelly
12	TR03604550	PLO					1	1	86	-30	86	-26	3B				DR	3B	I50 gravelly
13	TR03204540	PLO					1	1	63	-54	63	-49	4				DR	3B	Imp35 See2P
14	TR03304540	PLO					1	1	54	-62	54	-58	4				DR	3B	Imp30 See2P
14A	TR03324535	PLO			30		2	2	126	10	126	14	2				WD	2	Imp80 Q Gr 1
15	TR03404540	PLO			58		1	1	164	48	149	37	1					1	I100 S1 stony
16	TR03504540	PLO			65		1	1	172	56	136	24	1					1	S1 gley 30
17	TR03604540	PLO			100		1	1	182	66	128	16	1					1	
18	TR03704540	PLO			72		1	1	197	81	157	45	1					1	
19	TR03804540	PLO			30	70	2	2	180	64	137	25	1				WD	2	
20	TR03904540	PGR			22		2	2	149	33	109	-3	2				WD	2	
21	TR04404540	PGR			70		1	1	151	35	111	-1	2				DR	2	
22	TR03404530	PLO					1	1	158	42	148	36	1					1	Imp95 s1 stony
23	TR03504530	PLO			82		1	1	186	70	151	39	1					1	
24	TR03604530	PLO			80		1	1	176	60	140	28	1					1	
25	TR03704530	PLO			55		1	1	183	67	147	35	1					1	
26	TR03804530	PLO			30		2	2	173	57	136	24	1				WE	2	H3 + FS
27	TR03904530	PLO			60		1	1	155	39	117	5	2				DR	2	S1 gley 30;+ F
28	TR04404530	PGR			42		1	1	154	38	114	2	2				DR	2	
29	TR03604520	PLO			70		1	1	175	59	138	26	1					1	H2 and H4 + FS
30	TR03804520	PLO			35		2	2	188	72	153	41	1				WE	2	
31	TR03904520	PLO			55		1	1	155	39	117	5	2				DR	2	+ FS
32	TR04004520	PGR			0		2	2	135	19	105	-7	2				WD	2	Q G'wtrWCIV 3B
33	TR04104520	PGR			12	12	4	3B		0		0					WE	3B	
34	TR03704510	PLO			30		2	2	160	44	124	12	1				WE	2	
35	TR03804510	PLO			30		2	2	170	54	132	20	1				WE	2	
36	TR03904510	PLO			70		1	1	161	45	117	5	2				DR	2	S1 gley45;+FS
37	TR04004510	PGR			0	20	4	3B		0		0					WE	3B	
38	TR04104510	PGR			0	20	4	3B		0		0					WE	3B	
39	TR04304510	PLO			45	45	3	3A	143	27	111	-1	2				WE	3A	See 3P
40	TR03604500	PLO			35		2	2	161	45	125	13	1				WE	2	
41	TR03704500	PLO			30		2	2	159	43	122	10	1				WE	2	Nr 2 DR pots
42	TR03804500	PLO			45		1	1	155	39	117	5	2				DR	2	
43	TR03904500	PGR			0		2	2	158	42	114	2	2				WD	2	Q G'wtrWCIV 3B
44	TR04004500	PGR			0	38	4	3B		0		0					WE	3B	
45	TR04304500	PLO			36	36	4	3B		0		0					WE	3B	
46	TR04404500	PLO			26	26	4	3B		0		0					WE	3B	
47	TR03804489	PGR			30	30	4	3B		0		0		Y			WE	3B	Also 3b flood
48	TR03904490	PGR			20	40	4	3B		0		0		Y			WE	3B	Also 3b flood
49	TR04124489	STB	NW	1	25		2	2	154	38	116	4	2				WD	2	+ FS

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	DRT	M.REL FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
50	TR04204490	PLO			45	45	3	3A	134	18	109	-3	2				WE	3A	
51	TR04304490	PLO			20	20	4	3B		0		0					WE	3B	
