AGRICULTURAL LAND CLASSIFICATION

SELBY BYPASS, NORTH YORKSHIRE

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DEPARTMENT OF TRANSPORT
Yorkshire and Humberside
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MAPS

AGRICULTURAL LAND CLASSIFICATION REPORT:
SELBY BYPASS, NORTH YORKSHIRE

SECTION 1. INTRODUCTION AND CHARACTERISTICS OF THE SURVEY AREA

1.1 LOCATION

The preferred route of the Selby by-pass was surveyed in May 1990. The proposed route runs from the A63T a little to the west of Thorpe Willoughby NGR SE 567307 and follows a line south and east of the town to join the A19T south of Barlby at NGR SE 634332.

1.2 SURVEY METHODS

Survey work was carried out along a 100 metre wide corridor centred over the route. Records were made at approximately 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, 113 observations were made.

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

Almost all agricultural land along the route is in arable use, the principal crops being cereals, sugar beet and oilseed rape. Non agricultural land includes part of Selby Golf Course and some of the wooded lower slopes of Brayton Barff.

1.4 CLIMATE*

Average Annual Rainfall (AAR) is approximately 600 mm. Accumulated temperature (ATO) above 0°C between January and June is 1401 day°C and the land is at field capacity for 126 days a year.

Although these figures show no overall climatic restriction on ALC grade, summer moisture deficits of 107 mm for winter wheat and 99 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

Most of the route is virtually level at altitudes varying between 4 and 10 metres above Ordnance Datum. Higher gently and moderately sloping land rising to 30 m a.o.d., is restricted to a small area south of Thorpe Willoughby where the route cuts through the lower south western slopes of Brayton Barff.

1.6 GEOLOGY AND SOILS

Soils over most of the route are developed on superficial glacial and post glacial drift which forms a thick cover over the underlying red Triassic sandstones. These sandstones occur at or close to the surface only on Brayton Barff. The drift consists of post glacial wind blown stoneless fine sand, medium sand derived from weathered sandstone, heavy lacustrine clay and estuarine alluvium. The clay is widespread at depth along much of the route, but is exposed at the surface only around Stainer Wood. Elsewhere it is covered by a metre or more of the later sand deposits. Estuarine alluvium (warp) underlies the eastern end of the route, mainly to the north of the River Ouse.

Soils derived from the sandy drifts consist typically of stoneless coarse loamy to fine sandy topsoils over sandy subsoils which occasionally pass into poorly structured lacustrine clay at depth. Near Brayton Barff sandy upper horizons pass into weathering red sandstone below about 50 cm depth. Sandy drift is largely absent around Stainer Wood (SE 628308) south east of Selby. 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. The alluvial or warp soils which are widespread north of the Ouse consist of calcareous medium or heavy silty clay loams near the river and silty clays in the area around the Selby-Hull railway. Here extensive peat deposits underlie the alluvium at depths of between 50 and 100 cm.

SECTION 2. AGRICULTURAL LAND CLASSIFICATION GRADES

The ALC grades occurring on the land taken by the bypass within the 100 m survey corridor are as shown below:-

(NB The 1/10000 scale maps produced with this report show land grades along the entire 100 m corridor. Maps showing land grades imposed onto the actual roadline have been produced at a scale of 1/2500 and supplied separately to the DOT's agricultural consultants.

GRADE	HECTARES	PERCENTAGE OF TOTAL ROADWORKS
1	0.96	1.7
2	10.86	19.6
3a	25.57	46.1
3b	8.07	14.5
Non Agricultural	3.96	7.1
Urban	5.56	10.0
Open Water	0.54	1.0
TOTALS	55.52	100%

GRADE 1

Grade 1 land is restricted to a small area immediately north of the Ouse. Soils consist of calcareous medium silty clay loam topsoils over similar subsoils. These soils fall within Wetness Class I and have few limitations to agricultural use.

