AGRICULTURAL LAND CLASSIFICATION

EASINGWOLD BYPASS, NORTH YORKSHIRE

Proposed Red Route

Report prepared for the

DEPARTMENT OF TRANSPORT

Yorkshire and Humberside

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AGRICULTURAL LAND CLASSIFICATION REPORT:
EASINGWOLD BYPASS, NORTH YORKSHIRE

SECTION 1. INTRODUCTION AND CHARACTERISTICS OF THE SURVEY AREA

1.1 LOCATION

The preferred route of the Easingwold by-pass (red route) was surveyed in February 1990. It by-passes the present A19 on the south western side of the town between Lund Leys (NGR SE 505710) in the north and Shires Bridge (NGR SE 527678) in the south.

1.2 SURVEY METHOD

Survey work was carried out along a 100 metre wide corridor centred over the route. Records were made at 100 metre intervals in two parallel traverses 50 metres apart using a 1 metre dutch auger. Shallow soil profile pits were also dug, where necessary, to assess soil structural conditions. In all, 81 observations were made giving a boring density of about 1.6 borings per hectare.

All land quality assessments were made 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).

1.3 LAND USE

Most agricultural land along the route, especially in the south is in arable use. Permanent pasture, however, is common on the heavier soils in the north. At the time of survey winter cereals were the main arable crop with some vegetables and horticultural produce occurring on light land just south of Alne Road.

1.4 CLIMATE*

Average Annual Rainfall (AAR) is approximately 640 mm. Accumulated temperatures (ATO) above 0°C between January and June is 1369 day°C and the land is at field capacity for 149 days a year.

Although these figures show no overall climatic restriction on ALC grade, summer moisture deficits of 104 mm for winter wheat and 94 mm for potatoes indicate a slight to moderate drought risk on the coarse loamy and sandy soils which are widespread along the route.

* All climatic factors used in determining ALC grades were calculated using the data and methodology in "Climatological data for Agricultural Land Classification" (The Met Office 1988).

1.5 RELIEF

The route is virtually level at a mean altitude of 24 metres above Ordnance Datum.

1.6 GEOLOGY AND SOILS

Soils are developed on superficial glacial and post glacial drift which forms a thick cover over the underlying red Triassic mudstones and Jurassic clays. The drift consists of post glacial wind blown stoneless fine and medium sand of variable thickness, and heavy lacustrine clay. The clay is widespread near the northern end of the route, but elsewhere is often covered by the later sand deposits.

Soils derived from the sandy drift consist typically of stoneless coarse loamy to sandy topsoils over sandy subsoils which occasionally pass into poorly structured lacustrine clay at depth. Sandy drift is largely absent around Thornhill Farm (SE 509705) in the north. Here soils are largely derived from the lacustrine clay and consist of fine loamy topsoils, about 20-25 cm in thickness over stoneless, gleyed and slowly permeable clay or silty clay.

SECTION 2. AGRICULTURAL LAND CLASSIFICATION GRADES

The ALC grades occurring on the 100 m route corridor are as follows.

GRADE	HECTARES	PERCENTAGE OF TOTAL SURVEY AREA
2	24.6	50.0
3a	14.4	29.0
3b	8.5	17.0
Non Agricultural	0.2	0.5
Urban	1.8	3.5
TOTAL	49.5	100%

GRADE 2

The main areas of grade 2 occur on lighter drift deposits south of Raskelf Road. Most soils fall within Wetness Classes I or II and consist of stoneless sandy loam or loamy sand topsoils over deep similarly textured subsoil which occasionally passes into lacustrine clay at depth.

Summer droughtiness is slightly restricting for both winter wheat and potatoes and is the overriding restriction on ALC grade.

Near the margins of the sandy drift, slowly permeable lacustrine clay is occasionally encountered at about 40 to 60 cm depth. Soils of this type are subject to longer periods of wetness in winter due to the impermeable nature of the underlying clay. They fall within Wetness Class III and are restricted to Grade 2 by wetness rather than droughtiness limitations.

