AGRICULTURAL LAND CLASSIFICATION
AND STATEMENT OF PHYSICAL CHARACTERISTICS

RYEHILL PROPOSED
OPENCAST COAL SITE

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RYEHILL PROPOSED OPENCAST COAL SITE, WEST RAINTON, DURHAM

1. INTRODUCTION AND SITE CHARACTERISTICS

This site is located around National Grid Reference NZ 323 482 approximately 2 km south west of Houghton-Le-Spring. It covers 154 hectares, of which 77 per cent is in agricultural use.

Survey work was carried out in May 1990 when soils were examined by hand auger borings at 100 metre intervals pre-determined by the National Grid. soil profile pits were also dug at representative points to provide further information on soil characteristics and samples for laboratory analyses. Points falling within derelict land (indicated as urban on the accompanying Agricultural Land Classification map) were excluded from the survey because of the absence of useable soil resources within these areas.

LAND USE

Agricultural Land on the site is in a mixed arable and grassland use with the grassland confined mainly to restored areas near the eastern boundary. The remainder of the site consists of a disused colliery spoil tip and various small areas of vacant or derelict land.

CLIMATE

Average Annual Rainfall (AAR) is approximately 656 mm. Accumulated temperature above 0°C between January and June (ATO) is 1302 day °C and the land is at field capacity to 167 days a year. Temperature and rainfall values indicate that there is an overall climatic limitation restricting land on the site to a maximum of grade 2.

RELIEF

Relief on the agricultural land is gently undulating and does not restrict the use of agricultural machinery. The sides of the colliery spoil tips are very steeply sloping and gullied by water erosion.

GEOLOGY

Carboniferous coal measures with a thin superficial layer of boulder clay cover most of the site. This is overlain in places in the south east by a variable thickness of stoneless coarse loamy to sandy drift, often less than one metre thick.

Near the eastern boundary, where colliery spoil has been levelled and restored to agricultural use, compacted material, consisting of weathering siltstone mudstone and shale occurs close to the surface.

2. STATEMENT OF PHYSICAL CHARACTERISTICS

Three dominant soil types occur on the site. Typical profile descriptions of each soil are given in tables 1-3 at the end of this report.

1. CLAYEY TO FINE LOAMY SOILS

These consist typically of medium to heavy clay loam topsoils over gleyed and slowly permeably heavy clay loam subsoils which become heavier with depth.

A soil inspection pit (see Table 1) showed a topsoil with a moderately developed coarse subangular blocky structure passing into a subsoil with weakly developed very coarse prismatic features.

2. FINE LOAMY SOILS

These soils are derived from a somewhat coarser textured drift and consist of medium clay loam or sandy clay loam topsoils over similar subsoils. These often pass into clay at depth, particularly on the margins of the drift deposit.

An inspection pit (Table 2) in this soil type showed a moderately developed fine subangular blocky topsoil structure passing into a coarse angular blocky subsoil which became weakly developed coarse prismatic at depth.

3. RESTORED SOILS

These occur along the eastern boundary on the lower slopes of a restored colliery shale tip and adjoining level ground. Soils typically consist of heavy clay loam topsoils over thin compacted heavy clay loam and clay subsoils. Subsoil materials is virtually absent in the northern half of this restored area where the topsoils rest directly on compacted colliery spoil.

A soil profile pit (Table 3) showed a topsoil with a very firm moderately developed medium subangular blocky structure. The very thin subsoil had very firm poorly developed coarse angular to platy structural features and rested directly on very compacted colliery spoil.

SOIL RESOURCE UNITS

Top and subsoil resources are shown on the accompanying maps along with soil thickness and quantity information.

TOPSOIL RESOURCE UNITS

UNIT T1: Topsoil Unit T1 is predominantly medium textured (medium clay loam to sandy clay loam) with a median thickness of 30 cm. It is common to both the clayey and fine loamy soil types.

