AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF PHYSICAL CHARACTERISTICS.

Methley Lane, Methley, West Yorkshire.

Proposed Opencast Extraction of Coal.

ADAS

Leeds Regional Office

August 1991

CONTENTS

1. AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSED OPENCAST COAL SITE AT METHLEY LANE, METHLEY, WEST YORKSHIRE.

1.1 Introduction

The site (National Grid Reference SE 375 277) is located about 1½ Km south east of the village of Oulton and 11Km. South east of Leeds City centre; it lies immediately to the north of the A639.

Survey work was carried out in August 1991 when soils were examined by hand-auger borings at points predetermined by the National Grid. The density of borings was one per hectare and, in addition, one soil profile pit was dug to collect further information on soil characteristics.

1.2 Land Use

The land is all in arable production, mostly cereals but also some potatoes.

1.3 Climate and Relief

Average Annual Rainfall is approximately 633mm. Accumulated

temperature above 0°C between January and June (ATO) is 1,396 day °C and the land is at field capacity for 145 days a year. Summer Moisture deficits of 107mm for winter wheat and 98mm for potatoes indicate a slight draught limitation on the lighter soils which occur on the site, especially in the eastern half. There is, however, no overall climatic limitation on A.L.C. grade.

The site varies between 15m and 26m above Ordnance Datum, ~~gently~~ gently sloping down from South to north.

1.4 Geology

A thin layer of drift overlies the site although it is absent in places. The solid geology consists of Carboniferous Coal measures ~~consists~~ formed of interbedded sandstones and shales. Shales which weather to firm clay or silty clay are common on the site.

1.5 Drainage

Most of the soils are poorly or imperfectly drained and fall into Wetness classes III and IV although some of the lighter-textured soils in the

east of the site are moderately well drained, falling in Wetness Class II

1.6 Agricultural Land Classification

The A.L.C. grades occurring on this site are as follows:-

Grade / Subgrade	Area (ha.)	Percentage of Total Site Area
2	4.01	9.36
3a	18.42	43.01
3b	20.4	47.63
Total	42.83	100.00

Grade 2

A small area of Grade 2 land is ~~found~~ occurs in the ~~far east~~ eastern part of the site. Topsoils consist of sandy clay loams and overlie sandy clay loam or medium sandy loam subsoils. Slowly permeable layers occur in some profiles at depth but the soils are moderately well drained. Soil wetness is the principal factor which limits A.L.C. grade on these soils.

Subgrade 3a

Land in this subgrade is found in much of the eastern part of the site. Topsoils consist of medium clay loams or sandy clay loams and these overlie sandy clay loam upper subsoils and silty clay or clay lower subsoils. Slowly permeable layers occur at depths of 40cm to 70cm and the soils are imperfectly drained, falling in Wetness Class III. Soil wetness is, thus, the overall limiting factor on A.L.C. grade.

Subgrade 3b

Land in this subgrade is found mainly in the western part of the site. Topsoils are formed of medium-textured (medium clay loam or sandy clay loam) and overlie sandy clay loam upper subsoils which pass to silty clay or clay lower subsoils; in some places the sandy clay loam upper subsoil is absent. Slowly permeable layers occur within 40cm of the surface and the soils are poorly drained falling in Wetness Class IV. Soil Wetness is the main limiting factor on A.L.C. grade.

SOIL PROPERTIES

One major soil type exists on this site:

Medium to heavy textured soils

This soil type covers the entire site and consists of medium clay loam or sandy clay loam topsoils 30 to 40 cm thick over sandy clay loam upper subsoils. Silty clay or clay lower subsoil is usually encountered below 40 to 50cm depth although it occasionally occurs just below the topsoil. Topsoils are very slightly to slightly stony (often 5-8% hard rock of sandstone). Upper subsoils are slightly to moderately stony (8-15% sandstone) and lower subsoils are stonless. Most of the soils are poorly or imperfectly drained and fall in Wetness Classes III and IV. An inspection pit showed the soil to have a moderately developed fine to medium subangular blocky structure in the topsoil and a moderately developed medium to coarse angular blocky structure in the upper subsoil, which passed to a weakly developed very coarse prismatic to massive structure in the

lower subsoil. Slowly permeable layers typically start at depths of between 30cm and 50cm.

