AGRICULTURAL LAND CLASSIFICATION AND STATEMENT OF PHYSICAL CHARACTERISTICS

Broughton Lodge, Cumbria

Proposal Opencast Coal Site

ADAS

Leeds Regional Office

October 1989

Ref 4578

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APPENDIX

1. AGRICULTURAL LAND CLASSIFICATION REPORT ON THE PROPOSAL OPENCAST COAL SITE AT BROUGHTON LODGE, MARYPORT, CUMBRIA

1.1 The site (Grid Reference NY 600 333) is located immediately south east of the village of Broughton Moor, about 3½ km south east of Maryport in Cumbria. Survey work was carried out in late November 1989 when soils were examined by hand auger borings at points predetermined by the National Grid. The density of borings was one per hectare. In addition three soil profile pits were dug to collect further information on soil characteristics.

1.2 Climate and Relief

Salient climatic parameters at Broughton Moor are as follows:-

Average Annual Rainfall (mm)		1070
Accumulated Temperature above 0°C (Jan-June)		1266
Field Capacity Days		245
Moisture deficit:-	wheat (mm)	59
	potatoes (mm)	37

These factors impose an overall climatic limitation of subgrade 3a across the whole site.

The two highest points are at Broughton Lodge, (114 m aod) and east of Fell View. (122 m aod). Land slopes down from these summits to below 81 m aod south of Stocksmoor Farm. Average altitude is about 110 m aod.

1.3 Geology Soils and Drainage

Upper Carboniferous Coal Measures underlie the whole area over which is a superficial cover of boulder clay of variable thickness. Solid strata occur close to the surface at Broughton Lodge and south of Broughton Moor where the fine loamy top soil and subsoil is less than a metre in thickness. Elsewhere the drift has weathered to produce medium or heavy

clay loam topsoils over similar textured gleyed and usually slowly permeable subsoils (wetness classes IV/V). The remainder of the site, north of Broughton Lodge, contains soils formed of restored material. These are subdivided into an area consisting of a levelled colliery shale tip and an area of restored opencast coal workings. The former colliery shale tip has been levelled and a layer, 25-30 cm deep, of clay and heavy clay loam added to form a thin topsoil. This is very compacted and waterlogged for much of the year (wetness class V). The opencast area has been restored recently to a somewhat higher standard. Here, topsoils consist usually of heavy clay loam over a similar textured compacted slowly permeable subsoil, (wetness class V).

1.4 Agricultural Land Classification

1.4.1 Subgrade 3b (24.5 hectares, 24.6% of total area)

There are four distinct areas of subgrade 3b land, each with similar soils. Topsoils consist of sandy clay loam or medium clay loam over a similar upper subsoil. The lower subsoil is formed usually of gleyed, slowly permeable, heavy clay loam or clay, (wetness class IV). Soil wetness and workability are the limiting factors on this land.

1.4.2 Grade 4 (73.0 hectares, 73.2% of total area).

This grade contains restored and undisturbed land, both of which fall within grade 4 because of severe soil wetness and workability restrictions. The restored soils are separated into two types consisting of a thin, compacted layer of clay and heavy clay loam over colliery shale and a restored area containing heavy clay loam topsoils over a clay or heavy clay loam subsoils, often with overburden at about 75 cm depth. The undisturbed grade 4 land typically contains a heavy clay or silty clay loam topsoil over a clayey subsoil at about 25 cm depth. This often passes onto weathering Coal Measure Shale at about 50 cm depth.

Grade 5 (0.8 hectares, 0.8% of total area)

Two wet, peaty hollows fall within this grade.

Farm Buildings (1.2 hectares, 1.2% of total area)

Stockmoor and Broughton Lodge farms fall within this category.

Urban (0.2 hectares, 0.2% of total area)

Resource Planning Group
Leeds Regional Office

BROUGHTON LODGE PROPOSED OPENCAST COAL SITE STATEMENT OF PHYSICAL CHARACTERISTICS (SOIL PROPERTIES AND RESOURCES)

The site contains three major soil types:- Boulder Clay Soil and two restored soils.

1. Boulder Clay Soils

These soils have a medium or heavy, clay or silty clay loam topsoil over a similar or heavier textured clay subsoil. The soil is slightly stony throughout. The topsoil has a moderately developed medium subangular blocky structure and common distinct ochreous mottles. Near Broughton Moor this overlies on upper subsoil of similar structure and texture. The lower subsoil which is common to all profiles consists of clay with a mixed brown and grey matrix. If it has a well developed coarse prismatic structure and is slowly permeable. Where an upper subsoil is present this soil falls within wetness class IV, elsewhere it is class V. In a few places the soil appears to be less than a metre deep especially towards Broughton Lodge and south of Broughton Moor. Here the subsoil is partly derived from weathering sandstone, shale or coaly material.

