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**BERKSHIRE MINERALS PLAN  
(OMISSION SITES)**

**SITE 0S 13 - NORTH OF CHARVIL  
ALC MAP AND REPORT  
JULY 1993**

## AGRICULTURAL LAND CLASSIFICATION

### BERKSHIRE MINERALS PLAN - (OMISSION SITES)

#### SITE OS 13 - NORTH OF CHARVIL

##### 1.0 INTRODUCTION

- 1.1 An Agricultural Land Classification (ALC) survey was carried out over 45.6 ha of land to the north and east of the village of Charvil, which is located to the north east of Reading. The site is bounded to the north by St Patrick's Stream which is a tributary of the River Thames and to the east by a minor road, Loddon Drive. The southern extremity of the site abuts the main A4 road whilst the western arm of the site adjoins another small road, Thames Drive. To the south west between the site and the village of Charvil is an area of agricultural land.
- 1.2 A total of 45 observations were made using a spade and dutch auger to a depth of 1.2 m unless prevented by impenetrable material. In addition two soil pits were dug to help assess subsoil conditions in greater detail.
- 1.3 The survey was carried out on 28 and 30 July 1993 and at the time of survey the whole site was under permanent grass, part of which was due for cutting for silage.

##### 2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

###### Climate

- 2.1 Climatic information for the area has been interpolated from the 5 km dataset produced by the Meteorological Office (Met. Office, 1989) and is set out in the table below:

Grid Reference	SU 771 765
Altitude (m, AOD)	35
Accumulated Temperature (deg)	1481
Average annual rainfall (mm)	669
Field capacity days	141
Moisture deficit, wheat (mm)	116
Moisture deficit, potatoes (mm)	111

- 2.2 Although the average annual rainfall is relatively low in a national context, there is no overall climatic limitation affecting the land quality of the site. However, climatic factors do affect interactive limitations between soil and climate, namely soil wetness and droughtiness.

###### Relief

- 2.3 The site is relatively flat with minor undulations, being located on the floodplain of the River Thames. The altitude of the land is approximately 35 m AOD and consequently neither altitude nor gradient impose any limitation to the agricultural land quality.

## Geology and Soils

- 2.4 The British Geological Survey, Sheet 268 (1946) shows the area to comprise almost entirely Alluvium. A small area of valley gravel has also been mapped in the centre of the site.
- 2.5 The Soils of Reading District map (Soil Surv., 1968) shows the area to comprise three soil types, The Thames, Usher and Purley series. The Thames series are described as poorly drained deep calcareous clayey soils with seasonal surface wetness and a high water table. The Usher series soils are fine loamy soils which are generally located on the levees a little above the floodplain. The Purley series is described as free draining fine loamy drift overlying river terrace gravels, with some seasonal wetness occurring locally.
- 2.6 The current survey mapped soils which correlated closely with those described above although the distribution of the soils is slightly different. The highest land on the site comprises soils which correlate with the Purley series. These soils have a brown, medium clay loam topsoil over a strong brown, medium or heavy clay loam subsoil. Clay content generally increases slightly down the profile before the underlying gravelly strata is encountered in some profiles, which has a sandy clay or sandy clay loam texture and in excess of 35% flint stones. The soils are generally free draining although occasional profiles had slight gleying at depth. The soils have therefore been assessed as wetness class I. At the western end of the site the soils are generally shallower with the underlying gravels being encountered within 50-60 cm depth.
- 2.7 Over the lower lying parts of the site heavy alluvial soils were encountered. These stoneless soils have a heavy silty clay loam or silty clay topsoil over a grey, strongly mottled clay subsoil which becomes increasingly wetter, softer and more plastic with depth. They generally have a very coarse angular blocky subsoil structure, becoming massive with depth and are therefore slowly permeable immediately below the topsoil. They are therefore classified as wetness class IV. Two areas of very wet soils have been identified, one in the middle of the site and the other at the southern end. These areas have been classified as wetness class V. The soils are calcareous at the northern extremity of the site but non calcareous over the remainder.
- 2.8 Adjacent to the St Patrick's Stream at the northern edge of the site the land rises slightly on to a levee and calcareous fine loamy over clayey alluvial soils were encountered. These soils have a heavy silty clay loam topsoil over a similar textured upper subsoil with few faint ochreous mottles. Below 45-50 cm depth the soils become heavier textured, silty clay or clay and exhibit distinct ochreous mottling. These soils are also stoneless throughout, but are slightly better drained and have therefore been assessed as wetness class III.

