

**AGRICULTURAL LAND CLASSIFICATION  
DURHAM MINERALS LOCAL PLAN  
COUNTY DURHAM**

**DECEMBER 1995**

ADAS  
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## SUMMARY

Agricultural Land Classification surveys of sites at Hummerbeck, Nunstainton, Embleton, Hutton Magna, Elstob, Lea Hall, Thrislington and Raisby were carried out in October, November and December 1995 in relation to Durham Minerals Local Plan. The following table summarises the grades found on each site.

Site*	Area (ha)				Other Land
	Grade 2	Subgrade 3a	Subgrade 3b	Grade 4	
Hummerbeck (D)	-	22.7	37.0	18.8	1.4
Nunstainton (SD)	-	2.3	36.2	-	-
Embleton (SD)	-	-	104.6	-	139.2
Hutton Magna (D)	-	25.7	24.4	-	3.8
Elstob (SD)	-	7.0	32.2	-	-
Lea Hall (R)	20.4	-	87.5	-	1.6
Thrislington (D)	17.2	43.8	18.9	-	0.3
Raisby (D)	-	6.1	25.9	-	0.3

\* D - Detailed Survey

SD - Semi-Detailed Survey

R - Reconnaissance Survey

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AGRICULTURAL LAND CLASSIFICATION REPORT ON LAND AT HUMMERBECK,  
NUNSTANTON, EMBLETON, HUTTON MAGNA, ELSTOB, LEA HALL,  
THRISLINGTON AND RAISBY, IN RELATION TO DURHAM MINERALS LOCAL PLAN

**1. INTRODUCTION**

Agricultural Land Classification (ALC) surveys of the above mentioned areas were carried out in October, November and December 1995, when the soils were examined by hand auger borings carried out at regular intervals predetermined by the National Grid. The overall boring density was either one per hectare (at Hummerbeck, Hutton Magna, Thrislington and Raisby), one per two hectares (at Nunstainton, Embleton and Elstob) or one per four hectares (Lea Hall). In the case of Thrislington, the south-west of the area had been subject to a detailed survey in December 1992 while a semi-detailed survey of the remaining land was carried out in March 1994. Further survey work on the area covered by the semi-detailed survey was carried out in November 1995, giving an overall boring density of one per hectare. In the case of Hummerbeck, the north-west of the area had been subject to a detailed survey in March 1994 and the additional information obtained in November 1995 was used to refine the grade boundaries where the two surveys adjoin. Supplementary borings were carried out on all sites where necessary to refine grade boundaries, and at least two soil pits were dug on each site to allow the profiles to be described in greater detail. The land quality was assessed using the methods described in "Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land" (MAFF 1988).

## 2. HUMMERBECK

### 2.1 Location, Land Use and Relief

This site lies approximately 2½km south-south-west of Bishop Auckland town centre, around O.S. grid reference NZ 199 265, and covers a total area of 79.9 ha. At the time of the November 1995 survey 98% of the site was in agricultural use (growing winter cereals, under permanent grass or rough grazing) whilst 2% consisted of open water. Site altitude varies from approximately 93m AOD at Fieldon Bridge in the east to 100m AOD in the south-west and west, and the land is generally level to gently sloping (0-3°) with variable aspect.

### 2.2 Climate

Grid Reference	: NZ 199 265
Altitude (m)	: 100
Accumulated Temperature above 0°C (January - June)	: 1266 day °C
Average Annual Rainfall (mm)	: 692
Climatic Grade	: 2
Field Capacity Days	: 189
Moisture Deficit (mm) Wheat	: 89
Moisture Deficit (mm) Potatoes	: 74

### 2.3 Geology, Soils and Drainage

The area is underlain by Middle Carboniferous Coal Measures over which lie thick deposits of glacial sand and gravel, or, alongside the River Gaunless, alluvium.

Much of the lower-lying land on this site suffers from high groundwater levels and the soils are poorly or very poorly drained, falling in Wetness Classes IV and V. However, areas of higher land are generally well or moderately well drained, falling in Wetness Classes I and II, although in a few cases the profiles are imperfectly drained (Wetness Class III).

The soils on the lower-lying land typically consist of stoneless to very slightly stony (0-5% hard stones) light or medium-textured topsoils and subsoils although heavy-textured subsoils occur at depth in places. Soils over the rest of the site consist of slightly to moderately stony (typically 6-16% hard stones) light or medium-textured topsoils overlying slightly to very stony (typically 10-50% hard stones) very light, light or medium-textured subsoils.