Restored Soils

The north eastern corner of the site contains two distinctly different restored soils. The first, consists of a former colliery shale tip which has been leveled and returned to agriculture by adding a thin layer of heavy clay loam directly over the shale. This soil has a poorly developed coarse angular blocky structure with a high packing density and contains many medium subrounded sandstone and shale fragments. There is no subsoil.

The second and larger area has been restored only recently. Here, the topsoil consists of slightly stony heavy clay loam with a weakly developed coarse subangular blocky structure and a high packing density.

The subsoil, which often passes onto restored Coal Measures overburden, at less than 100 cm depth is a heavy clay loam or clay with a weakly developed very coarse platy structure, passing into massive compacted material towards the base. Both subsoil and overburden horizons have a very high packing density.

Soil Resources

Topsoil and upper/lower subsoil resources along with soil depth and volume information are shown on the accompanying maps.

Topsoils

Topsoils are separated as follows:

Unit T1 consists of heavy shallow restored soil over colliery shale.

Unit T2 contains the remaining recently restored heavy topsoil. Undisturbed soils all fall within Unit T3, which is subdivided into medium and heavy textured subunits.

Upper Subsoils

There is one medium textured upper subsoil (US1) which forms a distinctive unit in the north western part of the site.

Lower subsoils

Subsoils are separated into disturbed heavy textured (Unit S1) and undisturbed heavy textured (Units S2 and S3). The restored colliery shale tip does not contain any subsoil.

BROUGHTON LODGE OCC

PROFILE PIT DESCRIPTION

PIT 1 BOULDER CLAY SOIL

Slope + Aspect	3°N
Land Use	Perm Grass
Recent weather	Wet with overnight frost

Horizon
Depth (cm)

25 Very dark greyish brown (10 YR 3/2) medium silty clay loam; very slightly stony with a few small subangular sandstones; common distinct medium reddish brown (5 YR 4/4) mottles; very moist; moderately developed medium subangular blocky; moderately firm; medium packing density; moderately porous; common fine pores and fissures; very sticky; very plastic; abundant fine fibrous roots; non calcareous; abrupt smooth boundary.

45 Grey (N6) heavy clay loam, very slightly stony with a few small subangular sandstones; very many medium and coarse strong brown (7.5 YR 5/8) mottles; moist; moderately developed coarse angular blocky; moderately firm; slightly porous with a few fine pores and fissures; very sticky; very plastic; common fine fibrous roots; non calcareous; clear wavy boundary.

100 Mixed dark yellowish brown (10 YR 4/4) and grey (N6) clay; slightly stony a few medium subrounded igneous and sedimentary stones, moist; weakly developed coarse prismatic; moderately strong; slightly porous with a few fine pores and fissures; very sticky; very plastic; few fine fibrous roots; non calcareous.

BROUGHTON MOOR LODGE OCC

PROFILE PIT DESCRIPTION

PIT 2 BOULDER CLAY SOIL

Slope + Aspect	0
Land Use	Perm Grass
Recent weather	Wet with overnight frost

Horizon Depth (cm)	
23	Very dark greyish brown (10 YR 3/2) heavy clay loam with aggregates of brown (10 YR 5/3) clay subsoil material; slightly stony with common medium subrounded sandstones and shale fragments; common fine and medium distinct yellowish brown (10 YR 5/8) mottles with patches of grey (N6) mottles in subsoil material; wet; poorly developed coarse angular blocky; deformable; high packing density; slightly porous with a few fine pores and fissures; very sticky; very plastic; many fine fibrous roots; non calcareous; sharp irregular boundary.
100+	Black weathering colliery shale and burnt red material.

BROUGHTON LODGE OCC

PROFILE PIT DESCRIPTION

PIT 3 BOULDER CLAY SOIL

Slope + Aspect	3°N
Land Use	Perm Grass
Recent weather	Wet with overnight frost

Horizon
Depth (cm)

20 Dark greyish brown (2.5 Y 4/2) heavy clay loam with common small and medium subrounded sandstones and angular shale fragments and a few subrounded boulders; common medium and coarse distinct yellowish brown (10 YR 5/6) mottles and grey (N6) subsoil material; wet; weakly developed adherent; coarse subangular blocky; high packing density; moderately, firm soil strength; few fine pores and fissures; very sticky; very plastic; abundant fine fibrous roots; non calcareous; abrupt smooth boundary.