## **3.0 AGRICULTURAL LAND CLASSIFICATION**

- 3.1 The site has been classified in accordance with the guidelines and criteria for grading agricultural land (MAFF, 1988). The following table gives a breakdown of the individual grades in term of area and extent for the site and their distribution is shown on the accompanying map.

<u>Grade</u>	<u>Area (ha)</u>	<u>% of total agricultural land</u>
2	15.6	36.0
3a	7.8	18.0
3b	16.7	38.6
4	3.2	<u>7.4</u>
Non Agricultural/Woodland	<u>2.3</u>	100
Total area of site	<u>45.6</u>	

### Grade 2

- 3.2 The well drained soils on the slightly higher areas of the site have been classified as Grade 2. These soils which are described in detail in paragraph 2.6 are fine loamy throughout and therefore contain moderately high amounts of plant available water. However moisture balance calculations indicate that under the existing climatic conditions they will be slightly droughty for potatoes and dependent on the depth to the underlying gravel strata slightly droughty also for wheat. This minor limitation therefore restricts these versatile soils to a Grade 2 potential.

### Grade 3a

- 3.3 Three areas of Grade 3a have been mapped, two of which relate to the slightly higher levees that exist alongside the St Patrick's Stream. The soils which occur in these areas have been described in paragraph 2.8 above. The major limitation associated with these soils is a wetness and workability restriction. The soils are described as fine loamy over clayey and have been assessed as wetness class III. Consequently as a result of the calcareous heavy silty clay loam topsoil texture, and the imperfect drainage conditions, such soils under these climatic conditions cannot be better than Grade 3a.
- 3.4 The remaining area of Grade 3a relates to the shallow variants of the soils described in paragraph 2.6. In this area the underlying gravelly strata was encountered at 50-60 cm depth which will therefore restrict the plant available water contained in the soil. Consequently in most years crops would suffer drought stress during the summer months thereby restricting the versatility of this land.

### Grade 3b

- 3.5 The poorly drained alluvial soils mapped on the lower lying land have been restricted to this grade. These heavy textured soils (see paragraph 2.7) have been classified as wetness class IV and in an area of 141 field capacity days are restricted to Grade 3b due to wetness and workability limitations. At the time of survey, although the topsoils were generally dry the subsoil horizons were still very moist and plastic indicating a relatively shallow groundwater table. Therefore during the wetter periods of the year due to the slowly permeable subsoils and also moderately high groundwater levels, such soils will quickly become intractable restricting the time when they can be worked or trafficked without causing damage.

Grade 4

- 3.6 Two areas of Grade 4 have been mapped, one in the centre of the site where the soils are extremely wet and currently support a vegetation of rushes and sedges and the other at the southern end. These areas have been classified as wetness class V restricting the use of them to permanent grass and thereby limiting them to this grade.

Non Agricultural

- 3.7 A narrow band of scrub and woodland has been delineated along the north western edge of the site alongside the St Patrick's Stream. At the southern end is a further area of woodland adjacent to the A4 road, whilst immediately to the north are a series of small ponds and associated scrub and disturbed land which is probably the result of a small localised gravel extraction..

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Resource Planning Team  
Guildford Statutory Group  
ADAS Reading

## APPENDIX I

### 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 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 on 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. When more demanding crops are grown yields are generally lower or more variable than on land in grades 1 and 2.

#### **Sub-grade 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.

#### **Sub-grade 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 (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.

## **Urban**

Built-up or 'hard' uses with relatively little potential for a return to agriculture : 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 re-claimed using derelict land grants.

## **Non-agricultural**

'Soft' uses where most of the land could be returned relatively easily to agriculture, including : private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

## **Woodland**

Includes commercial and non-commercial woodland.

## **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, eg. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.

## **REFERENCES**

BRITISH GEOLOGICAL SURVEY (1946) Sheet 268, Reading.

MAFF (1988) Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

METEOROLOGICAL OFFICE (1989) Climatological data for Agricultural Land Classification.

SOIL SURVEY OF ENGLAND AND WALES (1989) Soils of the Reading District.