2.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2		
3a	22.7	28.4
3b	37.0	46.3
4	18.8	23.5
5		
(Sub total)	(78.5)	(98.2)
Urban		
Non-Agricultural		
Woodland		
Agricultural Buildings		
Open Water	1.4	1.8
Land not Surveyed		
(Sub total)	(1.4)	(1.8)
	<hr/>	<hr/>
<b>TOTAL</b>	<b>79.9</b>	<b>100</b>
	<hr/>	<hr/>

#### 2.4.1 Subgrade 3a

Approximately 28% of this site falls in Subgrade 3a. Two principal soils types fall within this subgrade - the first consists of stoneless to very slightly stony soils found in the alluvial deposits alongside the River Gaunless while the second consists of slightly to very stony soils developed in deposits of glacial sand and gravel.

In the case of the former medium clay loam, sandy loam, sandy clay loam or sandy silt loam topsoils typically overlie gleyed sandy loam, sandy clay loam or sandy silt loam subsoils. Profiles are moderately well or imperfectly drained (falling in Wetness Classes II or III) and although slowly permeable layers are usually absent, they do occur in places at around 50cm depth. This land is limited to Subgrade 3a by soil wetness restrictions.

In the case of the soils developed in glacial sand and gravel deposits, medium sandy loam or sandy clay loam topsoils overlie loamy sand, sandy loam or sandy clay loam subsoils. Topsoils are slightly to moderately stony (containing 6-16% hard stones in most cases) and subsoils are slightly to very stony (containing 10-50% hard stones). These soils vary between well and imperfectly drained (Wetness Classes I to III) and although slowly permeable layers are usually absent, they do occur in places below 45cm depth. The ALC grade of this land is limited by either soil wetness, or soil droughtiness and/or topsoil stoniness.

#### 2.4.2 Subgrade 3b

Subgrade 3b land occurs in a number of areas across the site. In most cases the land is relatively low lying and high groundwater levels mean that the soil profiles are poorly drained, falling in Wetness Class IV. Typically sandy loam, sandy silt loam or medium clay loam topsoils (some of which are organic) overlie a wide variety of very light to heavy-textured subsoils. Topsoils are generally stoneless to slightly stony (containing up to 6% hard stones) while subsoils are stoneless to moderately stony (containing up to 25% hard stones). This land is limited to Subgrade 3b by soil wetness restrictions.

In addition to this soil wetness limitation, much of the land alongside the River Gaunless is restricted to Subgrade 3b by flood risk.

#### 2.4.3 Grade 4

Grade 4 land occurs in a number of areas across this site. Most of this land is low-lying and rush-infested, with very high groundwater levels leaving the soil profile wet within 40cm depth for most of the year. The soils are, thus, very poorly drained (falling in Wetness Class V), and the land is limited to Grade 4 by soil wetness restrictions.

#### 2.4.4 Open Water

This refers to one area in the east of the site, and one in the north.

### 3. NUNSTANTON

#### 3.1 Location, Land Use and Relief

This site lies approximately 6km north-east of Newton Aycliffe, to the north of the A1(M)/A689 road junction. It covers a total area of 38.5ha, all of which was in agricultural use (under ley grass, permanent grass or winter cereals) at the time of survey. Site altitude varies from 115m AOD in the north-west to 92m AOD in the south-east and the land is level to strongly sloping (0-10°) with variable aspect.

#### 3.2 Climate

Grid Reference	: NZ 315 295
Altitude (m)	: 105
Accumulated Temperature above 0°C (January - June)	: 1256 day °C
Average Annual Rainfall (mm)	: 677
Climatic Grade	: 2
Field Capacity Days	: 174
Moisture Deficit (mm) Wheat	: 89
Moisture Deficit (mm) Potatoes	: 74

#### 3.3 Geology, Soils and Drainage

The Nunstainton area is underlain by deposits of Magnesian Limestone which, on the site surveyed, are overlain by glacial till. Most of the soils on the site are poorly drained (Wetness Class IV) although some profiles are imperfectly or moderately well drained (Wetness Classes III and II). Typically medium clay loam topsoils overlie medium clay loam, sandy clay loam, heavy clay loam or clay subsoils, although horizons of sandy loam occur in parts of the north of the site.