40 Dark brown (10 YR 4/3) heavy clay loam with patches of clay; slightly stony with common small subrounded igneous and sedimentary stones; few faint medium and distinct yellowish brown (10 YR 5/6) mottles with common patches of grey (N6) subsoil material; moist; high packing density; weakly developed adherent very coarse platy breaking to coarse angular blocky; very firm soil strength; very slightly porous; very sticky; very plastic; common very fine fibrous roots; non calcareous; abrupt wavy boundary.

100 Mixed brown (10 YR 4/3) and grey (5 Y 5/1) overburden; clay; moderately stony with many medium and small shale fragments; common distinct medium grey (10 YR 5/1) mottles; moist; high

packing density; massive to very coarse platy, moderately strong soil strength; very sticky; very plastic; few very fine fibrous roots; non calcareous.

SCHEDULE OF SOIL AUGER BORINGS

TEXTURE

CS	COARSE SAND
FS	FINE SAND
MS	MEDIUM SAND
LCS	LOAMY COARSE SAND
LFS	LOAMY FINE SAND
LMS	LOAMY MEDIUM SAND
CSL	COARSE SANDY LOAM
FSL	FINE SANDY LOAM
MSL	MEDIUM SANDY LOAM
FSZL	FINE SANDY SILT LOAM
CSZL	COARSE SANDY SILT LOAM
MSZL	MEDIUM SANDY SILT LOAM
MZ	MARINE LIGHT SILTS
MZCL	MEDIUM SILTY CLAY LOAM
CZCL	COARSE SILTY CLAY LOAM
FZCL	FINE SILTY CLAY LOAM
SCL	SANDY CLAY LOAM
MCL	MEDIUM CLAY LAOM
ZL	SILT LOAM
HCL	HEAVY CLAY LOAM
HZCL	HEAVY SILTY CLAY LOAM
C	CLAY
SC	SANDY CLAY
ZC	SILTY CLAY
O	PREFIX 'O' FOR ORGANIC
FP	FIBROUS PEAT
HP	HUMOSE PEAT
LP	LOAMY PEAT
PL	PEATY LOAM
PS	PEATY SAND
SP	SANDY PEAT
X	ROCK

MOTTLES

O	OCHREOUS
G	GREY

AUGER BORINGS FOR BROUGHTON LODGE OCC 071/89 22/01/90 program:alcprint

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	TOPSOIL STONES >6	DEPTH		COLOUR	CaCO3	MOTTLES
001	5	c			0	20	10YR42		common distinct OG
		c			20	35	10YR52		many distinct OG
		coll.shl			35	50	0		
002	5	mcl			0	20	10YR43		common distinct O
		c			20	60	10YR52		many distinct OG
		coll.shl			60	65	BLACK		
003	5	mcl			0	25	10YR43		common distinct O
		overbrdn			25	45	10YR42		common distinct OG
004	4	hcl			0	30	10YR42		common distinct O
		c			30	60	10YR52		common distinct OG
		zc.ovrbd			60	100	10YR52		
005	4	mcl			0	25	10YR42		common distinct O
		mcl			25	40	10YR52		common faint O
		mcl			40	50	10YR53		many distinct OG
		hcl			50	100	10YR54		many prominent OG
006	4	mcl			0	20	10YR42		common distinct O
		mcl			20	30	10YR52		many prominent OG
		hcl			30	50	10YR53		many prominent OG
		hcl			50	100	10YR44		
007	4	mcl			0	30	10YR21		
		mcl			30	55	10YR53		many prominent OG
		mcl			55	100	10YR54		many distinct OG
008	5	hcl			0	20	10YR42		common faint O
		c			20	30	5Y51		common distinct OG
		shala			30	50	BLACK		
009	5	mcl			0	10	10YR44		common faint O
		cwz38ux			10	30	30		common distinct OG
		coll.shl			30	60	BLACK		
010	5	hcl			0	25	10YR42		common faint O
		c			25	55	10YR52		common distinct OG