SUBGRADE 3A

Land in this subgrade has a patchy distribution along the whole length of the route.

Soils consist mainly of stoneless loamy sand or sandy loam topsoils over a loamy sand subsoil which often becomes lighter with depth. Soil droughtiness is moderately limiting and is the main restriction on ALC grade.

SUBGRADE 3B

Most of the land in this subgrade occurs north of Raskelf Road. The soils fall within Wetness Classes III or IV and consist of heavy clay loam topsoils and upper subsoils over slowly permeable lacustrine clay. The soil wetness and workability problems associated with these soils are moderately to severely limiting and form the overriding restriction on ALC grade.

NON AGRICULTURAL (FARM WOODLAND)

This consists of a small area of farm woodland near Raskelf Road.

URBAN

This consists of public highways crossing the route.

MAPS

SECTION 3. SCHEDULE OF SOIL BORINGS

GLOSSARY

SOIL TEXTURES

ms	medium sand
fs	fine sand
lms	loamy medium sand
lfs	loamy fine sand
msl	medium sandy loam
fsl	fine sandy loam
scl	medium sandy clay loam
fscl	fine sandy clay loam
hcl	heavy clay loam
c	clay
zc	silty clay

mcl.h	medium clay loam bordering heavy clay loam
hcl.c	heavy clay loam bordering clay
scl.msl	sandy clay loam bordering medium sandy loam
lms.ms	loamy medium sand bordering medium sand
msl.lms	medium sandy loam bordering loamy medium sand
ms.fs	medium sand bordering fine sand

MOTTLES

O	Ochreous
G	Grey

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
001	1	lms	0-30	10YR32	
		lms	30-80	10YR64	few distinct O
		msl	80-100	75YR62	common distinct OG
002	1	lfs	0-30	10YR32	
		lfs	30-45	75YR46	
		ms	45-100	10YR64	
003	4	hcl	0-30	10YR32	
		c	30-100	10YR61	many prominent O
004	3	mcl.h	0-30	10YR32	
		hcl	30-60	10YR52	common distinct OG
		c	60-100	10YR64	common distinct OG
005	4	fscl	0-30	10YR32	
		zc	30-100	10YR52	many prominent O
006	3	msl	0-30	10YR42	
		msl	30-45	10YR64	common distinct O
		c	45-100	2.5Y50	many prominent OG
007	4	hcl	0-30	10YR32	
		scl	30-50	10YR52	
		c	50-100	N5	many prominent OG
008	3	msl	0-30	10YR32	
		msl	30-50	10YR64	common distinct O
		c	50-100	2.5Y50	many prominent OG
009	2	msl	0-35	10YR42	
		lms	35-50	10YR64	common distinct O
		c	50-100	N5	many prominent OG

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
010	4	hcl.c	0-27	10YR33	few distinct O
		c	25-70	10YR52	common distinct OG
		c	70-100	75YR52	common distinct G
011	4	hcl	0-20	10YR42	common distinct O
		c	20-50	10YR53	common distinct OG
		c	50-100	75YR52	common distinct OG
012	4	hcl	0-20	10YR42	common distinct O
		c	20-45	10YR53	few faint O
		c	45-100	75YR52	common distinct G
013	4	hcl	0-20	10YR42	few faint O
		c	20-40	10YR53	few faint O
		c	40-100	75YR52	common distinct G
014	3	hcl	0-25	10YR32	
		scl	25-50	10YR64	common distinct O
		c	50-100	75YR52	many prominent OG
015	4	c	0-25	10YR32	
		c	25-100	10YR52	common distinct OG
016	4	hcl	0-25	10YR32	
		c	25-100	10YR52	many prominent OG
017	3	scl	0-40	10YR32	
		c	40-100	10YR52	many prominent OG
018	3	mcl	0-25	10YR32	
		c	25-37	10YR44	few distinct O
		zc	37-100	75YR52	few prominent OG