52	TR04404490	PLO			0	46	3	3B		0		0					WE	3B	
53	TR03604480	PGR			26	26	4	3B		0		0		Y			WE	3B	Also 3b flood
54	TR03704480	PGR			26	26	4	3B		0		0					WE	3B	Water at 70
56	TR03924480	PGR			40	60	3	3A	140	24	117	0					WE	3A	Nr Gr 2 WE
57	TR04024478	PLO			36	55	3	3A	137	21	114	2	2				WE	3A	
58	TR04104480	STB	NW	2	0	25	4	3B		0		0					WE	3B	
59	TR04204480	PLO			34	34	4	3B		0		0					WE	3B	
60	TR04304480	PLO			36		2	2	157	41	119	7	2				WD	2	3b map unit
61	TR04404480	PLO			30	30	4	3B		0		0					WE	3B	
62	TR04504480	PLO			30	30	4	3B		0		0					WE	3B	
65	TR03904470	PGR			0	40	4	3B		0		0					WE	3B	G'water WC IV
66	TR04004470	PLO			35	35	4	3B		0		0					WE	3B	
67	TR04104470	STB	NW	2	0	25	4	3B		0		0					WE	3B	Nr t/s strip'd
68	TR04204470	STB			0	30	4	3B		0		0					WE	3B	
69	TR04304470	PLO			30	43	3	3A	133	17	110	-2	2				WE	3A	3b map unit
70	TR04404470	STB	NE	4	0	20	4	3B		0		0					WE	3B	
72	TR03704460	PGR			0	37	4	3B		0		0					WE	3B	
73	TR03804460	PGR			35	35	4	3B		0		0					WE	3B	H3 + FS
74	TR03904460	PGR			0		5	4		0		0					WE	4	Raised PeatBog
75	TR03984459	PGR			0	28	4	3B		0		0					WE	3B	Wet55 Sat'd90
76	TR04104460	STB	SW	1	25		2	2	153	37	115	3	2				WD	2	3a map unit
77	TR04204460	STB	SE	2	30	30	4	3B		0		0					WE	3B	
78	TR04304460	PLO			30	50	3	3A	135	19	112	0	2				WE	3A	3b map unit
79	TR04404460	STB	SE	2	0	20	4	3B		0		0					WE	3B	
80	TR03624449	PGR			25	35	4	3B		0		0					WE	3B	
81	TR03704450	PGR			0		5	4		0		0					WE	4	Peaty
82	TR03804450	PGR			0	36	4	3B		0		0					WE	3B	Alluvial
83	TR03904450	PGR			0	25	4	3B		0		0					WE	3B	Blue matrix 55
84	TR04004450	PGR			0	20	4	3B		0		0					WE	3B	Blue matrix 70
85	TR04184450	PGR			0	35	4	3B		0		0					WE	3B	Humified;Wet80
86	TR04204450	STB	SE	2	30	50	3	3A	143	27	111	-1	2				WE	3A	+ MS 50-120
87	TR04304450	PLO			28	50	3	3A	100	-16	112	0	3A				WE	3A	Imp 70
88	TR03704440	PGR			0		4	3B		0		0					WE	3B	G'water WC IV
89	TR04004440	PGR			0		4	3B		0		0					WE	3B	G'water WC IV
90	TR04104440	PGR			0		5	4		0		0					WE	4	Peaty
91	TR04224439	PGR			0		5	4		0		0					WE	4	Peaty; organic
92	TR04304440	PLO			38		2	3A	158	42	120	8	2				WE	3A	
93	TR04204430	PGR			0	30	4	3B		0		0					WE	3B	G'water WC IV
94	TR04304430	PGR			0		5	4		0		0					WE	4	Peaty
95	TR04304420	PGR			0		5	4		0		0					WE	4	Peaty

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1P	TR03504540	PLO			65		1	1	182	66	134	22	1					1	Non spl hzcl
2P	TR03404550	PLO			105		1	1	122	-17	92	-32	3B				DR	3B	Restored land