GRADE 2

The main areas of grade 2 occur on fine sandy deposits near Brayton Bridge and East Common Lane. Most soils fall within Wetness Classes I or II and consist of stoneless fine sandy loam or loamy fine sand topsoils over deep similarly textured subsoils which occasionally pass into lacustrine clay or heavy clay loam at depth. Summer droughtiness is slightly limiting for both winter wheat and potatoes and is the overriding restriction on ALC grade.

At the margins of the sandy drift near Staynor Hall slowly permeable lacustrine clay is occasionally encountered at about 50 to 80 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.

Grade 2 land also occurs on the warplands north of the Ouse. Here soils consist of calcareous heavy silty clay loam top and upper subsoils over silty clay lower horizons. Although heavy these soils are well drained (Wetness Classes I and II) and are limited only by slight winter workability problems.

SUBGRADE 3A

Land in this subgrade is widespread along the whole route mainly on sandy soils, but also on the warplands north of the Ouse.

The light textured soils consist mainly of stoneless loamy medium sand or medium 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.

On the warplands soils are much heavier and formed of heavy silty clay loam topsoils over silty clay upper subsoils which overlie peat at depth. These soils are better drained than similarly textured non-alluvial soils and fall within Wetness Class II. They are limited to subgrade 3a by wetness and workability problems.

SUBGRADE 3B

Land in this subgrade occurs on heavy lacustrine clays near Stainer Wood and on very light sand near Thorpe Willoughby.

On the lacustrine clays soils are poorly drained, fall within Wetness Class 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 can be severely limiting and form the overriding restriction on ALC grade.

Around Thorpe Willoughby soils consist of well drained (Wetness Class I) loamy medium sand topsoils over medium sand subsoils which in places pass into sandstone at depth. Droughtiness is very limiting on soils of this type in relatively low rainfall areas and is the main restriction on ALC grade in this area.

NON AGRICULTURAL

This consists mainly of woodland and golf courses.

URBAN

This category includes public highways crossing the route, railways and industrial premises.

OPEN WATER

This consists of the River Ouse and the Selby Canal .

SECTION 3

SCHEDULE OF SOIL AUGER BORINGS

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
zcl	silty clay loam
zc	silty clay
mzcl	medium silty clay loam
hzcl	heavy silty clay loam

mcl.msl	medium clay loam bordering medium sandy loam
hcl.zc	heavy clay loam bordering silty clay
scl.msl	sandy clay loam bordering medium sandy loam
lms.ms	loamy medium sand bordering medium sand
lfs.lms	loamy fine sand bordering loamy medium sand
msl.lms	medium sandy loam bordering loamy medium sand
ms.fs	medium sand bordering fine sand
pty loam	peaty loam
lmy pt	loamy peat
o.loam	organic loam
pt	peat
ss or sst	sandstone
as	auger stopped

SECTION 3 cont

MOTTLES

col	colour
cont	contrast
O	Ochreous
G	Grey
M	many
C	common
F	few
F	faint
D	distinct
P	prominent

NA	non agricultural
URB	urban

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
001	0-30	msl	10YR32			
	30-100	lms	75YR42	O	F	D
002	0-30	ml	10YR32			
	30-100	lms	75YR42	O	F	D
003	0-30	lfs	10YR42			
	30-45	lfs	10YR64	OG	C	D
	45-60	lms	10YR64			
	60-80	c	10YR52	OG	M	P
	80-100	ms	10YR52	O	C	D
004	0-30	fsl	10YR42			
	30-80	fsl	10YR64	OG	M	D
	80-100	cl	10YR61	OG	M	P
005	0-30	fsl	10YR42	FLS		
	30-80	fls	10YR63	OG	M	P
006	0-30	fsl	10YR42			
	30-65	lfs	10YR73	O	F	F
	65-70	cl	10YR64	OG	M	D
	70-85	lfs	10YR53	OG	M	D
	85-100	lfs	10YR58	OG	M	P
007	0-35	msl	10YR42			
	35-50	c	10YR52	OG	C	P
	50-80	lms	10YR53	O	C	D
	80-100	lcs	10YR53	OG	C	D
008	0-30	fsl	10YR42			
	30-60	lfs	10YR64	OG	C	D
	60-120	as.sst				