UNITS T2 AND T2A: These topsoil units are both associated with the heavier variants of the clayey to fine loamy soil type. Units T2 and T2A are heavy textured (Heavy clay loam or heavy silty clay loam) and have median thicknesses 25 cm and 30 cm respectively.

SUBSOIL RESOURCE UNITS

a. Upper subsoils:- Lighter upper subsoils occur only in the south eastern part of the site where somewhat lighter drift forms a veneer over the underlying heavier deposits.

UNIT U1: This unit is associated with the fine loamy soil type. It consists of medium textured material with a mean thickness of 20 cm.

b. Undivided subsoils: These occur on the heavy drift over most of the site and on the medium textured drift in the south east where this deposit extends to a depth of more than 1 metre.

UNITS S1, S1A AND S1B: These units are heavy textured and consist of clay or heavy clay loam with mean thicknesses of 70, 75 and 50 cm respectively.

UNIT S1C: This unit is confined to the southern part of the area of restored colliery shale, where there is a reasonable thickness of subsoil. It is highly compacted and consists of clay loam or clay with a median thickness of 25 cm over shale.

UNIT S2: Unit S2 occurs in two isolated areas near the southern boundary where there is a significant thickness of coarse to fine loamy drift. It is associated with the lighter variants of the fine loamy soil type. Overall, it is medium textured and has a median thickness of 70 cm.

3. AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows.

GRADE/ SUBGRADE	HECTARES	PERCENTAGE OF TOTAL SITE AREA
3a	23.9	15.5%
3b	75.6	49.0%
4	15.8	10.3%
5	3.6	2.3%
Non Agricultural	6.4	4.2%
Urban	27.9	18.1%
Open Water	1.0	0.6%
TOTAL	154.2	100

SUBGRADE 3A

Land in this subgrade occurs in the south eastern part of the site and along the western boundary near the disused spoil tip. Soils fall within Wetness Class III and consist mainly of medium clay loam or sandy clay loam topsoils and upper subsoils over slowly permeable lower subsoils varying from sandy clay loam to clay.

Soil wetness and workability problems are the main restrictions on ALC grade.

SUBGRADE 3B

This is the predominant subgrade on the site. Soils consist mainly of medium to heavy clay loam topsoils over heavy clay loam to clay subsoils. All profiles fall within Wetness Class IV and are restricted to the subgrade by soil wetness and workability problems which are more severe than on the adjoining subgrade 3a land.

GRADE 4

Grade 4 land is mainly confined to restored areas along the eastern site boundary where thin top and subsoils rest directly on colliery shale. The highly compacted nature of the shale prevents drainage, creating a severe winter topsoil wetness and workability problem. The compaction and acidic nature of the shale also significantly restricts plant root development producing a liability to summer droughtiness. A smaller area of Grade 4 land occurs in a waterlogged shallow depression on the western side of the central shale tip. The larger area is restricted to Grade 4 by wetness and droughtiness limitations and the smaller area by severe wetness problems.

GRADE 5

Grade 5 land occurs in the north east where soil material is virtually absent and tipped ash and cinders occur to depth.

NON AGRICULTURAL

Non Agricultural land consists of various small derelict areas scattered across the site.

URBAN

Land in this category consists of the disused colliery tip running through the middle of the site.

OPEN WATER

This consists of two ponds.

APPENDIX 1

SOIL PROFILE DESCRIPTIONS

TABLE 1

RYE HILL (SOIL PROFILE PIT A ON AUGER BORINGS AND PIT LOCATION MAP)

CLAYEY TO FINE LOAMY SOIL TYPE

HORIZON	DEPTH	DESCRIPTION
1	0-24	Very dark grey (10 YR 3/1) heavy silty clay loam; stoneless; few distinct brown root mottles; moist; moderately developed coarse subangular blocky structure; medium packing density; common medium and fine pores and fissures; moderately weak soil strength; moderately sticky and very plastic; abundant very fine fibrous roots between 0 and 15 cm with many very fine fibrous below; non calcareous; sharp smooth boundary.
2	24-100	Light grey (N7) silty clay; stoneless; many prominent yellowish brown (10YR 5/6) mottles; very moist becoming wet at 70 cm; weakly developed adherent very coarse prismatic structure becoming massive below 50 cm; high packing density; few medium fissures; very firm soil strength; very sticky; very plastic; common very fine fibrous roots to 38 cm; non calcareous.