3P	TR04024478	PLO			35	53	3	3A	137	21	114	2	2				WE	3A	Non spl hcl
4P	TR03984459	PGR			0	28	4	3B	149	33	118	6	2				WE	3B	+ WCIV G'water
5P	TR04404480	STB	NW	3	30	30	4	3B	124	8	102	-10	2				WE	3B	Gault clay

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
8	0-36	MCL	10YR42						5	0	HR	10							I36see2P Restored
9	0-39	MCL	25Y 53	10YR66	M	D		Y	5	0	HR	10							I39see2P Restored
11	0-40	MCL	10YR42						5	1	HR	9							Imp40 gravelly
12	0-35	MZCL	10YR42						6	1	HR	9							
	35-50	MZCL	10YR54						0	0		0		M					Imp50 gravelly
13	0-35	MZCL	10YR42						3	0	HR	6							I35see2P Restored
14	0-30	MCL	10YR42						3	0	HR	5							I30see2P Restored
14A	0-30	MZCL	10YR42						0	0		0							
	30-68	MZCL	10YR53	10YR56	C	D		Y	0	0		0		M					
	68-80	ZL	10YR54						0	0		0		M					Imp80 sl stony
15	0-30	ZL	10YR43						0	0	HR	3							
	30-58	ZL	10YR54						0	0		0		M					
	58-100	HZCL	10YR53	10YR56	M	D		Y	0	0		0		M					Imp100 sl stony
16	0-30	ZL	10YR43						0	0	HR	2							
	30-65	MZCL	10YR44	10YR58	C			S	0	0		0		M					Sl gleyed
	65-120	HZCL	10YR53 54	10YR68	C			Y	0	0		0		M					Not spl see 1P
17	0-35	MZCL	10YR42						6	1	HR	9							
	35-50	MZCL	10YR54						0	0		0		M					
	50-100	ZL	10YR53	10YR56	F	F			0	0		0		M					
	100-120	ZL	10YR72	10YR46	C	D		Y	0	0		0		M					
18	0-30	ZL	10YR42						0	0		0							
	30-72	ZL	10YR54						0	0		0		M					
	72-84	ZL	10YR53	10YR56	C	D		Y	0	0		0		M					
	84-120	MZCL	10YR63	10YR56	M	D		Y	0	0		0		M					
19	0-30	ZL	10YR42						0	0		0							
	30-48	MZCL	10YR64	10YR56	C	F		Y	0	0		0		M					
	48-70	HZCL	10YR63	10YR56	C	D		Y	0	0		0		M					
	70-89	ZC	10YR63	10YR66	C	D		Y	0	0		0		P		Y			Prob spl
	89-120	ZL	25Y 71	10YR56	C	D		Y	0	0		0		M					
20	0-22	SCL	10YR53						0	0		0							
	22-50	SCL	10YR53	10YR56	C	F		Y	0	0		0		M					Not spl see 3P
	50-86	SCL	10YR53	10YR56	C	D		Y	0	0		0		M					Not spl see 3P
	86-120	SCL	10YR64	10YR56	M	D		Y	0	0		0		M					Not spl see 3P
21	0-30	SCL	10YR53						0	0		0							
	30-70	SCL	10YR54						0	0		0		M					
	70-120	SCL	10YR53 64	10YR56	C	D		Y	0	0		0		M					Not spl see 3P

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
22	0-30	ZL	10YR43						0	0	HR	2							
	30-55	ZL	10YR44						0	0		0		M					
	55-85	MZCL	10YR44						0	0		0		M					
	85-95	MCL	10YR54						0	0	HR	10		M				Y	+ 2% chalk
23	0-40	ZL	10YR43						0	0	HR	5							
	40-65	ZL	10YR54						0	0		0		M					
	65-82	MZCL	75YR56						0	0		0		M					
	82-120	MZCL	10YR63	10YR56	C	D		Y	0	0		0		M					
24	0-35	ZL	10YR43						0	0	HR	2							