## APPENDIX III

### DEFINITION OF SOIL WETNESS CLASSES

#### Wetness Class I

The soil profile is not wet within 70cm depth for more than 30 days in most years.

#### Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 90 days, but not wet within 40cm depth for more than 30 days in most years.

#### Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years or, if there is no slowly permeable layer within 80cm depth, it is wet within 70cm for more than 180 days, but only wet within 40cm depth for 31-90 days in most years.

#### Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years or, if there is no slowly permeable layer within 80cm depth, it is wet within 40cm depth for 91-210 days in most years.

#### Wetness Class V

The soil profile is wet within 40cm depth for 211-335 days in most years.

#### Wetness Class VI

The soil profile is wet within 40cm depth for more than 335 days in most years.

(The number of days is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.)

## APPENDIX IV

### SOIL PIT AND SOIL BORING DESCRIPTIONS

- Contents :
- \* Soil Abbreviations : Explanatory Note
  - \* Soil Pit Descriptions
  - \* Database Printout : Boring Level Information
  - \* Database Printout : *Horizon Level Information*

## SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a database. This has commonly used notations and abbreviations as set out below.

### Boring Header Information

1. GRID REF : national 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    HRT : Horticultural Crops    PGR : Permanent Pasture    LEY : Ley Grass    RGR : Rough Grazing  
SCR : Scrub    CFW : Coniferous Woodland    DCW : Deciduous Woodland    HTH : Heathland    BOG : Bog or Marsh  
FLW : Fallow    PLO : Ploughed    SAS : Set aside    OTH : Other

3. GRDNT : Gradient as measured by a hand-held optical clinometer.

4. GLEY/SPL : Depth in cm to gleying or slowly permeable layers.

5. AP (WHEAT/POTS) : Crop-adjusted available water capacity.

6. MB (WHEAT/POTS) : Moisture Balance.

7. DRT : Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, an entry of 'Y' will be entered in the relevant column.

MREL : Microrelief limitation    FLOOD : Flood risk    EROSN : Soil erosion risk    EXP : Exposure limitation    FROST : Frost  
DIST : Disturbed land    CHEM : Chemical limitation

9. LIMIT : The main limitation to land quality. The following abbreviations are used.

OC : Overall Climate    AE : Aspect    EX : Exposure    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 : Soil Erosion Risk    WD : Combined Soil Wetness/Droughtiness    ST : Topsoil Stoniness

### 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  
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 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

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

6. **STONE LITH** : One of the following is used.

**HR** : all hard rocks and stones    **MSST** : soft, medium or coarse grained sandstone

**SI** : soft weathered igneous or metamorphic    **SLST** : soft oolitic or dolimitic limestone

**FSSST** : soft, fine grained sandstone    **ZR** : soft, argillaceous, or silty rocks    **CH** : chalk

**GH** : gravel with non-porous (hard) stones    **GS** : gravel with porous (soft) stones

Stone contents (> 2cm, > 6cm and total) are given in percentages (by volume).

7. **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    **VC** : very coarse

- ped shape    **S** : single grain    **M** : massive    **GR** : granular    **AB** : angular blocky    **SAB** : sub-angular blocky    **PR** : prismatic  
**PL** : platy

8. **CONSIST** : Soil consistence is described using the following notation:

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

9. **SUBS STR** : Subsoil structural condition recorded for the purpose of calculating profile droughtiness.

**G** : good    **M** : moderate    **P** : poor

10. **POR** : Soil porosity. If a soil horizon has less than 0.5% biopores > 0.5 mm, a 'Y' will appear in this column.

11. **IMP** : If the profile is impenetrable a 'Y' will appear in this column at the appropriate horizon.

12. **SPL** : Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

13. **CALC** : If the soil horizon is calcareous, a 'Y' will appear in this column.