The soils on this site correspond to the Dunkeswick Association as mapped by the Soil Survey and Land Research Centre.

### 3.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2		
3a	2.3	6.0
3b	36.2	94.0
4		
5		
(Sub total)	(38.5)	(100.0)
Urban		
Non Agricultural		
Woodland		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)		
<b>TOTAL</b>	<b>38.5</b>	<b>100</b>

#### 3.4.1 Subgrade 3a

A small area of Subgrade 3a land occurs alongside the ditch in the north of the site. The soils are moderately well to imperfectly drained, falling in Wetness Classes II and III, and the profiles are stoneless to very slightly stony, with up to 4% sandstones. Typically medium clay loam or medium sandy loam topsoils overlie medium sandy loam, medium clay loam or sandy clay loam subsoils. The subsoils are generally gleyed and slowly permeable layers begin at or below 65cm depth where present. Although some profiles meet the requirements for Grade 2, they cannot be accurately mapped as a separate unit, thus soil wetness and a pattern limitation are the factors restricting this land to Subgrade 3a.

#### 3.4.2 Subgrade 3b

Most of the agricultural land on this site falls in Subgrade 3b. Generally the soils are poorly drained (Wetness Class IV) with medium clay loam or sandy clay loam topsoils overlying gleyed and slowly permeable sandy clay loam, heavy clay loam or clay subsoils at between 20cm and 40cm depth. A more severe soil wetness limitation than on the adjoining Subgrade 3a land further limits the ALC grade of this land to Subgrade 3b. Although a few profiles within this area are imperfectly drained (Wetness Class III) and meet the requirements for Subgrade 3a, they are too scattered to map out as a separate unit.

## 4. EMBLETON

### 4.1 Location, Land Use and Relief

The site lies around O.S. Grid Reference NZ 421 315, approximately 9km west of Hartlepool town centre. The total site area is 244 ha but access was granted to only 104.6 ha of this. Of the area surveyed, approximately 92% was in agricultural use (consisting of cereal stubble and ley or permanent grassland) whilst 8% consisted of woodland.

Site altitude varies from 120m AOD in the north to 60m AOD in the south. Generally the land is level to gently sloping (0-3°) although moderate slopes of up to 7° occur in places. The aspect is variable.

### 4.2 Climate

Grid Reference	: NZ 421 315
Altitude (m)	: 90
Accumulated Temperature above 0°C (January - June)	: 1270 day °C
Average Annual Rainfall (mm)	: 652
Climatic Grade	: 2
Field Capacity Days	: 159
Moisture Deficit (mm) Wheat	: 93
Moisture Deficit (mm) Potatoes	: 80

### 4.3 Geology, Soils and Drainage

Embleton is underlain by Magnesian Limestone over which lie deposits of till.

The soils on the areas surveyed are poorly drained, falling in Wetness Class IV, and consist of medium clay loam topsoils (some of which are organic) and, in places, upper subsoils, overlying gleyed and slowly permeable heavy clay loam or clay.

The soils on the area surveyed correspond to the Dunkeswick Association as mapped by the Soil Survey and Land Research Centre.

#### 4.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2		
3a		
3b	104.6	42.9
4		
5		
(Sub total)	(104.6)	(42.9)
Urban		
Non-Agricultural		
Woodland	9.2	3.8
Agricultural Buildings		
Open Water		
Land not Surveyed	130.0	53.3
(Sub total)	(139.2)	(57.1)
	—	—
<b>TOTAL</b>	<b>243.8</b>	<b>100</b>
	—	—

##### 4.4.1 Subgrade 3b

All of the agricultural land surveyed falls in Subgrade 3b. The soils are poorly drained (Wetness Class IV) and typically consist of medium clay loam or organic medium clay loam topsoils overlying medium clay loam, heavy clay loam or clay upper subsoils and heavy clay loam or clay lower subsoils. The profiles are gleyed within 40cm depth and slowly permeable layers begin at between 20cm and 40cm depth. Soil wetness is the factor which limits this land to Subgrade 3b

##### 4.4.2 Woodland

Woodland is found alongside the streams in the south of the site.

##### 4.4.3 Land not surveyed

Access was refused for the centre and much of the north of the site.