	35-55	MZCL	10YR44 54						0	0		0		M					
	55-80	MZCL	10YR46						0	0		0		M					
	80-120	MZCL	10YR53	10YR58	C	D		Y	0	0		0		M					
25	0-30	ZL	10YR44						0	0	HR	2							
	30-55	ZL	10YR54						0	0	HR	2		M					
	55-120	MZCL	10YR53	10YR68	C	D		Y	0	0		0		M					
26	0-30	ZL	10YR43						0	0		0							
	30-60	MZCL	10YR53 62	10YR58	M	D		Y	0	0		0		M					
	60-120	HCL	10YR62	10YR58	M	D		Y	0	0		0		M					Not spl see 1P
27	0-30	MCL	10YR43						0	0	HR	2							
	30-60	MCL	10YR44	10YR58	C	D		S	0	0		0		M					Sl gleyed
	60-120	MCL	10YR53	10YR58	M	D		Y	0	0		0		M					
28	0-30	FSL	10YR43						0	0		0							
	30-42	SCL	10YR53						0	0		0		M					
	42-55	SCL	10YR53	10YR46	C	F		Y	0	0		0		M					Not spl see 3P
	55-95	SCL	10YR63	10YR56	C	D		Y	0	0		0		M					Not spl see 3P
	95-120	HCL	10YR72	10YR56	M	D		Y	0	0		0		M					Not spl see 3P
29	0-35	ZL	10YR44						0	0		0							
	35-60	MCL	10YR44						0	0		0		M					
	60-70	MZCL	10YR54	10YR58	C	D		S	0	0		0		M					Sl gleyed
	70-120	MCL	10YR53	10YR58	C	D		Y	0	0		0		M					
30	0-35	ZL	10YR43						0	0	HR	2							
	35-65	ZL	10YR62 53	10YR58	C	D		Y	0	0		0		M					
	65-120	MCL	10YR63	10YR58	M	D		Y	0	0		0		M					
31	0-30	MCL	10YR43						0	0	HR	2							
	30-55	MCL	10YR54	10YR58	C	F		S	0	0		0		M					Sl gleyed
	55-75	MCL	10YR53	10YR58	C	D		Y	0	0		0		M					
	75-85	HCL	10YR63	10YR58	C	D		Y	0	0		0		M					
	85-120	MCL	10YR63	10YR58	M	D		Y	0	0		0		M					

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
32	0-21	SCL	10YR53	10YR56	C	D		Y	0	0		0							
	21-50	SCL	10YR64	10YR56	M	D		Y	0	0		0		M					
	50-120	SCL	10YR62	10YR56	M	D		Y	0	0		0		P					Q spl
33	0-12	MCL	10YR42						0	0		0							
	12-40	C	10YR61	10YR56	M	D		Y	0	0		0		P		Y			
	40-120	C	25Y 61	10YR56	M	D		Y	0	0		0		P		Y			
34	0-30	MZCL	10YR43						0	0	HR	2							
	30-120	HZCL	10YR51	10YR58	M	D		Y	0	0		0		M					Not spl see 1P
35	0-30	ZL	10YR43						0	0	HR	2							
	30-65	HCL	10YR53 62	10YR58	M	D		Y	0	0		0		M					Not spl see 3P
	65-120	MCL	10YR62	10YR58	M	D		Y	0	0		0		M			Y		
36	0-30	MCL	10YR43						0	0		0							} with
	30-45	MCL	10YR54						0	0		0		M					} fine
	45-60	MCL	10YR43	75YR56 58	C	D		S	0	0		0		M					} sand; Sl gleyed
	60-70	SCL	10YR43	10YR58	C	D		S	0	0		0		M					Sl gleyed
	70-120	MSL	10YR53	10YR58	C	D		Y	0	0		0		M					
37	0-20	HCL	10YR52	10YR56	C	D		Y	0	0		0							
	20-72	C	25Y 61	10YR56	C	D		Y	0	0		0		P		Y			
	72-120	SCL	10YR64						0	0		0		M					
38	0-20	HCL	10YR52	10YR56	C	D		Y	0	0		0							
	20-120	C	25Y 61	10YR56	M	D		Y	0	0		0		P		Y			