14. 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

SOIL PIT DESCRIPTION

Site Name : BERKS MINS PLAN SITE 13 Pit Number : 1P

Grid Reference: SU77407720 Average Annual Rainfall : 669 mm  
 Accumulated Temperature : 1481 degree days  
 Field Capacity Level : 141 days  
 Land Use : Permanent Grass  
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 20	ZC	10YR32 00	0	2		MDCP
20- 45	C	25Y 62 00	0	0	C	STCAB
45- 70	FSC	25Y 62 00	0	0	M	MASS
70-120	SC	25Y 63 00	0	0	M	

Wetness Grade : 3B Wetness Class : IV  
 Gleying : 020 cm  
 SPL : 020 cm

Drought Grade : 3B APW : 106mm MBW : -10 mm  
 APP : 66 mm MBP : -45 mm

FINAL ALC GRADE : 3B  
 MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : BERKS MINS PLAN SITE 13 Pit Number : 2P

Grid Reference: SU77307710 Average Annual Rainfall : 669 mm  
 Accumulated Temperature : 1481 degree days  
 Field Capacity Level : 141 days  
 Land Use : Permanent Grass  
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 30	MCL	75YR44 00	0	1		MDMSAB
30- 55	MCL	75YR55 00	0	1		MDCSAB
55- 75	HCL	75YR55 00	0	1		MVCSAB
75-120	SC	75YR46 00	0	35		MASS

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

Drought Grade : 2 APW : 134mm MBW : 18 mm  
 APP : 117mm MBP : 6 mm

FINAL ALC GRADE : 2  
 MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	GLEYSPL	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
					CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT		
1P	SU77407720	PGR	020	020	4	3B	106	-10	66	-45	3B					WE	3B
2P	SU77307710	PGR	000		1	1	134	18	117	6	2					DR	2

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/		SUBS		SPL	CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT	CONSIST	STR	POR		
1P	0-20	zc	10YR32 00						0	0	HR	2	MDCP	FM			
	20-45	c	25Y 62 00	10YR68 00	C		25Y 61 00	Y	0	0		0	STCAB	FM P	Y		Y
	45-70	fsc	25Y 62 00	10YR68 00	M			Y	0	0		0	MASS	FM P	Y		Y
	70-120	sc	25Y 63 00	10YR68 00	M			Y	0	0		0		P	Y		Y
2P	0-30	mc1	75YR44 00						0	0	HR	1	MDMSAB	FR			
	30-55	mc1	75YR55 00						0	0	HR	1	MDCSAB	FM M			
	55-75	hc1	75YR55 00						0	0	HR	1	MVCSAB	FM M			
	75-120	sc	75YR46 00						0	0	HR	35	MASS	FM P			



SITE OS 13 NORTH OF CHARVIL  
Schedule of Auger bores

- 1 0-25 10YR3/3 hZCL/ZC calc no stones  
25-50 2.5Y5/3 ZC no mottles calc  
50-120 2.5Y6/3 ZC com faint och mottles calc wet & plastic  
below 90 cm  
Wetness Class II Grade 3a
- 2 0-20 10YR4/3 hZCL calc no stones  
20-40 2.5Y5/3 ZC com faint och mottles calc  
40-55 2.5Y6/2 ZC com dist och mottles calc  
55-95 2.5Y6/2 C as above but soft v plastic & wet  
95+ extremely wet gravelly SC  
Wetness Class III/IV Grade 3b
- 3 0-25 10YR4/3 hZCL calc no stones  
25-45 2.5Y5/4 hZCL no mottles calc  
45-65 2.5Y5/3 ZC com dist och mottles calc  
65-120 2.5Y6/2 C com dist och mottles v soft & v plastic  
below 80 cm  
Wetness Class III Grade 3a
- 4 0-25 10YR3/3 hZCL+ calc no stones  
25-60 2.5Y6/2 C many dist och mottles calc soft & plastic  
below 50  
60-95 2.5Y6/3 SC sl stony c 10% flints  
Impenetrable @ 95 cm  
Wetness Class IV Grade 3b
- 5 0-25 10YR3/3 ZC calc no stones  
25-35 2.5Y6/3 ZC com dist och mottles calc  
35-120 2.5Y6/2 ZC/C many prom och mottles v wet soft &  
plastic below 50 cm  
Wetness Class IV Grade 3b
- 6 0-30 10YR3/3 mZCL calc no stones  
30-45 10YR5/4 hCL calc no mottles no stones  
45-70 10YR5/3 hCL com dist och mottles calc no stones  
70-120 10YR6/3 SCL/SC com dist och mottles v moist soft &  
plastic  
Wetness Class III Grade 3a
- 7 0-27 10YR3/3 hZCL calc no stones  
27-50 2.5Y5/3 ZC calc no mottles no stones  
50-85 2.5Y6/2 ZC com dist och mottles calc  
85-120 2.5Y6/2 C com dist och mottles soft & plastic  
Wetness Class III Grade 3a
- 8 0-20 10YR4/3 hZCL calc no stones  
20-40 2.5Y5/3 ZC com faint och mottles calc  
40-60 2.5Y6/3 ZC com dist och mottles calc  
60-120 2.5Y6/2 C com prom och mottles wet extremely soft &  
plastic calc  
Wetness Class III/IV Grade 3b