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
009	0-35	fls	10YR42			
	35-60	lfs	10YR64	OG		D
	60-70	lms	10YR54			
	70-100	as.sst				
010	0-30	lms	10YR42			
	30-120	as.stny				
011	0-35	lms	10YR42			
	35-60	lms	75YR46			
	60-80	ms	75YR56			
	80-100	lms	75YR56			
012	0-30	lms	75YR42			
	30-100	lms.ms	5YR46			
013	0-30	lms	75YR42			
	30-120	lms.ms	5YR46			
014	0-35	mls	10YR42			
	35-60	ms	75YR56			
	60-100	ms	75YR56			
015	0-35	lms	10YR42			
	35-100	lms	75YR56			
016	0-30	lms	75YR42			
	30-100	lms.s	75YR56			
017		NA				

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
018	0-40	lms	75YR32			
	40-80	ms	75YR54			
	80-100	lms	5YR56			
019		NA				
020		NA				
021		NA				
022	0-30	lms	5YR34			
	30-50	lms	5YR56			
	50-0	red.sst				
023	0-30	lms	75YR42			
	30-70	lms	5YR46			
	70-100	msl	5YR58			
024	0-50	lms	10YR33			
	50-100	lms	75YR44			
025	0-45	msl.lms	75YR32			
	45-100	lms	75YR44			
026	0-30	msl	75YR32			
	30-60	lfs	5YR58			
	60+	red.sst				
027	0-35	lms	75YR32			
	35-100	lms	5YR46			
028	0-30	lms	75YR32			
	30-100	lms	75YR44			

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
029	0-30	lms	75YR32			
	30-100	lms	5YR46			
030	0-35	lms	75YR42			
	35-100	lms	5YR44			
031	0-30	lms	75YR42			
	30-60	lms	75YR56			
	60-100	ms	75YR66			
032	0-30	lms	75YR42			
	30-120	lms	75YR56			
033	0-35	lms	10YR32			
	60-80	lms	75YR54			
	80-120	lms	75YR64			
034	0-35	lms	10YR32			
	35-60	lms	75YR54			
	60-100	ms	75YR54			
035	0-35	lms	10YR32			
	35-60	lms	75YR54			
	60-100	ms	75YR64			
036	0-35	lms	10YR32			
	35-60	lms	10YR54			
	60-100	ms	10YR54	OG	C	D

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
037	0-35	lms	10YR32			
	35-100	lms	10YR54	O	C	D
038	0-30	lms	10YR42			
	30-80	lms	10YR42			
	30-80	lms	10YR53			
	80-100	lcs	10YR53			
039	0-30	msl.lms	10YR42			
	30-60	lms	10YR63	OG	C	D
	60-80	lfs	75YR54	O	F	D
	80-100	lfs	75YR54			
040	0-30	msl	10YR42			
	30-80	lms	10YR64			
	80-100	lcs	10YR63	OG	C	
041	0-30	fsl	10YR42			
	30-80	fls	10YR72	OG	M	D
	80-100	ms	75YR56	OG	M	D
042	0-30	fsl	10YR42	OG	M	D
	30-50	mls	10YR54	O	F	F
	50-90	cl	10YR62	OG	M	D
	90-100	ms	75YR56	O	M	D
043	0-35	fsl	10YR42			
	35-50	mls	10YR54	O	F	F
	50-95	ms	10YR62	O	M	D
	95-100	cl	10YR62	OG	M	D

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
044	0-30	fsl	10YR42			
	30-70	fsl	10YR54			
	70-80	fls	10YR54	O	C	D
	80-100	ms	10YR63	O	F	F
045	0-30	fsl	10YR42			
	30-65	mls	10YR53	O	F	D
	65-90	fsl	10YR62	O	M	D
	90-100	cl	10YR62	OG	M	D
046	0-30	lfs	10YR32			
	30-40	lfs	75YR46	G	F	F
	40-100	ms	10YR64	O	F	F
047	0-40	lfs	10YR32			
	40-100	ms	10YR54	O	F	F
048	0-30	lfs	10YR32			
	30-80	lfs	10YR42			
	80-100	fsl	10YR42	G	F	F
049	0-35	lms	10YR42			
	35-40	lms	75YR46	O	F	F
	40-100	ms	10YR66	G	F	F
050	0-30	mls	10YR32			
	30-100	lms	75YR46			
051	0-40	lfs	10YR32			
	40-80	o.loam	5YR32			
	80-100	fsl	75YR64	G	C	F