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
019	1	lfs	0-45	10YR32	
		lms	45-60	10YR32	few distinct O
		lms	60-90	10YR32	few distinct O
		ms	90-100	75YR46	
020	3	lfs	0-30	10YR32	
		lms	30-60	10YR52	common distinct O
		c	60-100	75YR52	many prominent OG
021	1	msl	0-40	75YR34	
		lms	40-100	75YR44	
022	3	msl	0-30	10YR32	
		scl	30-50	10YR53	few distinct O
		c	50-100	75YR52	common distinct OG
023	4	hcl	0-25	10YR32	
		c	25-60	10YR64	common distinct OG
024	4	mcl.h	0-30	10YR32	
		c	30-60	10YR64	common distinct OG
		zc	60-100	75YR52	common distinct OG
025	4	mcl	0-30	10YR32	
		c	30-60	10YR64	common distinct OG
		zc	60-100	75YR52	common distinct OG
026	1	fsl	0-30	10YR44	
		fsl	30-50	10YR64	common prominent OG
		lms	50-90	10YR64	common prominent OG
		zc	90-100	75YR52	many prominent OG

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
027	2	fsl	0-35	10YR32	
		fsl	35-50	10YR64	many prominent OG
		lfs	50-70	10YR64	common distinct OG
		zc	70-100	10YR52	many prominent OG
028	1	fsl	0-40	10YR32	
		fsl	40-50	10YR64	
		lfs	50-65	10YR64	common distinct OG
		ms.fs	65-100	10YR64	common distinct OG
029	1	fsl	0-35	10YR32	
		msl	35-100	10YR64	common distinct OG
030	1	lfs	0-30	10YR32	
		fs	30-60	10YR53	common distinct OG
		lms	60-100	10YR54	common distinct OG
031	3	scl	0-30	10YR32	
		scl	30-60	10YR64	common distinct OG
		lfs	60-100	10YR64	common distinct OG
032	3	scl	0-30	10YR32	common distinct OG
		scl	30-60	10YR64	common distinct OG
033	3	msl	0-30	10YR32	common distinct O
		msl	30-60	10YR53	common distinct OG
		c	60-100	10YR44	common distinct OG
034	2	fsl	0-30	10YR43	
		msl	30-80	10YR53	common faint OG
		c	80-100	10YR44	common distinct OG

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
035	1	fsl	0-20	10YR32	common distinct O
		msl	20-40	10YR53	common distinct OG
		lms	40-100	10YR52	common faint O
036	1	lms	0-25	10YR43	
		msl	25-100	10YR54	common distinct OG
037		fsl	0-20	10YR32	
		msl	20-40	10YR53	common distinct OG
		lms	40-100	10YR52	common faint O
038	1	lms	0-25	10YR42	
		lms	25-60	10YR63	common distinct OG
		ms	60-100	10YR64	common distinct OG
039	1	fsl	0-35	10YR43	common faint O
		msl	35-55	10YR53	many distinct OG
		lms	55-100	10YR52	common distinct OG
040	3	fsl	0-25	10YR43	common distinct O
		msl	25-60	10YR53	common distinct OG
		c	60-100	N5	common faint O
041	1	lfs	0-25	10YR43	
		lms	25-100	10YR54	common distinct OG
042	1	fsl	0-25	10YR42	
		msl	25-80	10YR54	common faint OG
		c	80-100	75YR52	common distinct G
043	1	lms	0-30	10YR42	
		ms	30-60	10YR64	common distinct OG
		lms	60-100	10YR54	common distinct OG

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
044	1	msl	0-30	10YR42	
		lms	30-55	10YR64	common distinct O
		msl	55-120	N5	common OG
045	3	fsl	0-35	10YR32	
		lms	35-65	10YR53	common distinct OG
		scl.msl	65-100	N5	common distinct OG
046	1	msl	0-30	10YR42	
		msl	30-55	10YR64	few distinct O
		scl	55-100	N5	many prominent OG
047	1	lms	0-35	10YR32	
		lms	35-60	10YR54	common faint OG
		msl	60-100	10YR54	common OG
048	1	msl	0-30	10YR42	
		msl	30-50	10YR53	
		msl	50-100	10YR52	common distinct O
049	1	lms	0-25	10YR32	
		lms	25-45	10YR54	common distinct OG
		ms	45-100	10YR53	common distinct OG
050	1	msl	0-30	10YR32	
		lms	30-50	10YR53	common distinct OG
		ms	50-100	10YR54	common distinct OG
051	1	msl	0-30	10YR42	
		msl	30-65	10YR41	
		lms	65-100	10YR64	few distinct O
052	1	msl	0-35	10YR32	
		fs	35-100	10YR62	few faint O