TABLE 2

RYE HILL (SOIL PROFILE PIT B ON AUGER BORINGS AND PIT LOCATION MAP)

FINE LOAMY SOIL TYPE

HORIZON	DEPTH	DESCRIPTION
1	0-32	Very dark grey (10 YR 3/1) medium clay loam; stoneless; unmottled; moist; moderately developed fine subangular blocky structure; medium packing density; many fine pores and fissures; moderately weak soil strength; many fine fibrous roots; non calcareous; abrupt smooth boundary.
2	35-55	Dark grey (10 YR 4/1) medium to heavy clay loam; stoneless; common distinct strong brown (75 YR 5/6) mottles; moist; moderately developed coarse angular blocky structure; common pores and fissures; moderately firm structure; few fine fibrous roots; clear smooth boundary.
3	55-71	Grey (10 YR 5/1) sandy clay loam; stoneless; common distinct reddish yellow (75 YR 6/8) mottles; wet; weakly developed coarse prismatic structure; medium packing density; few fine fissures moderately firm soil strength; few fine fibrous roots; sharp smooth boundary.
4	71-100	Grey (5 YR 6/1) loamy sand; stoneless; structureless.

TABLE 3

RYE HILL (SOIL PROFILE PIT C ON AUGER BORINGS AND PIT LOCATION MAP)

RESTORED SOIL TYPE

HORIZON (cm)	DEPTH	DESCRIPTION
1	0-24	Very dark grey (10 YR 3/1) heavy clay loam; slightly stony; common small angular shale and coal fragments; slightly moist; moderately developed medium subangular blocky structure; medium packing density; slightly porous; very firm soil strength; moderately sticky; moderately plastic; abundant fine fibrous roots; non calcareous, abrupt irregular boundary.
2	8-20	Brown (10 YR 5/3) heavy clay loam with many distinct small and medium brownish yellow (10 YR 6/8) mottles; very slightly stony with a few small angular shale fragments; dry; poorly developed coarse angular blocky to very coarse platy structure; very high packing density; very slightly porous; very firm soil strength; very sticky; very plastic; many fine fibrous roots; non calcareous; sharp wavy boundary.
3	20+	Black colliery shale; no roots.

APPENDIX 2

SCHEDULE OF SOIL AUGER BORINGS

TEXTURES

PL	Peaty loam
MSL	Medium sandy loam
SCL	Sandy clay loam
CL/M	Medium clay loam
CL/L	Heavy clay loam
ZCL/M	Medium silty clay loam
ZCL/l	Heavy silty clay loam
O.CL/h	heavy silty clay loam
O.ZCL/h	Organic heavy silty clay loam
C	Clay
ZC	Silty clay

MOTTLES

O	Ochreous
G	Grey
M	Manganese Oxide concretions

Borings less than 100 cm deep have compacted subsoil material or colliery spoil that stopped the soil auger.