## 5. HUTTON MAGNA

### 5.1 Location, Land Use and Relief

This area lies approximately 7½ km south-east of Barnard Castle, between the village of Hutton Magna and the A66(T). It covers a total area of 53.9 ha of which 50.1 ha were in agricultural use at the time of survey, mainly growing ley or permanent grass, but with winter cereals in the north-east. The remaining 3.8 ha consists of an area of woodland and scrub in the centre of the site. Site altitude varies from 142m AOD at Holm Hills in the north-west to 129m AOD in the centre. Although some land at Holm Hills is strongly sloping (8-11°) and therefore restricted to Subgrade 3b, most of the land on the site is level to gently sloping (0-3°). Aspect is variable.

### 5.2 Climate

Grid Reference	: NZ 115 120
Altitude (m)	: 135
Accumulated Temperature above 0°C (January - June)	: 1234 day °C
Average Annual Rainfall (mm)	: 802
Climatic Grade	: 2
Field Capacity Days	: 205
Moisture Deficit (mm) Wheat	: 84
Moisture Deficit (mm) Potatoes	: 67

### 5.3 Geology, Soils and Drainage

The area is underlain by Carboniferous Sandstones and Limestones and is mapped by the Geological Survey of Great Britain (1:63,360 scale, sheet 32, Barnard Castle) as being covered by deposits of fluvioglacial sand and gravel and older river gravel in the east and south, with glacial sand and gravel, alluvium, and pockets of peat in the north-west.

In general the soils in the north of the site are poorly drained (Wetness Class IV) and consist of sandy loam, medium clay loam or heavy clay loam topsoils overlying medium clay loam, sandy clay loam or heavy clay loam subsoils, which are usually gleyed and slowly permeable within 40cm depth. Some organic and peaty soils occur in the north-west and at Holm Hills some profiles are moderately well drained, falling in Wetness Class II.

Soils in the south are well to imperfectly drained (Wetness Classes I to III) and consist of slightly stony sandy loam, medium clay loam or sandy clay loam topsoils and subsoils, with heavy clay loam occurring at depth in places. The soils are rarely gleyed within 40cm depth and slowly permeable layers, where present, begin below 50cm depth.

The soils in this area have been mapped by the Soil Survey and Land Research Centre as Wick 1 Association.

#### 5.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2		
3a	25.7	47.7
3b	24.4	45.3
4		
5		
(Sub total)	(50.1)	(93.0)
Urban		
Non-Agricultural		
Woodland	3.8	7.0
Agricultural Buildings		
Open Water		
Land not Surveyed		
(Sub total)	(3.8)	(7.0)
	—	—
<b>TOTAL</b>	<b>53.9</b>	<b>100</b>
	—	—

#### 5.4.1 Subgrade 3a

The south of the site falls in Subgrade 3a. The soils are well, moderately well or imperfectly drained (falling in Wetness Classes I to III) and consist of sandy loam, medium clay loam or sandy clay loam topsoils and subsoils, although heavy clay loams occur at depth in places. Topsoils and subsoils are slightly to moderately stony, with 6-18% sandstones (4-14% > 2cm in size in the case of topsoils). The subsoils are rarely gleyed within 40cm depth and slowly permeable layers, where present, begin below 50cm depth. The ALC grade of this land is limited by soil wetness, topsoil workability restrictions and/or topsoil stoniness.

#### 5.4.2 Subgrade 3b

Subgrade 3b land covers the north of the site. In general, the soils are poorly drained (Wetness Class IV) with sandy loam, medium clay loam or heavy clay loam topsoils overlying medium clay loam, sandy clay loam or heavy clay loam subsoils which are both gleyed and slowly permeable within 40cm depth. Some organic and peaty soils occur in the north-west, but these are also poorly drained, and although some better drained soils occur around Holm Hills, slopes of 8-11° limit the ALC grade. Most of this land is, therefore, restricted to Subgrade 3b by soil wetness limitations, while a small area in the north-west is limited to Subgrade 3b by slope.

#### 5.4.3 Woodland

Woodland and scrub occupy an area in the centre of the site.

## 6. ELSTOB

### 6.1 Location, Land Use and Relief

The site lies about 8km east-south-east of Newton Aycliffe and about 1km south of the hamlet of Elstob. It covers a total area of 39.2 ha, all of which was in agricultural use growing winter cereals and grass at the time of survey. Site altitude ranges from 90m AOD in the south-west to 60m AOD in the east. The site contains a series of small hills and depressions which in places have slopes of between 8° and 11°. These slopes will limit the safe and efficient use of agricultural machinery. Aspect is variable across the site.