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
053	1	msl	0-40	10YR42	
		msl	40-85	10YR43	
		msl	85-120	10YR52	common distinct O
054	1	msl	0-35	10YR42	
		msl	35-70	10YR52	
		lms	70-120	10YR62	common distinct O
055	1	msl	0-30	10YR42	
		lms	30-100	10YR64	common distinct OG
056	1	msl	0-30	10YR43	
		lms.ms	30-120	10YR66	many distinct OG
057	1	msl	0-35	10YR42	
		msl	35-85	10YR43	
		lms	85-120	10YR62	common distinct OG
058	1	msl	0-30	10YR42	
		lms	30-100	10YR52	common distinct OG
059	1	msl	0-30	10YR42	
		lms.ms	30-120	10YR62	common distinct O
060	1	msl	0-33	10YR42	
		msl	33-65	10YR41	
		lms	65-120	10YR51	
061	2	msl.lms	0-30	10YR42	
		lms	30-70	10YR66	common distinct OG
		c	70-100	2.5Y50	many prominent OG

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
062	2	msl.lms	0-33	10YR42	
		lms	33-70	10YR66	common distinct OG
		c	70-100	2.5Y50	many prominent OG
063	1	disturbed	0-65		
		msl			
064	3	msl	0-30	10YR42	
		msl	30-50	10YR64	common distinct OG
		zc	50-100	2.5Y50	common distinct OG
065	3	msl	0-30	10YR42	
		msl	30-45	10YR64	common distinct O
		scl	45-60	10YR52	common distinct OG
		zc	60-100	N5	many prominent OG
066	3	msl	0-30	10YR42	
		scl	30-65	10YR51	common distinct OG
		zc	65-100	2.5Y50	many prominent OG
067	1	msl	0-33	10YR42	
		lms	33-100	10YR64	common distinct OG
068	2	msl	0-40	10YR42	
		msl	40-65	10YR64	many prominent OG
		zc	65-100	2.5Y50	many prominent OG
069	1	msl	0-30	10YR42	
		msl	30-65	10YR41	
		msl	65-100	10YR52	few distinct O
070	3	mcl	0-30	10YR32	
		hcl	30-60	10YR53	
		zc	60-100	75YR52	common distinct O

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
071	1	lms	0-30	10YR42	
		ms	30-60	10YR63	common distinct O
		lms	60-100	10YR64	common distinct O
072	3	msl	0-25	10YR42	
		msl	25-55	10YR52	common distinct OG
073	1	msl	0-35	10YR32	
		msl	35-60	10YR66	common distinct OG
		lms	60-100	10YR66	common distinct OG
074	1	lfs	0-30	10YR42	
			30-100	10YR63	many distinct OG
075	1	lms	0-30	10YR42	
		lms	35-50	10YR63	many prominent OG
		lms	50-100	10YR53	many prominent OG
076	1	msl	0-35	10YR32	
		ms	35-100	10YR62	few distinct O
077	3	msl	0-35	10YR42	
		lms	35-55	10YR53	common distinct O
		c	55-100	75YR52	common distinct O
078	3	msl	0-30	10YR32	
		msl	30-65	10YR52	common distinct OG
		zc	65-100	10YR52	many distinct OG
079	4	hcl	0-25	10YR42	
		c	25-30	10YR52	few distinct O
		c	30-100	10YR52	many distinct O

BORING	WETNESS CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
080	3	msl	0-30	10YR42	
			30-100	10YR52	common distinct O
081	2	msl	0-45	10YR33	
			45-65	10YR54	few distinct O
			65-120	10YR54	common distinct OG