AUGER BORINGS FOR BROUGHTON LODGE OCC 071/89 22/01/90 program:alcprint

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	TOPSOIL STONES >6	DEPTH		COLOUR	CaCO3	MOTTLES
011	5	mcl			0	25	10YR43		common distinct 0
		hcl.ovbd			25	40	10YR44		
012	5	mcl			0	25	10YR42		common distinct 0
		zc.ovrbd			25	60	10YR52		common distinct 0G
013	4	mcl			0	30	10YR42		common distinct 0
		mcl			30	45	45		common distinct 0G
		hcl			45	45	10YR53		many prominent 0G
014	4	fscl			0	25	10YR42		common faint 0
		fscl			25	50	10YR53		common faint 0G
		hcl			50	100	10YR53		many prominent 0G
015	4	mcl			0	25	10YR42		common distinct 0
		mcl			25	50	10YR53		many prominent 0GM
		hcl			50	100	10YR44		common distinct 0G
016	4	mcl			0	25	10YR42		common distinct 0
		mcl			25	30	10YR52		many distinct 0G
		hcl			30	100	10YR53		many prominent 0G
017	5	mcl			0	15	10YR42		common faint 0
		c			15	25	5Y51		
		gry.shal			25	0	0		
018	5	hcl			0	20	10YR42		common faint 0
		c			20	25	5Y51		
		coll.shl			25	0	0		
019	5	hcl			0	15	10YR42		common faint 0
		c			15	25	5Y51		common faint 0
		coll.shl			25	0	0		
020	5	hcl			0	20	10YR43		
		hcl			20	25	10YR52		few faint 0
		c			25	45	10YR52		many prominent 0G
		hcl			45	100	10YR44		common faint 0
021	5	mcl			0	25	10YR42		
		hcl			25	100	10YR44		common faint G

AUGER BORINGS FOR BROUGHTON LODGE OCC 071/89 22/01/90 program:alcprint

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	TOPSOIL STONES >6	DEPTH		COLOUR	CaCO3	MOTTLES
022	4	mcl			0	25	10YR42		few faint 0
		hcl			25	45	10YR52		few distinct 00
		c			45	100	N5		many prominent 0G
023	5	mcl			0	25	10YR42		few 0
		scl			25	100	10YR62		few distinct 0
024	4	mcl			0	25	10YR42		common distinct 0G
		scl			25	45	10YR52		few faint 0
		c			45	100	N5		common distinct 0G
025	4	mcl			0	30	10YR42		few faint 0
		hcl			30	55	2.5Y42		few distinct 0
		c			55	100	N5		common distinct 0G
026		dist			0	0	0		many prominent 0G
027	5	mcl			0	20	10YR42		common distinct 0
		hcl			20	100	2.5Y40		many prominent 0G
028	0	hcl			0	30	10YR52		common distinct 0G
		shale			30	0	0		
029	5	mcl			0	20	10YR52		common distinct 0G
		hcl.shly			20	45	2.5Y20		common distinct 0G
		shale			45	0	0		
030	5	mcl			0	20	10YR52		common distinct 0G
		hcl			20	50	2.5Y40		common distinct 0G
		shale			50	51	0		
031	5	mcl			0	25	10YR42		few distinct 0
		hcl			25	100	10YR52		common distinct 0
032	1	scl			0	30	10YR42		few distinct 0
		scl			30	75	10YR52		few distinct 0
033	5	mcl			0	25	10YR42		few distinct 0
		c			25	100	N5		many prominent 0G

AUGER BORINGS FOR BROUGHTON LODGE OCC 071/89 22/01/90 program:alcprint

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	TOPSOIL STONES >6	DEPTH		COLOUR	CaCO3	MOTTLES
034	5	mcl			0	25	10YR42		few distinct 0
		c			25	100	10YR62		many distinct OG
035	4	mcl			0	25	10YR42		
		hcl			25	65	10YR52		few distinct 0
		c			65	100	10YR72		many prominent OG
036	4	mcl			0	25	10YR42		
		mcl			25	65	10YR53		few faint 0
		c			65	100	2.5Y62		many prominent OG
037	5	mcl			0	25	10YR52		few distinct 0
		scl.c			25	100	N5		many prominent OG
038	5	mcl			0	25	10YR52		few distinct 0
		hcl			25	50	10YR62		common distinct OG
		c			50	100	N4		many prominent OG
039	5	o.hcl			0	40	2.5Y42		
		c			40	100	N5		many prominent OG
040		hcl			0	35	2.5Y42		few distinct 0
		shale			35	0	0		
041	5	hcl			0	20	10YR32		common distinct OG
		c			20	100	10YR68		many prominent OG
042	5	mcl			0	30	10YR42		
		comp.hcl			30	85	10YR52		few faint 0
043	0	hcl			0	25	10YR52		
		comp.hcl			25	85	2.5Y42		
044	5	mcl			0	20	10YR32		common distinct 0
		hcl			20	50	10YR52		many prominent OGM
		hcl.c			50	100	10YR44		common distinct OGM
045	5	hcl			0	20	10YR42		common distinct 0
		zc			20	50	25Y62		many prominent OG
		hcl			50	100	10YR44		common distinct GM

