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TUNBRIDGE WELLS BOROUGH
LOCAL PLAN
LAND AT FRANT ROAD
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
OCTOBER 1993

TUNBRIDGE WELLS BOROUGH LOCAL PLAN
PROPOSED PARK AND RIDE SITES FRANT ROAD
AGRICULTURAL LAND CLASSIFICATION

1 0 Summary

1 1 ADAS was commissioned by MAFF s Land Use Planning Unit to provide information on land quality on an area of land east of Frant Road on the edge of Tunbridge Wells in Kent The work forms part of MAFF s statutory input to proposed park and ride sites in the Tunbridge Wells Borough Local Plan

1 2 Approximately 2 hectares of land was surveyed in October 1993 The survey was undertaken at a detailed level of approximately one boring per hectare A total of 2 soil auger borings and 1 soil inspection pit were assessed in accordance with MAFF s revised guidelines and criteria for grading the quality of agricultural land (MAFF 1988) These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long term limitations on its use for agriculture

1 3 The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS

1 4 At the time of the survey the site was in linseed which had been recently harvested

1 5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below The map has been drawn at a scale of 1 5 000 It is accurate at this scale but any enlargement would be misleading This map supersedes any previous survey information

1 6 Appendix 1 gives a general description of the grades subgrades and land use categories identified in the survey The main classes are described in terms of the type of limitation that can occur the typical cropping range and the expected level and consistency of yield

1 7 All of the site (2 3 ha) has been classified as Grade 4 poor quality agricultural land with soil wetness as the key limitation Soils are typically heavy silty clay loam topsoils which become heavier with depth There is evidence of a severe drainage limitation due to the presence of a poorly structured clay subsoil

2 0 Climate

2 1 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

2 2 The main parameters used in the assessment of the overall climatic limitation are average annual rainfall as a measure of overall wetness and accumulated temperature (degree days Jan June) as a measure of the relative warmth of a locality

2 3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met Office 1989) The details are given in the table below and these show that there is no overall climatic limitation affecting the site

2 4 No local climatic factors such as exposure or frost risk affect the site However climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations At this locality field capacity days are relatively high whilst soil moisture deficits are correspondingly low

Table 2 _ Climatic Interpolations

Grid Reference	TQ 582 373
Altitude (m)	145
Accumulated Temperature (days)	1357
Average Annual Rainfall (mm)	856
Field Capacity (days)	178
Moisture Deficit Wheat (mm)	93
Moisture Deficit Potatoes (mm)	82
Overall Climatic Grade	1

3 0 Relief

3 1 The site is flat and lies at an altitude of 145m On no part of the site does relief pose any limitation to agricultural use

4 0 Geology and Soil

4 1 The relevant geological information for the site (BGS Sheet 303 Tunbridge Wells 1971) shows the underlying geology to be Ashdown Beds These are predominantly an Arenaceous formation consisting of fine grained mudstones and siltstones

4 2 The published soils information for the area (SSEW Sheet 6 Soils of South East England 1983) shows the soils on the site to be of the Poundgate Association These are described as naturally very acid soils with a bleached subsurface horizon slowly permeable subsoils and slight seasonally waterlogged silty soils Detailed field examination broadly confirms this particularly the presence of slowly permeable subsoils although soil acidity is not a key limitation to agricultural use

5 0 Agricultural Land Classification

5 1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map

5 2 The location of the soil observation points is shown on the attached sample point map

5 3 Grade 4 _ The entire site has been classified as Grade 4 poor quality agricultural land Soil profiles are typically heavy silty clay loam topsoils overlying a clay subsoil Pit 1 confirmed that soil gleying occurs at approximately 29cm also at this depth there is a poorly structured platy clay subsoil which severely impedes drainage These soil wetness conditions can lead to waterlogging of roots and poor root development restricting the range of crops that can tolerate such conditions It can also restrict the frequency and effectiveness of the use of machinery on this type of land which is also prone to damage by grazing livestock The shallow depth of the poorly structured clay places these soils into Wetness Class IV When taking into account the topsoil texture and field capacity level (178 days) for the site these soils can only be classified as Grade 4

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

APPENDIX II

REFERENCES

* British Geological Survey (1971) Sheet No 303 Tunbridge Wells 1 50 000

* 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 (1983) Sheet No 6 Soils of South East England 1 250 000 and accompanying legend

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 PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil pit and ger boring information collected during ALC fieldwork is held on a database This has commonly used notations and abbreviation set out below