3. Soil Profile Description

Pit 1, Near Auger Boring 7

Land use: Potatoes

Gradient: 0°

Depth (cm)	Horizons
0-30	Very dark greyish brown (10YR 3/2) medium clay loam; few extremely fine sharp yellowish-brown (10YR 5/6) mottles; few small to medium sub-rounded flinty stones and sandstones; very slightly moist; moderately developed fine to medium sub angular blocky structure; medium packing density; many fine fissures and very fine pores; moderately weak soil strength; moderately sticky and moderately plastic; abundant fine and very fine fibrous roots to 11cm and many fine and very fine fibrous roots between 11cm and 30cm; non-calcareous; clear, wavy boundary.
30-55	Yellowish brown (10YR 5/4) sandy clay loam with brown (10YR 5/3) ped faces. Common fine clear greyish brown (10YR 5/2) mottles; many subrounded medium weathering sandstones; slightly moist; moderately developed medium tending to coarse angular blocky structure; medium packing density; few fine pores and fissures; moderately strong soil strength; moderately sticky; moderately plastic; few very fine fibrous roots; non-calcareous; sharp smooth boundary.
55-100	Dark brown (7.5YR 4/2) silty clay with grey (N-5) ped faces; many medium clear brown (7.5YR 4/2)

mottles ; Stoneless ; moist ; weakly developed adherent very coarse prismatic to massive structure high packing density ; Common medium fissures ; soft deforms under pressure ; very sticky ; very plastic ; non-calcareous.

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	GLEY	SPL	WETNESS CLASS	WETNESS GRADE	WHEAT AP	WHEAT MB	POTS AP	POTS MB	M.REL DRT	EROSN	FROST FLOOD	FROST EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SE36802790	ARA	00	20	999	2	2	045	-62	045	-53	4	N	N	N	N	N DR	4	AS 45CM
2	SE36802780	ARA	00	30	30	4	3B	078	-29	078	-20	3B	N	N	N	N	N WT	3B	
3	SE36902780	ARA	00	20	999	2	2	129	22	113	15	2	N	N	N	N	N WT	2	
4	SE37002780	POT	00	30	30	4	3B	082	-25	082	-16	3B	N	N	N	N	N WT	3B	
5	SE37102780	POT	00	20	80	2	2	124	17	108	10	2	N	N	N	N	N WT	2	2-3A
6	SE37202780	POT	00	0	20	4	3B	076	-31	076	-22	3B	N	N	N	N	N WT	3B	
7	SE37302780	CER	00	20	20	4	3B	078	-29	078	-20	3B	N	N	N	N	N WT	3B	
8	SE37402780		00	0	999	1	1	054	-53	054	-44	4	N	N	N	N	N DR	4	RD SIDE
9	SE37502780	ARA	00	25	25	4	3B	000	0	000	0		N	N	N	N	N W	3B	
11	SE38002780	ARA	00	50	50	3	3A	000	0	000	0		N	N	N	N	N W	3A	
12	SE38102780	ARA	00	50	50	3	3A	000	0	000	0		N	N	N	N	N W	3A	
13	SE36802770	ARA	00	35	35	4	3B	000	0	000	0		N	N	N	N	N WT	3B	
14	SE36902770	POT	00	25	25	4	3B	000	0	000	0		N	N	N	N	N WT	3B	
15	SE37002770	POT	00	25	25	4	3B	000	0	000	0		N	N	N	N	N WT	3B	
16	SE37102770	POT	00	25	999	2	2	109	2	109	11	3A	N	N	N	N	N DR	3A	
17	SE37202770	POT	00	15	15	4	3B	000	0	000	0		N	N	N	N	N WT	3B	
18	SE37302770	CER	00	30	999	2	2	132	25	116	18	2	N	N	N	N	N WT	2	
19	SE37402770	CER	00	25	999	2	2	074	-33	074	-24	3B	N	N	N	N	N WT	3A	2-3A
20	SE37502770	ARA	00	45	45	3	3A	000	0	000	0		N	N	N	N	N W	3A	
21	SE37602770	ARA	00	55	999	3	3A	000	0	000	0		N	N	N	N	N W	3A	
22	SE37702770	ARA	00	30	999	0		000	0	000	0		N	N	N	N	N DR	2	
23	SE37802770	ARA	00	60	60	3	3A	000	0	000	0		N	N	N	N	N W	3A	
24	SE37902770	ARA	00	0	999	0		000	0	000	0		N	N	N	N	N DR	2	
25	SE38002770	ARA	00	30	999	0		000	0	000	0		N	N	N	N	N DR	2	