### 6.2 Climate

Grid Reference	: NZ 345 229
Altitude (m)	: 78
Accumulated Temperature above 0°C (January - June)	: 1289 day °C
Average Annual Rainfall (mm)	: 665
Climatic Grade	: 2
Field Capacity Days	: 165
Moisture Deficit (mm) Wheat	: 93
Moisture Deficit (mm) Potatoes	: 80

### 6.3 Geology, Soils and Drainage

Carboniferous Limestone underlies the whole site but these strata are covered with thick drift deposits. This drift mostly comprises boulder clay but significant areas of sand and gravel occur around and south-west of Elstob Hill Farm. Small amounts of alluvium and Head are also mapped on the site.

Soils closely reflect the pattern of drift deposits. Boulder clay has produced heavy textured slowly permeable soils, generally Wetness Class IV (poorly drained). These soils have significant soil wetness and workability limitations. Sand and gravel derived soils are light textured, typically sandy loam topsoils over loamy sand subsoils, occasionally with clay horizons below 70cm depth. These soils are well or moderately well drained (soil Wetness Class I or II). The soils correspond with the Crewe Association as mapped by the Soil Survey and Land Research Centre.

## 7. LEA HALL

### 7.1 Location, Land Use and Relief

This site lies approximately 5km east-south-east of Newton Aycliffe, and covers a total area of 109.5 ha. Virtually all of this was in agricultural use at the time of survey, under ley and permanent grass, winter cereals and recently ploughed land. Site altitude varies from 106m AOD in the centre to 90m AOD in the north and 85m AOD in the south-west. The land varies between level and strongly sloping (0-9°) and aspect is variable.

### 7.2 Climate

Grid Reference	: NZ 315 224
Altitude (m)	: 100
Accumulated Temperature above 0°C (January - June)	: 1265 day °C
Average Annual Rainfall (mm)	: 683
Climatic Grade	: 2
Field Capacity Days	: 169
Moisture Deficit (mm) Wheat	: 90
Moisture Deficit (mm) Potatoes	: 75

### 7.3 Geology, Soils and Drainage

The area is underlain by Middle Magnesian Limestone and most parts of the site are overlain by deposits of boulder clay. Pockets of glacial sand and gravel occur in the centre and west of the site, with the most extensive areas occurring in the north-west and south-west. Small areas of alluvium also occur in isolated pockets throughout the site.

The boulder clay soils on the site are generally poorly drained (Wetness Class IV), with medium clay loam topsoils (and, in places, upper subsoils) overlying gleyed and slowly permeable heavy clay loam or clay. In contrast, the soils derived from glacial sand and gravel deposits are generally well drained (Wetness Class I), with medium clay loam or medium sandy loam topsoils and similar subsoils. The alluvial deposits vary from moderately well (Wetness Class II) to poorly drained (Wetness Class IV) and consist of medium clay loam topsoils overlying heavy clay loam or clay subsoils.

The soils on this site correspond to the Crewe Association as mapped by the Soil Survey and Land Research Centre.

#### 7.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2	20.4	18.6
3a		
3b	87.5	79.9
4		
5		
(Sub total)	(107.9)	(98.5)
Urban		
Non Agricultural		
Woodland		
Agricultural Buildings	1.6	1.5
Open Water		
Land not surveyed		
(Sub total)	(1.6)	(1.5)
	<hr/>	<hr/>
<b>TOTAL</b>	<b>109.5</b>	<b>100</b>
	<hr/>	<hr/>

##### 7.4.1 Grade 2

Grade 2 land occurs in two areas in the north of the site and one in the south-west. The soils are either well or moderately well drained, falling in Wetness Classes I and II, and consist of medium clay loam or medium sandy loam topsoils overlying medium clay loam, sandy clay loam or medium sandy loam subsoils in most cases. Occasionally the subsoils are gleyed, and slowly permeable heavy clay loam lower subsoils occur at around 70cm depth in a few places. The ALC grade of this land is limited by the overall climate of the area and, in places, by slight soil wetness.