SCHEDULE OF SOIL AUGER BORINGS

RYE HILL PROPOSED OCCS

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
001	4	cl/m	0-20	10YR32	
		cl/h	20-30	10YR42	Few faint 0
		c	30-100	10YR52	many distinct OG
002	4	cl/m	0-30	10YR32	few faint 0
		c	30-100	10YR52	many distinct OG
003	4	cl/m	0-30	10YR32	few faint 0
		c	30-100	10YR52	many distinct OG
004	4	cl/m	0-35	10YR32	
		c	30-100	10YR52	many distinct OG
005	4	cl/m	0-25	10YR32	
		zcl	30-100	10YR34	few faint 0
006	4	cl/m	0-30	10YR32	few faint 0
		c	0-100	10YR53	common distinct OG
007	4	cl/m	0-25	10YR32	
		c	0-100	10YR52	common distinct OG
008	4	cl/h	0-30	10YR41	
		zc	30-100	N5	common distinct OG
009	4	cl/m	0-35	10YR31	
		cl/h	35-60	10YR 51	common distinct OG
		c	60-100	N5	many prominent OG
010	3	cl/m	0-30	10YR42	
			30-50	10YR54	
			50-100	10YR51	common distinct OG
011	4	cl/m	0-33	10YR42	
		c	33-100	10YR52	common distinct OG
012	-	cl.cinders	0-100	10YR21	
013	4	cl/m	0-25	10YR42	
		c	0-100	N5	common distinct OG
014	4	cl/h	0-25	10YR42	
		c	0-100	N5	common distinct OG
015	Urban				

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
016	4	cl/m	0-30	10YR42	
		cl/m	30-40	10YR52	few distinct 0
		c	40-100	N5	many prominent OG
017	4	cl/m	0-30	10YR41	
		zc	30-100	N5	many prominent OG
018	4	msl	0-30	10YR44	
		scl	30-100	10YR68	Common distinct OG
019	-	cinders	0-100	10YR21	
020	4	hzcl	0-25	10YR31	common faint 0
		zc	25-100	N%	common distinct 0
021	4	cl/m	0-30	10YR42	
		cl/h	30-40	10YR53	few distinct 0
		c	40-100	10YR51	many prominent OG
022	4	cl/m	0-30	10YR42	
		cl/h	30-40	10YR51	many prominent OG
023	4	cl/m	0-30	10YR42	
		cl/h	30-40	10YR52	few distinct 0
		c	40-100	10YR51	many prominent OG
024	-	cinders	0-100	10YR21	
025	-	cl/m	0-30	10YR33	
026	Urban				
027	4	cl/m	0-25	10YR42	
		cl/m	25-45	10YR52	common distinct 0
		c	45-100	10YR51	many prominent OG
028	4	pl	0-25	10YR21	
		c	25-100	N5	many prominent OG
029	-	cl/h	0-20	10YR32	common distinct OG
030	4	cl/m	0-30	10YR32	
		cl/h	30-100	10YR52	common faint OG
031	Urban				

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
032	Urban				
033	Urban				
034	Urban				
035	-	c	0-25	10YR53	many distinct OG
036	-	c	0-25	10YR52	common distinct O
037	Urban				
038	Urban				
039	Urban				
040	Urban				
041	4	o.hcl	0-10	10YR31	
		c	10-35	10YR52	common distinct OG
042	4	cl/h	0-20	10YR32	
043	3	cl/m	0-30	10YR33	
		cl/m	30-55	10YR53	few faint O
		cl/m	55-80	10YR63	many distinct OG
		cl/h	80-100	10YR63	many distinct OGM
044	4	cl/m	0-35	10YR42	
		cl/h	35-100	10YR53	many distinct OG
045	4	cl/m	0-25	10YR42	common faint O
		cl/m	25-35	10YR52	common faint O
		cl/h	35-100	10YR52	common distinct OG
046	Urban				
047	Urban				
048		cl/h	0-20	10YR31	
049	4	cl/h	0-25	10YR42	common distinct O
		c	25-100	75YR42	common distinct OG
050	4	cl/m	0-30	10YR32	
			30-100	25Y42	many prominent OG
051	Track				