AUGER BORINGS FOR BROUGHTON LODGE OCC 071/89 22/01/90 program:alcprint

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	TOPSOIL STONES >6	DEPTH		COLOUR	CaCO3	MOTTLES
046	5	hcl			0	20	10YR42		many distinct 0
		hcl			20	60	10YR53		many prominent 0GM
		hcl			60	100	10YR44		many distinct 0G
047	5	mcl			0	20	10YR42		common distinct 0
		hcl.zc			20	50	10YR62		many prominent 0GM
		hcl			50	100	10YR44		common distinct 0G
048	4	mcl			0	20	10YR42		many distinct 0
		mcl			20	25	10YR52		few distinct 0
		hcl			25	60	10YR52		many distinct 0G
		hcl.hzcl			60	100	10YR44		common distinct 0G
049	5	hcl			0	20	10		common distinct 0
		hcl			20	55	10YR52		many prominent 0G
		hcl.c			55	100	10YR53		many distinct 0GM
050	5	mcl			0	20	10YR42		common distinct 0
		hcl			20	50	10YR62		many prominent 0GM
		hcl			50	100	10YR44		common distinct 0G
051	5	hcl			0	20	10YR32		common distinct 0
		hcl			20	60	10YR61		common distinct 0G
		c			60	100	5Y61		many prominent 0G
052	5	mcl			0	20	10YR42		common distinct 0
		hcl			20	50	25Y64		many prominent 0GM
		mcl			50	60	25Y64		many prominent 0GM
		as			60	0	0		
053	4	mcl			0	25	10YR42		common distinct 0
		mcl			25	40	10YR53		common distinct 0G
		hcl			40	55	10YR52		many distinct 0G
		hcl			55	60	10YR44		common distinct G
054	5	hcl			0	25	10YR42		
		hcl			25	100	0		
055	5	mzcl			0	20	10YR42		common distinct 0
		zc.hcl			20	50	25Y62		many prominent 0G
		c			50	100	10YR44		common distinct 0G

AUGER BORINGS FOR BROUGHTON LODGE OCC 071/89 22/01/90 program:alcprint

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	TOPSOIL STONES >6	DEPTH		COLOUR	CaCO3	MOTTLES
056	4	mzcl			0	30	10YR32		common distinct 0
		c			30	45	10YR52		common distinct 0G
		coal			45	100	BLACK		
057	5	hcl			0	20	10YR42		common distinct 0
		c.zc			20	100	10YR52		many prominent 0G
058	5	hcl			0	20	10YR52		common distinct 0
		zc			20	100	10YR73		many prominent 0G
059	5	scl			0	22	10YR32		few 0F
		zc			22	0	N5 1		N NG C
060	5	mcl			0	22	10YR32		few distinct 0
		c	5		22	0	Y41 1		N NG M
061	4	mcl			0	25	10Y320		N N F
		hcl			25	45	10YR52		common distinct 0G
		c			45	100	N5		many prominent 0G
062	4	scl			0	25	10YR52		few faint 0
		scl			25	100	2.5Y41		many distinct 0G
063	4	mcl			0	25	10YR32		few faint 0
		hcl			25	35	10YR52		common distinct 0G
		scl			35	100	2.5Y41		many prominent 0G
064	1	scl			0	25	10YR42		
		scl			25	45	10YR53		
065		0			0	0	0		many prominent 0G
		mcl			0	25	10YR52		
		c			25	100	10YR62		many prominent 0G
066	5	hcl			0	30	10YR42		
		c			30	85	10YR52		
067	4	mcl			0	28	10YR32		few faint 0
		c			28	100	5.Y.51		many prominent 0G