- 9 0-23 10YUR3/3 hZCL calc no stones  
 23-45 10YR5/4 hZCL/ZC calc no mottles no stones  
 45-65 2.5Y6/3 ZC com dist och mottles calc no stones  
 65-90 2.5Y6/3 C com dist och mottles sl stony v moist. &  
 plastic  
 Impenetrable waterlogged gravel @ 90 cm  
 Wetness Class III Grade 3a
- 10 0-20 10YR3/3 hZCL calc no stones  
 20-45 2.5Y5/3 hZCL/ZC few faint och mottles calc  
 45-120 2.5Y6.5/2 C com dist yellow mottles wet & plastic  
 at depth  
 Wetness Class III Grade 3a
- 11 0-27 7.5YR4/3 mCL non calc 1-2% flints  
 27-60 10YR5/6 hCL no mottles no stones sl calc  
 60-80 10YR6/5 mCL strongly calc no mottles no stones  
 80-120 10YR7/4 fSL/fSZL com faint och mottles  
 Wetness Class I Grade 2 (drought)
- 12 0-30 7.5YR4/4 mCL 1-2% small flints  
 30-50 7.5YR5/5 mCL no mottles no stones  
 50-80 7.5YR5/6 hCL no mottles no stones.  
 Impenetrable flints @ 80 cm  
 Wetness Class I Grade 2
- 13 0-20 10YR3/2 ZC non calc few rusty root mottles  
 20-45 2.5Y6/2 C many prom och mottles non calc  
 45-70 2.5Y6/2 fSC v many prom och mottles  
 70-120 2.5Y6/3 SC many dist och mottles wet & v plastic  
 Wetness Class IV Grade 3b
- 14 0-25 10YR3/3 hZCL strongly calc no stones  
 25-37 10Yr5/4 hZCL com dist och mottles calc no stones  
 37-120 2.5Y6/2 C v calc com small shells soft & plastic  
 Wetness Class III/IV Grade 3a/b
- 15 0-22 10YR3/3 hZCL calc no stones  
 22-40 2.5Y6/2 ZC calc com dist och mottles some algal  
 marl  
 40-120 2.5Y6/2 C many prom och mottles calc wet v soft &  
 plastic  
 Wetness Class III/IV Grade 3a/b
- 16 0-25 7.5YR4/3 mCL non calc 2-3% med flints  
 25-50 10YR5/6 hCL no mottles few Mn concs non calc few  
 flints  
 50-80 10YR6/4 fSCL com faint och mottles calc  
 80-100 10YR6/4 m/fSL com faint och mottles sl stony  
 Impenetrable flints @ 100 cm  
 Wetness Class I/II Grade 2