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
052	3	cl/m	0-30	10YR32	
		cl/m	30-55	10YR53	common faint O
		cl/h	55-100	10YR53	many distinct OG
053	Urban				
054	Urban				
055	4	cl/h	0-15	10YR42	
		c	15-30	10YR52	common distinct OG
056	4	cl/h	0-35	10YR32	
		c	35-100	10YR52	common distinct OG
057	Track				
058	4	cl/h	0-25	10YR32	
		cl/h	25-55	10YR62	many prominent OG
		c	55-100	N5	common distinct OG
059	4	cl/m	0-30	10YR32	
		cl/m	30-40	10YR53	common faint O
		cl/h	40-100	10YR53	many prominent OG
060	Urban				
061	Urban				
062	4	cl/h	0-30	10YR41	
		c.obdn	30-100	-	
063	4	cl/h	0-30	10YR42	
		c	30-45	10YR51	many prominent OG
064	4	cl/h	0-25	10YR41	
		c	35-45	10YR68	common distinct OG
065	1	msl	0-25	10YR42	
		lms	25-45	10YR68	
066	3	scl	0-35	10YR42	
		scl	35-85	10YR68	common distinct OG
		msl	85-100	10YR64	common distinct OG
067	Non agricultural				

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
068	3	scl	0-25	10YR42	
		scl	25-55	10YR53	common distinct OG
		c	55-100	N5	many prominent OG
069	1	cl/m	0-25	10YR42	
		msl	25-100	10YR54	
070	1	cl/m	0-25	10YR42	
		scl	25-100	10YR54	
071	4	cl/h	0-25	10YR32	
		scl	25-55	10YR53	many distinct OG
		hcl.c	55-100	10YR52	common distinct OG
072	4	cl/m	0-25	10YR42	
		c	25-100	10YR51	many distinct OG
073	3	cl/m	0-30	10YR42	
		cl/m	30-50	10YR53	
		cl/m	50-80	10YR52	few distinct 0
		c	80-100	10YR61	many prominent OG
074	4	cl/h	0-30	10YR32	
		cl/h	30-80	10YR53	many prominent OG
		hcl.c	80-100	10YR44	many distinct OG
075	4	cl/h	0-30	10YR32	
		cl/h	30-100	25Y42	many prominent OG
076	4	cl/h	0-25	10YR42	
		c	25-100	10YR52	common distinct 0
077	4	cl/h	0-25	10YR42	
		cl/h	25-50	25y42	many distinct OG
			50-100	5Y42	common distinct 0
078	Urban				
079	Urban				
080	-	zcl/h	0-10	10YR31	
		cl/h	10-25	10YR64	common distinct OG
			25-45	10YR52	many prominent OG
081	-	cl/h	0-20	10YR32	
		cl/h	20-40	10YR64	common distinct OG
			40-50	10YR53	common distinct OG

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
082	-	cl/m	0-10	10YR31	
		cl/m	10-25	10YR64	
		c	25-55	10YR52	many prominent OG
		spoil	55-100		
083	4	cl/h	0-25	10YR32	
		c	25-55	10YR51	common distinct OG
		spoil	55-100	N5	
084	4	cl/h	0-35	10YR42	
		c	35-100	10YR51	common distinct OG
085	4	cl/m	0-30	10YR42	
		cl/m	30-40	10YR52	few distinct O
		c	40-100	N5	many prominent OG
086	2	scl	0-30	10YR41	
		scl	30-60	10YR52	few distinct O
		msl	60-100	10YR64	few distinct O
087	3	scl	0-30	10YR32	
		scl	30-45	10YR54	few distinct O
		scl	45-100	10YR62	many prominent OG
088	3	scl	0-30	10YR42	
		scl	30-55	10YR54	common distinct OG
		scl	55-100	10YR52	many prominent OG
089	4	cl/h	0-25	10YR32	
		cl/h	25-100	10YR52	many prominent OG
090	4	cl/m	0-25	10YR32	
		cl/h	25-100	10YR52	many distinct OG
091	4	cl/h	0-25	10YR32	
		cl/h	25-45	10YR52	common distinct OG
		c	45-100	10YR42	common distinct OG
092	4	cl/h	0-25	10YR42	few faint O
		cl/h	25-45	10YR52	common distinct OG
		cl.m	45-100	10YR52	common distinct OG
093	5	o.zcl/h	0-25	5yr32	many distinct O
		zc	25-50	10YR52	many distinct OG
		zc	30-100	5Y62	many distinct OG
094	Urban				
095	Urban				