AUGER BORINGS FOR BROUGHTON LODGE OCC 071/89 22/01/90 program:alcprint

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	TOPSOIL STONES >6	DEPTH		COLOUR	CaCO3	MOTTLES
068	5	mcl			0	25	2.5Y42		
		c			25	100	5.Y.51		common distinct OG
069	5	mzcl			0	25	10YR32		few distinct 0
		zc			25	100	N5		many prominent OG
070	5	mcl			0	20	2.5Y42		common distinct 0
		zc			20	100	5Y.51		common distinct OG
		0			100	0	0		
071	5	hzcl			0	20	2.5Y42		few distinct
		zc			20	100	N5		many prominent OG
072	5	mzcl			0	20	2.5Y42		D distinct 0
		zc			20	100	N5		many prominent OG
073	5	mzcl			0	20	10YR32		common distinct 0
		zc			20	100	N5		many prominent OG
074	4	mzcl			0	25	10YR32		25
		zc			25	100	5Y51		many prominent OG
075	4	mcl			0	30	10YR32		few faint 0
		mcl			30	65	2.5Y42		few faint 0
		c			65	100	N5		common distinct OG
076	4	mzcl			0	25	2.5Y42		few distinct 0
		sc			25	100	N5		many prominent 0
077	4	mcl			0	25	10YR32		few faint 0
		hcl			25	65	10YR52		common distinct 0
		c			65	100	10YR62		many prominent OG
078	5	hcl			0	22	2.5Y42		few distinct 0
		zc			22	85	N5		many prominent OG
079	5	hzcl			0	23	2.5Y42		common distinct 0
		zc			23	100	5Y51		many prominent OG

AUGER BORINGS FOR BROUGHTON LODGE OCC 071/89 22/01/90 program:alcprint

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	TOPSOIL STONES >6	DEPTH		COLOUR	CaCO3	MOTTLES
080	5	mzcl			0	22	2.5Y52		few distinct O
		zc			22	100	N5		many prominent OG
081	5	mcl			0	25	2.5Y52		few faint O
		c			25	100	2.5Y62		common prominent OG
082	5	mzcl			0	20	2.5Y52		common distinct O
		zc			20	100	5Y72		common distinct OG
083	5	hzcl			0	22	2.5Y52		common distinct O
		zc			22	100	5.Y.72		many prominent OG
084	5	hzcl			0	25	2.5Y52		few O
		zc			25	80	5.Y.72		many prominent OG
085	5	hzcl			0	25	2.5Y52		few distinct O
		zc			25	50	5.Y.62		many prominent OG
087	5	hcl			0	20	10YR42		common faint O
		hcl.c			20	50	10YR53		many prominent OGM
		hcl			50	100	10YR53		common distinct OG
088	5	mcl			0	25	10YR42		common distinct O
		mcl			25	30	10YR53		many distinct OG
		mcl			30	50	10YR53		many distinct OG
		mcl			50	70	10YR44		common distinct OG
089	4	mcl			0	25	10YR42		few faint O
		zc			25	50	10YR53		many prominent OG
		hcl.c			50	100	10YR44		common distinct OG
090	5	mzcl			0	25	2.5Y52		common distinct O
		zc			25	85	5.Y.62		common distinct O
091	4	mcl			0	28	10YR32		few faint O
		hcl			28	40	2.5Y52		common distinct O
		c			40	100	5.Y.52		many prominent OG
092	4	mcl			0	30	10YR32		few faint O
		hcl			30	65	2.5Y42		P prominent
		c			65	100	N5		many prominent OG

AUGER BORINGS FOR BROUGHTON LODGE OCC 071/89 22/01/90 program:alcprint

BORING	WET CLASS	TEXTURE	TOPSOIL STONES >2	TOPSOIL STONES >6	DEPTH		COLOUR	CaCO3	MOTTLES
093	5	hcl			0	20	10YR42		few OC
		hcl.c			20	55	10YR53		many prominent OG
		hcl.c			55	100	10YR44		common distinct OG
094	1	mcl			0	35	10YR42		
		msl			35	60	10YR43		
095	4	mcl			0	25	10YR42		D distinct OC
		mcl			25	30	10YR53		
		hcl			30	60	10YR53		many prominent OG
096		O			0	0	O		common distinct OG
097	5	mcl			0	20	10YR42		common distinct O
		hcl			20	55	10YR52		many prominent OG
		hcl.c			55	100	10YR44		common distinct OG
098	4	mcl			0	25	10YR42		common distinct O
		mcl			25	60	10YR73		many prominent OG
		hcl			60	100	10YR44		common distinct OG
099	4	mzcl			0	30	10YR42		common distinct O
		mcl			30	50	10YR53		common faint O
		peat			50	100	5YR32		