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
052	0-40	lfs	10YR32			
	40-100	lfs	75YR32			
053	0-30	fsl	10YR32			
	30-100	lfs	10YR63	OGM	C	D
054	0-30	fsl	10YR32			
	30-100	lfs	10YR63	OGM	C	D
055		NA				
056	0-40	fsl	10YR42			
	40-80	fs	10YR44	O	F	F
	80-100	fsl	10YR42	OG		F
057	0-30	fsl	10YR42			
	30-70	fsl	10YR52	O	F	F
	70-100	ms	10YR54			
058	0-30	fls	10YR42			
	30-55	fsl	10YR44	O	F	F
	55-100	ms	10YR54	OG	M	D
059	0-40	lfs	10YR32			
	40-60	lfs	10YR64			
	60-100	lms	10YR64	OG	C	D
060	0-35	lfs	10YR32			
	35-60	lfs	75YR54			
	60-100	lms	10YR63	OG	C	D

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
061	0-35	lfs	10YR42			
	35-60	lfs	75YR54			
	60-80	lfs.lms	75YR54			
	80-100	fsl	10YR42			
062	0-45	lms	10YR32			
	45-100	lms	75YR54	OG	C	D
063	0-45	lfs	75YR32			
	45-80	lfs	75YR54	OG	C	D
	80-100	lms	10YR64	OG	C	D
064	0-45	lfs	10YR33			
	45-60	lfs	10YR53	OG	C	D
	60-100	lms	10YR64	OG	C	D
065	0-40	lfs	10YR33			
	40-70	lfs	10YR53	O	C	D
	70-100	lms	10YR53			
066	0-35	lms	10YR33			
	35-60	hcl	10YR64	OG	C	D
	60-0	lms	10YR00	CD		
067	0-35	lfs	10YR33			
	35-50	msl	10YR64			
	50-60	scl	10YR52	OG	C	D
	60-100	ms	10YR64	O	F	D
068	0-40	lfs	10YR33			
	40-60	lfs	10YR53			
	60-80	lms	10YR64	OG	M	P
	80-100	ms	10YR52	OG	C	D

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
069	0-30	fsl	10YR41			
	30-40	mcl	10YR54			
	40-60	mls	10YR64	O	F	F
	60-90	ms	10YR58	O	C	D
	90-100	cl	25Y42	OG	M	D
070	0-36	fsl	10YR42			
	36-48	mls	10YR53	G	F	F
	48-100	cl	10YR61	OG	M	D
071	0-35	fsl	10YR42			
	35-55	mls	10YR64	O	F	F
	55-85	ms	10YR	O	M	D
	85-100	cl	5Y41	OG	M	D
072	0-30	fsl	10YR42			
073	0-35	hcl	25Y42			
	35-60	hcl	10YR62	OG	C	D
	60-100	c	75YR44	OG	C	D
074	0-30	hcl	10YR33			
	30-50	mcl.msl	10YR53	O	C	F
	50-100	c	75YR44	OG	C	D
075	0-25	hcl	25Y42			
	25-40	c	10YR53	O	F	D
	40-100	c	75YR44	OG	C	D
076	0-30	fsl	10YR33			
	30-60	fsl	10YR63	OG	M	D
	60-100	c	10YR53	G	C	D
077		NS				