- 17 0-10 10YR4/3 mSZL 1-2% flints  
 10-40 10YR5/4 mCL no mottles no stones  
 40-90 7.5YR5/6 hCL few Mn concs below 70 cm  
 90-120 7.5YR5/4 fSCL com faint och mottles no stones  
 Wetness Class I Grade 2
- 18 0-30 7.5YR4/3 fSL 1-2% flints non calc  
 30-65 10YR5/6 mCL no mottles non calc stones as above  
 65-85 10YR5/5 fSCL/mCL no mottles non calc no stones  
 85-100 10YR6/5 gravelly SCL no mottles  
 Impenetrable gravel @ 100 cm  
 Wetness Class I Grade 2
- 19 0-20 10YR3/2 C non calc com faint rusty root mottles  
 20-50 2.5Y5/3 C many dist och & few grey mottles no  
 stones  
 50-80 10YR6/4 (s)C many dist och mottles few Mn concs  
 80-120 2.5Y6/2 C many prom och mottles no stones  
 Wetness Class IV Grade 3b
- 20 0-20 7.5YR4/3 mCL non calc  
 20-70 10YR5/3 hCL com dist och mottles few Mn concs no  
 stones  
 70-120 10YR6/3 SCL many dist och mottles moist & plastic  
 becoming sandier with depth  
 Wetness Class III Grade 3a
- 21 0-22 10YR3/3 mZCL calc no stones  
 22-50 2.5Y5/3 hZCL calc com dist och mottles  
 50-70 2.5Y6/2 hZCL/C com dist och mottles wet & plastic  
 70-120 2.5Y6/2 C vwet & v plastic  
 Wetness Class IV Grade 3b
- 22 0-25 10YR3/2 mCL non calc <1% flint's  
 25-45 10YR5/4 hCL no mottles sl calc  
 45-65 2.5Y5/3 hCL com dist och mottles calc  
 65-85 2.5Y6/3 SC com dist och mottles calc v moist &  
 plastic  
 85-120 10YR6/3 C com dist och mottles v moist & plastic  
 Wetness Class III Grade 3a
- 23 0-20 7.5YR4/3 mSZL/mCL 5-8% small & med flints  
 20-55 10YR5/6 mCL 10-15% flints  
 Impenetrable flints @ 55 cm  
 Wetness Class I Grade 3a
- 24 0-17 10YR4/2 m/hZCL many och mottles no stones non calc  
 17-55 5Y6/2 many prom och mottles v moist & plastic  
 55-120 5Y7/2 SC com dist och mottles few flints becoming  
 dark grey at depth v soft & wet  
 Wetness Class V Grade 4

- 25 0-20 10YR3/3 hZCL com dist och root mottles non calc  
 20-55 2.5Y6/3 C com dist och & grey mottles non calc v  
 soft & plastic  
 55-90 2.5Y5/3 SC com dist och mottles v wet & plastic  
 90-120 5Y5/3 SC gravelly wet  
 Wetness Class IV/V Grade 3b/4
- 26 0-10 10YR3/2 hZCL sl org com dist rusty root mottles non  
 calc no stones  
 10-22 10YR4/2 hZCL com dist och mottles no stones  
 22-90 2.5Y6/2 C com dist och mottles Mn concs at 75 cm v  
 moist & v plastic  
 90-120 5Y5/3 v wet C few flints  
 Wetness Class IV/V Grade 4
- 27 0-25 10YR4/3 mCL 5-8% small & med flints  
 25-70 10YR5/3 hCL(s) com dist och mottles 10-15% flints  
 few Mn concs  
 Impenetrable flints @ 70 cm  
 Wetness Class III Grade 3a
- 28 0-20 7.5YR4/1 hZCL many rusty root mottles non calc  
 20-55 2.5Y6/2 C com dist och mottles wet & plastic  
 55-110 2.5Y6/3 SC many dist och mottles v soft & plastic  
 Impenetrable flints @ 110 cm  
 Wetness Class IV/V Grade 3b/4
- 29 0-25 7.5YR4/4 fSL 1-2% flints non calc  
 25-55 10YR5/5 mCL no mottles v few flints  
 55-75 10YR6/4 fSCL/mCL com faint och mottles few Mn  
 concs  
 75-95 10YR6/3 hCL com dist och mottles  
 95-120 2.5Y6/2 SC com dist och mottles no stones  
 Wetness Class II Grade 2
- 30 0-25 7.5YR4/3 fSL 5-8% small & med flints  
 25-50 10YR5/5 SCL mod stony c.15-20% flints  
 Impenetrable flints @ 50 cm  
 Wetness Class I Grade 3a
- 31 0-27 7.5YR4/3 fSZL/mCL 1-2% small & med flints non calc  
 27-55 7.5YR5/5 m/hCL no mottles non calc v few stones  
 55-65 10YR5/4 hCL com faint och mottles  
 65-90 10YR6/4 hCL com dist och mottles  
 90-120 2.5Y6/3 fSCL com faint och mottles no stones  
 Wetness Class II Grade 2
- 32 0-25 10YR4/3 mCL 3-4% small & med flints non calc  
 25-55 10YR5/5 hCL non calc 10% flints  
 55-65 10YR6/5 SCL com faint och mottles  
 65-80 10YR6/4 SCL com dist och mottles soft & plastic  
 80-120 7.5-10YR5/6 SC gravelly c.15% flints wet  
 Wetness Class II Grade 2