#### 6.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2		
3a	7.0	17.9
3b	32.2	82.1
4		
5		
(Sub total)	(39.2)	(100)
Urban		
Non-Agricultural		
Woodland		
Agricultural Buildings		
Open Water		
Land not Surveyed		
(Sub total)		
<b>TOTAL</b>	<b>39.2</b>	<b>100</b>

##### 6.4.1 Subgrade 3a

This subgrade contains well or imperfectly drained soils (falling in Wetness Classes I or III) with sandy loam or sandy clay loam topsoils and upper subsoils overlying either medium sand or slowly permeable clay at 50 to 70cm depth. Horizons are stoneless or very slightly stony (0-5% volume) and the ALC grade is limited by either soil wetness or soil droughtiness, depending on the texture of the lower subsoil.

##### 6.4.2 Subgrade 3b

Slopes of between 8° and 11° are limited to Subgrade 3b, and land with poorly drained soils (Wetness Class IV) and medium to heavy clay loam topsoils is restricted to this subgrade by soil wetness and workability problems.

#### 7.4.2 Subgrade 3b

The remainder of the agricultural land on the site falls in Subgrade 3b. The soils are generally poorly drained, falling in Wetness Class IV, with medium clay loam topsoils (and, in places, upper subsoils) overlying gleyed and slowly permeable heavy clay loam and clay subsoils. These slowly permeable subsoils begin at between 20cm and 40cm depth and soil wetness is the factor which limits these areas to Subgrade 3b. In parts of the south-west of the site slopes of 8-10° limit the use of certain types of agricultural machinery and are an additional factor restricting this land to Subgrade 3b.

#### 7.4.3 Agricultural Buildings

Agricultural Buildings occur at Preston Lodge and Lea Hall, in the north of the site.

## 8. THRISLINGTON

### 8.1 Location, Land Use and Relief

Thrislington lies 5½ km north-west of Sedgefield, on the east side of the A1(M). At the time of the most recent survey over 99% of the site was in agricultural use, either in arable rotation or grassland. The remaining area consists of Woodland.

Site altitude varies from 125m AOD in the east to 140m AOD in the north-east, near the Hare and Hounds Inn. The land is level to moderately sloping (0-6°) with variable aspect.

### 8.2 Climate

Grid Reference	: NZ329 335
Altitude (m)	: 130
Accumulated Temperature above 0° C (January-June)	: 1225 day °C
Average Annual Rainfall (mm)	: 685
Climatic Grade	: 2
Field Capacity Days	: 175
Moisture Deficit (mm) Wheat	: 86
Moisture Deficit (mm) Potatoes	: 70

### 8.3 Geology, Soils and Drainage

The site is underlain by deposits of Magnesian Limestone, which outcrop to within one metre of the soil surface over much of the area. In some parts of the site, particularly in the north, the Magnesian Limestone is overlain by deposits of boulder clay, and localised Head deposits also occur in places.

The soils on the site closely reflect the geology. Soils formed in weathering limestone are well drained (Wetness Class I) with medium-textured topsoils overlying medium to heavy-textured subsoils. Weathering limestone bedrock often occurs at depths of between 30cm and 100cm. Soils formed in the deposits of boulder clay are moderately well (Wetness Class II) to poorly drained (Wetness Class IV) with medium-textured topsoils overlying medium or heavy textured subsoils.

The soils on this site correspond to the Aberford and Nercwys Associations as mapped by the Soil Survey and Land Research Centre.

#### 8.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2	17.2	21.4
3a	43.8	54.6
3b	18.9	23.6
4		
5		
(Sub total)	(79.9)	(99.6)
Urban		
Non Agricultural		
Woodland	0.3	0.4
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(0.3)	(0.4)
<b>TOTAL</b>	<b>80.2</b>	<b>100</b>

##### 8.4.1 Grade 2

Grade 2 land covers a total area of 17.2 ha on this site. Profiles are generally well drained (falling in Wetness Class I) with sandy clay loam, medium clay loam or medium silty clay loam topsoils overlying similar or heavier textured (heavy clay loam) subsoils. Topsoils and subsoils are very slightly to slightly stony, containing between 3% and 6% sandstones or limestones in most cases. Slowly permeable layers are absent but weathering limestone bedrock occurs in places at between 60cm and 100cm depth. The ALC grade of this land is limited by the overall climate of the area and, in places, by slight soil droughtiness.