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
078	0-30	hcl	25Y42	O	C	D
	30-50	c	5Y51	OG	C	D
	50-100	c	10YR43	OG	C	D
079		NA				
080	0-15	hcl	10YR33			
	15-60	hcl.c	10YR52			
081	0-30	hcl.m	10YR32			
	30-60	c	10YR52	OG	C	D
082	0-30	hcl	10YR32			
	30-50	c	10YR53			
083	0-30	mcl	10YR32			
	30-50	scl	10YR53	O	C	D
	50-80	c	10YR52	OG	C	D
084	0-30	lms	10YR32			
	30-60	lms	10YR53	O	C	D
	60-100	c	10YR52	OG	C	P
085	0-37	fsl	10YR42			
	37-65	mls	10YR64	O	C	D
	65-100	cl	5YR51	OG	M	D
086	0-30	fsl	10YR42			
	30-60	mls	10YR54			
	60-85	ms	10YR64			
	85-100	ms	10YR66			
087	0-30	fsl	10YR42			
	30-70	mls	10YR52	O	M	D

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
088	0-30	msl	10YR33			
	30-60	lfs	10YR53			
	60-100	lms	10YR64	OG	C	D
089		URB				
090	0-33	fsl	10YR33			
	33-60	lfs	10YR53	OG	C	D
	60-75	lms	10YR52			
	75-100	ms	10YR52	O	C	D
091		NA				
092	0-35	mcl	10YR33			
	35-60	hcl	10YR44	O	F	F
	60-100	mzcl	10YR44	O	F	F
093	0-35	mcl	10YR33			
	35-100	hcl	10YR44	O	F	F
094	0-40	mzcl	10YR33			
	40-100	mzcl	10YR64	O	F	F
095	0-35	hzcl	10YR33			
	35-90	mzcl	10YR44	O	F	F
	90-100	zcl	10YR54			
096	0-35	hzcl	10YR33			
	35-63	mzcl	10YR44	O	F	F
	63-100	zcl	5Y41	OG	M	D

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
097	0-35	hzcl	10YR33			
	35-70	hzcl	10YR44	OG	M	D
	70-120	hzcl	10YR53	OG	M	D
098	0-40	hzcl	10YR33			
	40-60	zc	75YR54	O	C	D
	60-100	hzcl	75YR54			
099	0-35	mzcl	10YR33			
	35-50	mzcl	10YR64			
	50-60	zc	10YR42	OG	C	D
	60-100	zc	10YR52	OG	M	P
100	0-30	hzcl	10YR32			
	30-100	zc	10YR52	OG	M	P
101	0-30	hzcl	10YR32			
	30-70	zc	10YR52	OG	M	P
	70-100	pt	75YR32	O	F	D
102	0-30	hzcl.zc	10YR32			
	30-50	zc.hzcl	N4	O	C	D
	50-100	lmy.pt	5YR33			
103	0-30	hzcl	10YR32			
	30-55	zc	N4	O	M	D
	55-100	lmy.pt	5YR33			
104	0-35	hzl	10YR32			
	35-65	zc	N4	O	M	D
	65-100	lmy.pt	5YR31			

				----MOTTLES----		
BORING	DEPTH	TEXTURE	COLOUR	COL	ABUND	CONT
105		NS				
106	0-30	hzcl	10YR32			
	30-60	zc	10YR52	O	C	D
	60-100	lmy.pt	5YR31			
107	0-30	hzcl	10YR33			
	30-80	zc	N4	O	M	D
	80-100	pty.loam	5YR32			
108	0-30	hzcl	10YR33			
	30-90	zc	N4	O	C	D
	90-100	lmy.pt	5YR32			
109	0-55	mzcl	10YR53			
	55-65	hzcl	10YR42	O	F	F
	65-75	hzcl	10YR51	O	C	D
	75-100	p	25Y20	O	F	F
110	0-30	hzcl	10YR33			
	30-60	zc	10YR52	OG	M	P
	60-100	mzcl	10YR64	OGG	M	P
111	0-30	zc	10YR42			
	30-60	zc	10YR52	OG	C	D
112	0-30	lms	75YR42			
	30-50	lms	75YR44			
	50-100	lms	5YR44			
113	0-30	lms	5YR34			
	30-100	lms.ms	5YR44			