26	SE38102770	ARA	00	0	999	0		000	0	000	0		N	N	N	N	N	N	N	DR	2
27	SE38202770	ARA	00	10	10	4	3B	000	0	000	0		N	N	N	N	N	N	N	W	3B
29	SE37602760	ARA	00	35	35	4	3B	000	0	000	0		N	N	N	N	N	N	N	W	3B
30	SE37702760	ARA	00	30	999	0		000	0	000	0		N	N	N	N	N	N	N		1
31	SE37802760	ARA	00	25	25	4	3B	000	0	000	0		N	N	N	N	N	N	N	W	3B
32	SE37902760	ARA	00	25	25	4	3B	000	0	000	0		N	N	N	N	N	N	N	W	3B
33	SE38002760	ARA	00	30	80	2	2	000	0	000	0		N	N	N	N	N	N	N	W	2
34	SE38102760	ARA	00	60	60	3	3A	000	0	000	0		N	N	N	N	N	N	N	W	3A
35	SE38202760	ARA	00	0	999	0		126	19	103	5	2	N	N	N	N	N	N	N	DR	2
36	SE37902750	ARA	00	25	65	3	3A	000	0	000	0		N	N	N	N	N	N	N	W	3A
37	SE38002750	ARA	00	15	15	4	3B	000	0	000	0		N	N	N	N	N	N	N	W	3B
38	SE38102750	ARA	00	30	65	3	3A	000	0	000	0		N	N	N	N	N	N	N	W	3A
39	SE38202750	ARA	00	30	55	3	3A	000	0	000	0		N	N	N	N	N	N	N	W	3A
40	SE38302750	ARA	00	25	25	4	3B	000	0	000	0		N	N	N	N	N	N	N	W	3B
41	SE38202740	ARA	00	30	70	3	3A	000	0	000	0		N	N	N	N	N	N	N	W	3A
42	SE38302740	ARA	00	30	30	3	3A	000	0	000	0		N	N	N	N	N	N	N	W	3A
43	SE38402730	ARA	00	70	70	3	3A	000	0	000	0		N	N	N	N	N	N	N	W	3A

PROFILE/
HORIZ DATA

program: ALC011 COMPLETE LIST OF PROFILES 12/08/91 METHLEY LANE OCCS.