39	0-30	MCL	10YR42						0	0		0							
	30-45	HCL	10YR53	10YR66	F	D			0	0		0		M					Not spl see 3P
	45-90	C	25Y 53	10YR56	C	D		Y	0	0		0		P		Y			Prob spl
	90-120	SCL	25Y 73	10YR56	C	D		Y	0	0		0		M					Not spl see 3P
40	0-35	MZCL	10YR43						0	0	HR	2							
	35-50	MZCL	10YR53 62	10YR58	C	D		Y	0	0		0		M					
	50-120	HZCL	10YR51 52	10YR68	M	D		Y	0	0		0		M					Not spl see 1P
41	0-30	MZCL	10YR43						0	0	HR	2							
	30-60	MZCL	10YR53	10YR58	C	D		Y	0	0	HR	2		M					
	60-120	MCL	10YR63	10YR58	C	D		Y	0	0		0		M					+ fine sand
42	0-30	MCL	10YR43						0	0	HR	.2							
	30-45	MCL	10YR44	10YR58	F				0	0		0		M					
	45-70	MCL	10YR53 54	10YR58	C	D		Y	0	0		0		M					
	70-120	HCL	10YR53 62	10YR58	M	D		Y	0	0		0		M					Not spl see 3P
43	0-30	MCL	10YR52	10YR66	C	D		Y	0	0		0							
	30-78	SCL	25Y 53	10YR56	C	D		Y	0	0		0		M					Not spl see 3P
	78-120	MSL	10YR68						0	0		0		M					

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
44	0-38	HCL	10YR63	10YR56	C	D		Y	0	0		0							
	38-120	C	25Y 62	10YR56	M	D		Y	0	0		0			P		Y		
45	0-36	MCL	10YR42						0	0		0							
	36-120	C	25Y 53	10YR56	M	D		Y	0	0		0			P		Y		
46	0-26	C	25Y 41						0	0		0							
	26-35	C	10YR64	10YR56	C	D		Y	0	0		0			P		Y		
	35-120	C	25Y 61	10YR56	C	D		Y	0	0		0			P		Y		
47	0-30	HCL	25Y 32	10YR56	F				0	0		0							
	30-60	C	25Y 53	75YR58	M	D		Y	0	0		0			P		Y		
	60-120	C	25Y 51	75YR58	M	D		Y	0	0		0			P		Y		
48	0-20	HCL	25Y 32	10YR56	F				0	0		0							
	20-40	HCL	25Y 53	10YR56	C	F		Y	0	0		0			M				Q spl-alluvial
	40-120	C	25Y 51	75YR58	M	D		Y	0	0		0			P		Y		
49	0-25	MCL	10YR43						0	0	HR	2							
	25-45	MCL	10YR53	10YR56	C	D		Y	0	0		0			M				
	45-85	HCL	10YR53 62	75YR5846	M	D		Y	0	0		0			M				Not spl see 3P
	85-120	MCL	10YR53 62	75YR5846	M	D		Y	0	0		0			M				
50	0-36	MCL	10YR43						0	0		0							
	36-45	MCL	10YR54	10YR56	F	D			0	0		0			M				
	45-120	HCL	25Y 64	10YR66	C	D		Y	0	0		0			P		Y		Poss not spl
51	0-20	C	25Y 52						0	0		0							
	20-36	C	25Y 52	10YR56	C	D		Y	0	0		0			P				
	36-120	C	25Y 61	10YR68	C	D		Y	0	0		0			P		Y		
52	0-32	HCL	10YR42	10YR46	C	D		Y	0	0		0							
	32-46	HCL	25Y 52	10YR56	M	D		Y	0	0		0			M				Maybe spl
	46-62	C	25Y 53	10YR56	M	D		Y	0	0		0			P		Y		
	62-120	C	25Y 61	10YR66	M	D		Y	0	0		0			P		Y		
53	0-26	HCL	10YR2						0	0		0							
	26-120	C	25Y 61	10YR56	M	D		Y	0	0		0			P		Y		
54	0-26	HCL	10YR42						0	0		0							
	26-62	C	25Y 62	10YR56	M	D		Y	0	0		0			P		Y		
	62-120	MCL	10YR53					Y	0	0		0			M				Waterlogged
56	0-40	MCL	75YR43						0	0		0							