#### 8.4.2 Subgrade 3a

Subgrade 3a land occurs widely across the site, covering a total of 43.8 ha. Two soil types occur within this subgrade. The first soil type comprises well drained soils (Wetness Class I) with medium clay loam or medium silty clay loam topsoils overlying medium clay loam, medium silty clay loam or heavy clay loam subsoils. Topsoils and subsoils are very slightly to slightly stony, containing 4-6% limestones in most cases. Weathering limestone bedrock typically occurs at around 40cm depth. Soil droughtiness limits this land to Subgrade 3a. The second soil type comprises imperfectly drained soils (Wetness Class III). These typically consist of medium clay loam topsoils and upper subsoils overlying heavy clay loam lower subsoils. Upper subsoils are sometimes gleyed within 40cm depth and lower subsoils are generally gleyed and slowly permeable at 50cm to 65cm depth. This land is limited to this subgrade by soil wetness.

#### 8.4.3 Subgrade 3b

The remaining agricultural land (18.9 ha) falls within Subgrade 3b. Two soil types occur within this subgrade. The first comprises well drained soils (Wetness Class I) with medium clay loam or sandy clay loam topsoils directly overlying limestone bedrock at between 20cm and 35cm depth. This land is restricted to this subgrade by soil droughtiness and, in some places, soil depth.

The second soil type in this subgrade comprises poorly drained soils falling within Wetness Class IV. Sandy clay loam or medium clay loam topsoils overlie gleyed, slowly permeable subsoils of sandy clay loam, heavy clay loam or clay. Soil wetness restricts this land to Subgrade 3b.

#### 8.4.4 Woodland

A small area of woodland lies adjacent to the disused quarry in the south of the site.

#### 9.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2		
3a	6.1	18.9
3b	25.9	80.2
4		
5		
(Sub total)	(32.0)	(99.3)
Urban	0.2	0.6
Non Agricultural	0.1	0.3
Woodland		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(0.3)	(0.9)
<b>TOTAL</b>	<b>32.3</b>	<b>100</b>

##### 9.4.1 Subgrade 3a

Land to the far north and south of the site falls into this subgrade. The soils are well drained (Wetness Class I) and consist of very slightly stony medium clay loam and medium silty clay loam topsoils over similar ungleyed upper subsoils in turn over very occasionally gleyed permeable lower subsoils. Impenetrable limestone bedrock is encountered at between 45cm and 60cm depth. This land is limited to Subgrade 3a by moderate soil droughtiness restrictions and by overall climate.

##### 9.4.2 Subgrade 3b

The remaining agricultural land falls within this subgrade. The soils are generally poorly drained (Wetness Class IV) and consist of very slightly stony medium clay loam or

## 9. RAISBY

### 9.1 Location, Land Use and Relief

Raisby lies 3km east of Coxhoe which itself lies on the A177. It covers a total area of 32.3ha of which 32ha were sown to cereals and oil seed rape at the time of the survey. The remaining land consists of non-agricultural and urban land.

Site altitude varies from 160m AOD in the north to 180m AOD centrally and the land is level to moderately sloping (0-7°) with variable aspect.

### 9.2 Climate

Grid Reference	: NZ 353 353
Altitude (m)	: 170
Accumulated Temperature above 0°C (January - June)	: 1170 day °C
Average Annual Rainfall (mm)	: 703
Climatic Grade	: 3a
Field Capacity Days	: 179
Moisture Deficit (mm) Wheat	: 81
Moisture Deficit (mm) Potatoes	: 63

### 9.3 Geology, Soils and Drainage

The area is underlain by Magnesian Limestone, over which lie deposits of till. The soils are well to poorly drained (Wetness Classes I, II, III and IV) although the majority of soils fall into Wetness Class I or Wetness Class IV. Well drained (Wetness Class I) soils are found to the far north and south of the site and consist of medium clay loam topsoils over similar ungleyed upper subsoils over sometimes gleyed permeable lower subsoils, in turn over hard limestone bedrock.

Poorly drained soils (Wetness Class IV) cover the majority of the remainder of the site, and consist of medium clay loam or medium silty clay loam topsoils over gleyed slowly permeable clay subsoils. Five borings fell into Wetness Classes II and III but were too sporadic to be mapped separately.

The soils on the site correspond to the Dunkeswick Association as mapped by the Soil Survey and Land Research Centre.

9.4.3 Non-Agricultural

A small area of bushes and trees occurs towards the western edge of the site.

9.4.4 Urban

An area of urban land, consisting of a telephone repeater station, occurs centrally.