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
1	0-20	mcl	10YR33 00					N	10	5	HR	15			N		N	N
	20-30	scl	10YR71 00	10YR78 00	M			Y	0	0	MSST	10		M	N		N	N
2	0-30	mcl	10YR33 00					N	10	0	HR	10			N		N	N
	30-50	zc	10YR61 00	75YR68 00	M			Y	0	0	HR	5		M	N		Y	N
3	0-20	mcl	10YR33 00					N	8	0	HR	8			N		N	N
	20-60	mcl	10YR63 00	75YR68 00	M			Y	0	0		0		M	N		N	N
	60-100	mcl	10YR62 00	75YR68 00	M			Y	0	0	HR	5		M	N		N	N
4	0-30	mcl	10YR33 00					N	8	0	HR	8			N		N	N
	30-50	hcl	25 Y73 00	75YR68 00	M			Y	0	0		0		M	N		Y	N
5	0-20	mcl	10YR42 00					N	8	0	HR	8			N		N	N
	20-60	scl	10YR62 00	75YR68 00	M			Y	0	0		0		M	N		N	N
	60-80	scl	10YR63 00	75YR68 00	M			Y	0	0		0		M	N		N	N
	80-100	zc	75YR81 00	10YR66 00	C			Y	0	0		0		M	N		Y	N
6	0-20	scl	10YR42 00	10YR58 00	C			Y	8	0	HR	8			N		N	N
	20-50	scl	10YR71 00	75YR58 00	M			Y	0	0		0		M	N		Y	N
7	0-20	mcl	10YR42 00					N	8	0	HR	8			N		N	N
	20-50	zc	75YR50 00	75YR56 00	M			Y	0	0		0		M	N		Y	N
8	0-15	msl	10YR33 00					N	20	0	HR	20			N		N	N
	15-50	msl	10YR33 00					N	0	0	HR	40		M	N		N	N
9	0-25	scl	10YR32 00					N	0	0		0			N		N	N
	25-100	c	10YR46 00	10YR51 00	M			Y	0	0		0			N		Y	N
11	0-30	scl	10YR32 00					N	0	0		0			N		N	N
	30-50	scl	10YR44 00					N	0	0		0			N		N	N
	50-100	scl	10YR51 00	10YR46 00	F			Y	0	0		0			N		Y	N
12	0-50	scl	10YR43 00					N	0	0		0			N		N	N
	50-100	c	10YR56 00	10YR51 00	C			Y	0	0		0			N		Y	N
13	0-25	mcl	10YR32 00					N	0	0	HR	8		M	N		N	N
	25-35	mcl	10YR53 00					N	0	0		0			N		N	N
	35-50	zc	10YR71 00	75YR68 00	M			Y	0	0		0			N		Y	N
14	0-25	mcl	10YR32 00					N	0	0	HR	8			N		N	N
	25-50	scl	10YR63 00	75YR68 00	M			Y	0	0		0			N		Y	N
	50-70	zc	10YR61 00	75YR68 00	M			Y	0	0		0			N		Y	N
15	0-25	mcl	10YR32 00					N	0	0	HR	8			N		N	N
	25-50	hcl	10YR64 00	75YR68 00	M			Y	0	0		0			N		Y	N

	SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
3a	16	0-25	mcl	10YR32 00					N	8	0	HR	8			N		N	N
		25-80	scl	10YR74 00	75YR68 00	M			Y	0	0		0		M	N		N	N
3b	17	0-15	mcl	10YR32 00					N	0	0	HR	8			N		N	N
		15-50	zc	10YR61 00	75YR68 00	M			Y	0	0		0			N		Y	N
2	18	0-30	mcl	10YR54 00					N	8	0	HR	8			N		N	N
		30-50	mcl	10YR63 00	10YR68 00	C			Y	0	0		0		M	N		N	N
		50-100	mzcl	10YR63 00	10YR68 00	C			Y	0	0		0		M	N		N	N
2/3a	19	0-25	mcl	10YR33 00					N	8	0	HR	8			N		N	N
		25-45	mcl	25 Y73 00	75YR68 00	C			Y	0	0		0		M	N		N	N
3a	20	0-45	scl	10YR33 00					N	0	0		0			N		N	N
		45-100	c	10YR51 00	10YR46 00	C			Y	0	0		0			N		Y	N
3a	21	0-30	scl	10YR32 00					N	0	0		0			N		N	N
		30-55	scl	10YR44 00					N	0	0		0			N		N	N
		55-100	c	10YR56 00	10YR51 00	C			Y	0	0		0			N		N	N
2	22	0-30	scl	10YR32 00					N	0	0		0			N		N	N
		30-70	scl	10YR44 00	10YR46 00	C			Y	0	0		0			N		N	N
3a	23	0-30	scl	10YR32 00					N	0	0		0			N		N	N
		30-60	scl	10YR44 00					N	0	0		0			N		N	N
		60-100	c	10YR56 00	10YR61 00	C			Y	0	0		0			N		Y	N
2	24	0-30	scl	10YR32 00					N	0	0		0			N		N	N
		30-70	scl	10YR44 00					N	0	0		0			N		N	N
		70-100	lms	10YR56 00					N	0	0		0			N		N	N
2	25	0-30	scl	10YR33 00					N	0	0		0			N		N	N
		30-70	scl	10YR44 00	10YR51 00	F			Y	0	0		0			N		N	N
2	26	0-30	scl	10YR32 00					N	0	0		0			N		N	N
		30-70	scl	10YR44 00					N	0	0		0			N		N	N
3b	27	0-10	scl	10YR43 00					N	0	0		0			N		N	N
		10-100	c	10YR56 00	10YR51 00	C			Y	0	0		0			N		Y	N
3b	29	0-35	scl	10YR32 00					N	0	0		0			N		N	N
		35-100	c	10YR56 00	10YR46 51	C			Y	0	0		0			N		Y	N
2	30	0-30	mcl	10YR33 00					N	0	0		0			N		N	N
		30-100	scl	10YR46 00	10YR51 00	C			Y	0	0		0			N		N	N
3b/3a	31	0-25	scl	10YR32 00					N	0	0		0			N		N	N
		25-100	scl	10YR51 00	10YR46 00	M			Y	0	0		0			N		Y	N

	SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
3b	32	0-25	scl	10YR33 00					N	0	0		0			N		N	N
		25-100	c	10YR51 00	10YR56 00	M			Y	0	0		0			N		Y	N
	33	0-30	scl	10YR32 00					N	0	0		0			N		N	N
2		30-80	scl	10YR56 00	10YR46 00	C			Y	0	0		0			N		N	N
		80-100	c	10YR66 00	10YR51 00	C			Y	0	0		0			N		Y	N
	34	0-30	scl	10YR32 00					N	0	0		0			N		N	N
3a		30-60	scl	10YR44 00					N	0	0		0			N		N	N
		60-100	c	75YR46 00	10YR51 00	M			Y	0	0		0			N		Y	N
	35	0-30	scl	10YR32 00					N	0	0	HR	5			N		N	N
2		30-100	msl	10YR54 00					N	0	0	HR	10		M	N		N	N
	36	0-25	scl	10YR32 00					N	0	0		0			N		N	N
3a		25-65	scl	10YR54 00	10YR46 00	C			Y	0	0		0			N		N	N
		65-100	c	10YR51 00	10YR56 00	C			Y	0	0		0			N		Y	N
3b	37	0-15	mcl	10YR33 00					N	0	0		0			N		N	N
		15-100	zc	10YR61 00	10YR66 00	M			Y	0	0		0			N		Y	N
	38	0-30	mcl	10YR32 00					N	0	0		0			N		N	N
3a		30-65	scl	10YR54 00	10YR56 00	C			Y	0	0		0			N		N	N
		65-100	zc	10YR51 00					Y	0	0		0			N		Y	N
	39	0-30	scl	10YR32 00					N	0	0		0			N		N	N
3a		30-55	scl	10YR54 00	10YR56 00	C			Y	0	0		0			N		N	N
		55-100	zc	10YR61 00					Y	0	0		0			N		Y	N
	40	0-25	scl	10YR33 00					N	0	0		0			N		N	N
3b/3a		25-50	scl	10YR44 00	10YR51 00	C			Y	0	0		0			N		Y	N
		50-100	zc	10YR51 00	10YR46 00	C			Y	0	0		0			N		Y	N
	41	0-30	scl	10YR32 00					N	0	0		0			N		N	N
3a		30-70	scl	10YR44 00	10YR51 00	C			Y	0	0		0			N		N	N
		70-100	hcl	10YR51 00	10YR56 46	M			Y	0	0		0			N		Y	N
	42	0-30	scl	10YR32 00					N	0	0		0			N		N	N
3a/3b		30-70	scl	10YR54 00	10YR46 00	M			Y	0	0		0			N		Y	N
		70-100	zc	10YR51 00	10YR46 00	C			Y	0	0		0			N		Y	N
	43	0-30	scl	10YR33 00					N	0	0		0			N		N	N
3a		30-70	msl	10YR56 00					N	0	0		0			N		N	N
		70-100	zc	10YR51 00	10YR46 00	C			Y	0	0		0			N		Y	N