	40-60	HCL	75YR53	75YR56	C	D		Y	0	0		0			M				
	60-80	C	10YR42	10YR56	C	D		Y	0	0		0			P		Y		
	80-120	C	10YR51	10YR46	M	D		Y	0	0		0			P		Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
57	0-36	MCL	10YR42	10YR46	F	D			0	0		0							
	36-55	HCL	10YR64	10YR66	C	D		Y	0	0		0		M					Not spl see 3P
	55-120	C	10YR63 62	10YR56	C	D		Y	0	0		0		P			Y		
58	0-25	MZCL	10YR42	10YR56	C	D		Y	0	0	HR	2							
	25-55	C	10YR52 61	10YR68	M	D		Y	0	0		0		P			Y		
	55-120	C	05Y 51 61	10YR56	M	D		Y	0	0	CH	2		P			Y	Y	
59	0-34	HCL	10YR42						0	0		0							
	34-60	C	25Y 51	10YR56	C	D		Y	0	0		0		P			Y		
	60-120	C	10YR61	10YR56	C	D		Y	0	0		0		P			Y		
60	0-36	HCL	10YR53						0	0		0							
	36-49	HCL	10YR52	10YR56	C	F		Y	0	0		0		M					Not spl see 3P
	49-120	MCL	10YR64	10YR66	C	F		Y	0	0		0		M					
61	0-30	C	25Y 43						0	0		0							
	30-51	C	25Y 53	10YR56	C	D		Y	0	0		0		P			Y		
	51-80	C	25Y 62	10YR56	C	D		Y	0	0		0		P			Y		
	80-120	C	25Y 51	10YR56	C	D		Y	0	0		0		P					
62	0-30	HCL	10YR42						0	0		0							
	30-90	C	25Y 51 53	10YR56	C	D		Y	0	0		0		P			Y		
	90-120	C	25Y 51	10YR56	C	D		Y	0	0		0		P			Y		
65	0-30	MCL	10YR42	10YR58	C	D		Y	0	0		0							
	30-40	HCL	10YR42	10YR58	C	D		Y	0	0		0		M					Friable-not spl
	40-50	C	10YR53	75YR46	C	D		Y	0	0		0		P			Y		
	50-120	C	05Y 51	75YR58	M	D		Y	0	0		0		P			Y		
66	0-35	MCL	10YR42						0	0		0							
	35-86	C	10YR53 51	10YR56	C	D		Y	0	0		0		P			Y		
	86-120	C	10YR53	10YR56	M	D		Y	0	0	HR	1		P			Y		
67	0-25	C	25Y 42	10YR56	C			Y	0	0	HR	6						Y	
	25-60	C	25Y 62	10YR56	C			Y	0	0	CH	5		P			Y	Y	
	60-120	C	05Y 51	10YR56	C			Y	0	0	CH	2		P			Y	Y	
68	0-30	HCL	10YR42	10YR56	C	D		Y	0	0	HR	4							
	30-50	C	05Y 62 61	10YR58	M	D		Y	0	0	HR	2		P			Y		
	50-100	C	05Y 51	10YR56	C	D		Y	0	0	CH	10		P			Y	Y	
	100-120	MSL	10YR53	10YR58	M	D		Y	0	0		0		M				Y	
69	0-30	MCL	10YR42						0	0		0							
	30-43	HCL	10YR53	10YR56	C	F		Y	0	0		0		M					Q spl-on Gault
	43-85	C	10YR52	10YR56	M	D		Y	0	0		0		P			Y		
	85-120	C	25Y 61	10YR56	C	D		Y	0	0		0		P			Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
70	0-20	C	10YR42	10YR58	C	D		Y	2	0	HR	5							
	20-60	C	25Y 62	10YR58	C	D		Y	0	0	HR	2		P			Y		
	60-120	C	05Y 51	10YR58	C	D		Y	0	0		0		P			Y	Y	
72	0-37	MCL	10YR42	10YR56	C	D		Y	0	0		0							
	37-120	C	10YR53 51	10YR56	C	D		Y	0	0		0		P			Y		
73	0-35	MCL	75YR32						0	0	HR	2							
	35-60	C	10YR52	05YR4656	M	D		Y	0	0		0		P			Y		
	60-80	HCL	05Y 61	10YR56	C	F		Y	0	0		0		P			Y		
	80-120	SCL	10YR62	10YR56	C	F		Y	0	0		0		M					Q spl