Boring Header Information

1 GRID REF ation 1 grid square and 8 figure grid reference

2 USE Land use at the time of survey The following abbreviat o s are sed

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 o M sh
FLW Fallow PLO Ploughed SAS Set s de OTH Other

3 GRDNT Gradient measured by a hand held optical clinometer

4 GLEY/SPL Depth in cm to gleying 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 limitatio FLOOD Flood risk EROSN Soil erosion risk EXP Exposure limitation FROST Frost
DIST Disturbed land CHEM Chemical limitation

9 LIMIT The main limitatio 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 sand 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 abu dance expressed s a percentage of the matrix o surface described

F few <2% C common 2 20% M many 20-40 VM ery ma y 40%+

4 MOTTLE CONT Mottle contr t

F f int indistinct mottles e ident only o close inspection D distinct mottles are readily seen
P prominent mottling co sp cuous and on of the o tstanding features of the horizon

5 PED COL Ped face lour

6 STONE LITH One f the followng is used

HR all hard rocks and stones MSST soft medium or coarse grained sandstone
SI soft weathered gneo r metamorphic SLST soft oolit c or dolimitic limeston
FSST soft fine gr ined sa dston ZR soft g llaceous or s lty rocks CH chalk
GH gra el with on poro (hard) sto s GS gra el w th porous (soft) stones

Stone co tents (>2cm >6cm a d total) are g en in percentag s (by lume)

7 STRUCT the degree of de elopme t size and sh pe of so l peds are described using the followng notat o

degree of de lopment WK weakly d el ped MD moderately d veloped ST stro gly dev loped

ped size F fine M medium C coarse VC ery coarse

ped sh pe S single grain M mass ve GR gran lar AB angular blocky SAB sub-ang lar blocky PR prismatic
PL platy

8 CONSIST Soil co s stence is described using th followng otation

L loose VF very friable FR friable FM firm VM very firm EM extremely firm EH e tremely h rd

9 SUBS STR Subsoil structural co d tion reco ded for the purpose of calculating profile droughtines

G good M moderat P poo

10 POR Soil poros ty If a soil horizo has less th 0 5% biopores >0 5 mm a Y will appear in this column

11 IMP If the profile is impenetrable Y will appear in th s column t the appropiate h rizon

12 SPL Slowly permeable laye If the so l horizo is slowly permeable a Y will appear in th s col mn

13 CALC If the soil horizon is calcareous a Y will appear in this column

14 Other tat o s

APW ilable wate cap c ty (in mm) dj sted for wheat
APP ailable w ter capacity (in mm) adj sted f potatoes
MBW moisture balance whe t
MBP m ture b lance potatoes

SOIL PIT DESCRIPTION

Site Name FRANT ROAD Pit N mbe 1P

G id Reference TQ58503750 Ave ge An al Rai f ll 858 mm
Accum lated Temperat re 1354 degree days
Fıeld Capacıty Le el 178 days
Land Use Linseed
Slope and Aspect degrees

HORIZON		TEXTURE	COLOUR	STONES 2	TOT STONE	MOTTLES	STRUCTURE
0	29	HZCL	10YR42 00	0	2		
29	60	HZCL	10YR61 00	0	0	M	SVCPY

Wetness Grade 4 Wetness Class IV
Gleying 029 cm
SPL 029 cm

Dro ght Grade 3A APW 085mm MBW 8 mm
APP 091mm MBP 9 mm

FINAL ALC GRADE 4
MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS CLASS	WHEAT GRADE	POTS AP	POTS MB	M REL AP	M REL MB	DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	TQ58403750	LIN			028	028	4	4	092	1	101	19	3A				WE	4	
1P	TQ58503750	LIN			029	029	4	4	085	8	091	9	3A				WE	4	
2	TQ58453745	LIN			029		2	3A	139	46	122	40	1				WE	3A	

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 28	hzcl	10YR41 00						0	0		0						
	28-65	c	10YR61 00	000C00 00	M			Y	0	0		0		P	Y		Y	
1P	0 29	hzcl	10YR42 00						0	0	HR	2						
	29 60	hzcl	10YR61 00	10YR78 00	M		10YR71 00	Y	0	0		0	SVCPY FR	P	Y		Y	
2	0 29	hzcl	10YR42 00						0	0	HR	2						
	29 55	hzcl	10YR64 00	75YR56 71	C			Y	0	0		0		M				
	55 110	c	25Y 74 00	75YR56 71	M			Y	0	0		0		M				