- 33 0-22 10YR3/3 m/hZCL com rusty root mottles non calc  
 22-30 10YR6/3 ZC com dist och mottles no stones sl calc  
 30-120 2.5Y6/2 C com dist och mottles few small shells  
 calc v moist & plastic  
 Wetness Class IV Grade 3b
- 34 0-25 7.5YR4/3 fSZL/mCL no stones non calc  
 25-50 10YR5/5 mCL no mottles no stones  
 50-85 10YR6/4 mCL com dist och mottles few Mn concs  
 85-120 10YR6/3 fSCL/hZCL com dist och mottles & Mn concs  
 Wetness Class II Grade 2
- 35 0-23 7.5YR4/2 hZCL+ non calc no stones  
 23-40 2.5Y6/2 SC many prom och mottles non calc  
 40-65 5Y7/1 SCL com prom och mottles  
 Impenetrable gravel @ 65 cm  
 Wetness Class IV Grade 3b
- 36 0-20 10YR3/3 mZCL calc <1% flints  
 20-35 2.5Y5/3 hZCL com dist och mottles calc no stones  
 35-120 2.5Y6/3 C com dist och mottles becoming sandy at  
 depth wet & v plastic  
 Wetness Class IV Grade 3b
- 37 0-20 10YR3/2 hZCL few faint rusty root mottles non calc  
 20-40 10YR5/3 C com dist och mottles calc  
 40-60 2.5Y6/3 C com dist och mottles c.15% flints wet  
 60-120 as above (s)C wet becoming SC below 80cm and SCL  
 below 110 cm  
 Wetness Class IV Grade 3b
- 38 0-20 10YR3/3 hZCL <1% flints non calc com rusty root  
 mottles  
 20-30 10YR5/3 C com dist och mottles non calc few flints  
 30-55 as above 15% small flints v moist & plastic  
 55-120 2.5Y6/2 C com dist och mottles few flints at top  
 then none below 70 cm v moist & plastic  
 Wetness Class IV Grade 3b
- 39 0-18 10YR4/3 fSZL com faint rusty root mottles non calc  
 no stones  
 18-40 10YR5/4 hCL com dist och mottles no stones  
 40-65 10YR6/4 hCL com prom och mottles  
 65-90 7.5YR6/5 gravelly SCL/SL v moist becoming sandier &  
 waterlogged  
 Impenetrable gravel @ 90 cm  
 Wetness Class II/III Grade 2
- 40 0-20 7.5YR4/1 hZCL many dist rusty root mottles non  
 calc  
 20-40 2.5Y5/1 C com prom och mottles non calc no stones  
 40-120 5Y6/2 C many prom och mottles non calc no stones  
 band of Mn concs at 85 cm becoming v moist &  
 plastic  
 Wetness Class IV/V Grade 3b/4

- 41 0-27 10YR3/3 fSL v sl calc 1% small flints  
 27-50 10YR5/6 SCL calc v few stones  
 50-80 10YR6/5 SCL few faint och mottles  
 Impenetrable gravel @ 80 cm  
 Wetness Class I Grade 2
- 42 0-15 10YR4/2 hZCL many dist rusty root mottles non calc  
 no stones  
 15-40 5Y5/2 C com dist och mottles  
 40-55 2.5Y6/2 (s)C many prom och mottles  
 55-100 10YR6/3 SC many prom och mottles v moist & plastic  
 Impenetrable flints @ 100 cm  
 Wetness Class IV/V Grade 3b/4
- 43 0-20 7.5YR4/3 fSZL non calc no stones  
 20-50 7.5YR5/4 fSZL no mottles no stones  
 50-95, 10YR6/4 hCL com faint och mottles becoming com dist  
 below 60 cm  
 95-110 10YR6/3 fSCL com dist och mottles  
 Impenetrable gravel @ 110 cm  
 Wetness Class II Grade 2
- 44 Disturbed mounds from previous gravel workings
- 45 0-15 10YR3/1 ZC many dist och root mottles non calc no  
 stones  
 15-40 2.5Y5/1 C com prom dark brown mottles non calc  
 40-80 2.5Y6/1 C com dist och mottles v moist & plastic  
 80-100 wet SC extremely sticky & plastic  
 Impenetrable gravel @ 100  
 Wetness Class V Grade 4