74	0-30	PL	75YR21					Y	0	0		0							
	30-120	PS	75YR21					Y	0	0		0		M					Waterlogged
75	0-28	HCL	10YR42	10YR58	C	D		Y	0	0		0							
	28-50	C	05Y 51 61	10YR5846	M	D		Y	0	0		0		P			Y		
	50-120	HCL	05Y 61	10YR5846	M	D		Y	0	0		0		P			Y		Wet50; Satur'd90
76	0-25	MCL	10YR42	10YR56	F				0	0	HR	2							
	25-55	HCL	10YR53	10YR58	C	D		Y	0	0	HR	2		M					Not spl see 3P
	55-65	HCL	25Y 62	10YR6858	M	D		Y	0	0		0		M					Not spl see 3P
	65-90	MCL	25Y 62	10YR6858	M	D		Y	0	0		0		M					
	90-120	HCL	10YR62	10YR6858	M	D		Y	0	0		0		M					Not spl see 3P
77	0-30	HCL	10YR42	10YR56	F				0	0	HR	2							
	30-50	C	10YR52	10YR58	C	D		Y	0	0	HR	2		P			Y		
	50-80	C	25Y 53	10YR56	C	D		Y	0	0	HR	2		P			Y	Y	+ 5% chalk
	80-120	C	05Y 51	10YR56	C	D		Y	0	0	CH	15		P			Y	Y	
78	0-30	MCL	10YR42						0	0		0							
	30-50	MCL	10YR53	10YR46	C	F		Y	0	0		0		M					
	50-65	C	10YR52	10YR56	M	F		Y	0	0		0		P			Y		
	65-89	C	25Y 53	10YR56	M	C		Y	0	0		0		P			Y		
	89-120	C	25Y 61	10YR56	C	D		Y	0	0		0		P			Y		
79	0-20	HCL	25Y 42	10YR56	C	D		Y	0	0	HR	5							
	20-85	C	10YR62	10YR5868	M	D		Y	0	0	HR	5		P			Y		
	85-120	C	05Y 61	10YR56	C	D		Y	0	0	C	5		P			Y	Y	
80	0-25	SCL	75YR43						0	0		0							
	25-35	SCL	25Y 62	75YR68	M	D		Y	0	0		0		M					
	35-73	SCL	25Y 64	75YR68	M	D		Y	0	0		0		P			Y		Tending clay
	73-120	SCL	05Y 62					Y	0	0		0		M					Waterlogged
81	0-40	PL	10YR22					Y	0	0		0							
	40-120	PL	25Y 31					Y	0	0		0		M					Waterlogged

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
82	0-36	MCL	10YR42	10YR56	C	D		Y	0	0		0							
	36-55	HCL	10YR53 51	10YR56	M	D		Y	0	0		0		P					Alluvial - spl
	55-120	C	25Y 61	10YR66	C	D		Y	0	0		0		P			Y		
83	0-25	HCL	10YR42	10YR58	C	D		Y	0	0		0							
	25-55	C	05Y 51 62	10YR58	M	D		Y	0	0		0		P			Y		
	55-120	C	00N 3	10YR58	M	D		Y	0	0		0		P			Y		Very blue matrix
84	0-20	MCL	75YR32	75YR56	C	D		Y	0	0		0							
	20-70	C	05Y 61 62	10YR58	M	D		Y	0	0		0		P			Y		
	70-105	C	05G 5	10YR56	C	F		Y	0	0		0		P			Y		
	105-120	SCL	05G 5	10YR56	C	F		Y	0	0		0		M			Y		Waterlogged
85	0-35	MCL	75YR32	75YR58	C			Y	0	0		0							
	35-120	C	05Y 51	75YR5658	C	D		Y	0	0		0		P			Y		Humified
86	0-30	MCL	10YR42	10YR56	F				0	0	HR	2						Y	
	30-50	HCL	10YR63	10YR58	C			Y	0	0		0		M					Not spl see 3P
	50-90	C	10YR62	10YR58	M	D		Y	0	0		0		P			Y		+ medium sand
	90-120	MCL	10YR53	10YR58	M	D		Y	0	0		0		M					
87	0-28	MCL	10YR42						0	0		0							
	28-50	HCL	10YR64	10YR68	C	F		Y	0	0		0		M					Not spl see 3P
	50-70	C	10YR63	10YR63	M	D		Y	0	0		0		P			Y		
88	0-30	MCL	10YR42	10YR46	C	D		Y	0	0		0							
	30-75	MCL	10YR53	10YR56	C	D		Y	0	0		0		M					
	75-100	SCL	05Y 61					Y	0	0		0		M					} Blue matrix -
	100-120	SCL	10B 31					Y	0	0		0		M					} perm waterlog'd
89	0-30	MCL	75YR32	75YR56	C			Y	0	0		0							
	30-55	HCL	75YR52	05YR46	M			Y	0	0		0		M					
	55-90	OMCL	75YR21	10YR56	C			Y	0	0		0		M					Waterlogged
	90-120	OMSL	05B 4	10YR56	C			Y	0	0		0		M					Blue - saturated
90	0-25	PL	75YR21	75YR46	C			Y	0	0		0							
	25-70	LP	75YR21					Y	0	0		0		M					
	70-120	PS	75YR21					Y	0	0		0		M					Waterlogged
91	0-25	PL	75YR21	75YR56	C	D		Y	0	0		0							
	25-55	LP	75YR21					Y	0	0		0		M					Moist
	55-120	OFSZL	05Y 41					Y	0	0		0		M					Organic;V wet
92	0-38	HCL	10YR43						0	0		0							
	38-66	HCL	10YR53	10YR56	M	F		Y	0	0		0		M					Not spl see 3P
	66-78	MCL	10YR53	25YR46	M	D		Y	0	0		0		M					
	78-120	SCL	25YR31					Y	0	0		0		M					Waterlogged

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
93	0-30	OMCL	10YR21	75YR46	C	D		Y	0	0		0							
	30-100	HCL	10YR61	75YR68	M	D		Y	0	0		0		P			Y		} + pockets of
	100-120	HCL	05Y 41	10YR56	M	D		Y	0	0		0		P			Y		} loamy peat
94	0-28	OMCL	10YR21					Y	0	0	HR	15							
	28-50	LP	05Y 21					Y	0	0		0		M					
	50-120	PS	05Y 21					Y	0	0		0		M					Saturated
95	0-25	PL	25Y 21					Y	0	0		0							
	25-50	LP	05Y 21					Y	0	0		0		M					Border peat
	50-120	PS	05Y 21					Y	0	0		0		M					Border loamy peat
1P	0-30	ZL	10YR43						0	0	HR	3							
	30-65	MZCL	10YR44	10YR58	C	D	10YR44	S	0	0		0	MDCSAB	FR M					Sl gleyed
	65-90	HZCL	10YR53	10YR58	C	D	10YR44	Y	0	0		0	MDCSAB	FR M					
	90-120	ZL	10YR53	10YR58	C	D		Y	0	0		0		M					
2P	0-30	MCL	10YR42						3	0	HR	13						Y	
	30-65	MCL	10YR33 43						0	0	HR	33		P					+ 10% chalk
	65-105	MCL	10YR44						0	0	HR	34		P				Y	+ 10% chalk
	105-120	MZCL	10YR42	75YR46	C			Y	0	0	CH	2		P					
3P	0-35	MCL	10YR42	10YR56	F	D			0	0		0							
	35-53	HCL	10YR63	10YR56	C	D		Y	0	0		0	MDCSAB	FR M					
	53-120	C	10YR62	10YR58	M	D		Y	0	0		0	MDCAB	FM P	Y		Y		
4P	0-28	HCL	10YR42 61	10YR58	C	D		Y	0	0		0							
	28-55	C	05Y 41	75YR58	C	D		Y	0	0		0	MDCPR	FR M			Y		Variably porous
	55-90	HCL	05Y 61 21	75YR58	M	D		Y	0	0		0	WKCSAB	FR M					Porous
	90-105	MCL	02N					Y	0	0		0		M					} V blue and
	105-120	LMS	05GY 6					Y	0	0		0		M		organic ?			} humified
5P	0-30	HCL	10YR32						0	0	HR	2							
	30-47	C	25Y 53	10YR5856	M	D		Y	0	0	HR	5	MDVCAB	VM P	Y		Y		Gault clay
	47-120	C	05Y 51	10YR5658	M	D		Y	0	0	HR	5	MDVCAB	VM P	Y		Y	Y	Gault clay