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
096	-	cl/m	0-10	10YR31	
		cl/m	10-30	10YR64	few distinct O
		c	30-40	10YR52	many prominent OG
		spoil	40-50	-	
097	-	cl/m	0-10	10YR31	
		msl	10-30	10YR64	few distinct O
098	3	cl/h	0-26	10YR31	
		cl/h	26-100	10YR53	common prominent OG
099	4	cl/h	0-30	10YR42	
		c	30-100	10YR52	many prominent OG
100	3	mcl.h	0-26	10YR32	
		scl	26-60	10YR53	common distinct OG
		c	60-100	10YR52	many prominent OG
101	4	cl/m	0-30	10YR31	
			30-45	10YR64	common distinct OG
			45-100	10YR52	many prominent OG
102	4	cl/m	0-30	10YR33	
			30-60	10YR52	many prominent OG
			60-100	10YR61	many prominent OG
103	4	cl/h	0-25	10YR32	
		cl/h	25-100	10YR52	common distinct OG
104	4	cl/h	0-30	10YR32	
		cl/h	30-100	10YR53	many distinct OG
105	4	cl/h	0-25	10YR32	
		zc	25-100	10YR52	common distinct OG
106		cl/m	0-30	10YR42	
		zcl	0-45	10YR54	few faint 0
		zc	45-100	10YR52	many prominent OG
107	4	zc	25-50	10YR53	common faint 0
			50-100	10YR54	common distinct O
108	Urban				
109	Urban				
110	4	cl/m	0-35	10YR32	
		scl	35-100	10YR52	many distinct OG

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
111	4	cl/m	0-30	10YR32	
		scl	30-66	10YR52	common distinct OG
		c	66-100	10YR62	common distinct OG
112	4	cl/m	0-30	10YR42	
		c	30-100	10YR51	common distinct OG
113	3	cl/m	0-30	10YR32	
		cl/h	30-50	10YR53	common distinct O
			50-100	10YR52	many prominent OG
114	3	cl/m	0-30	10YR31	
		cl/m	30-50	10YR53	common distinct O
		c	50-100	10YR52	many prominent OG
115	3	zcl/m	0-15	10YR32	
		zcl/m	15-50	10YR53	few distinct OG
			50-100	10YR64	many prominent OG
116	4	cl/m	0-23	10YR42	few faint O
		cl/h	23-33	10YR53	few faint O
		c	33-100	10YR51	common distinct OG
117	4	cl/m	0-23	10YR42	
			0-100	10YR52	many distinct OG
118	4	cl/m	0-30	10YR42	
		c	30-100	10YR53	many distinct O
119	4	cl/m	0-30	10YR32	
		cl/h	30-40	10YR42	few faint O
		c	40-100	10YR53	many distinct OG
120	4	cl/m	0-28	10YR32	
		cl/h	28-40	10YR53	common distinct OG
		c	40-60	10YR53	many prominent OG
		c	60-80	10YR61	common distinct O
		scl	80-100	10YR54	common distinct OG
121	4	cl/h	0-28	10YR42	
		c	28-100	10YR53	many prominent OG
122	-	cl/h	0-20	10YR32	
		c	29-100	10YR53	many prominent OG
123	Urban				
124	Urban				
125	Urban				

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
126	3	scl	0-30	10YR42	
		scl	30-70	10YR53	common distinct OG
		msl	70-100	10YR52	common distinct OG
127	3	cl/m	0-30	10YR42	
		scl	30-60	10YR53	common distinct OG
		scl	60-100	10YR52	many prominent OG
128	3	cl/m	0-30	10YR32	
		cl/h	30-50	10YR53	common distinct O
		scl	50-70	10YR53	common distinct O
		zc	70-100	10YR52	common distinct OG
129	4	cl/m	0-30	10YR42	
		cl/h	30-50	10YR52	common distinct OGM
		cl/h	50-100	10YR53	common distinct OG
130	3	cl/m	0-50	10YR31	
		c	50-100	10YR52	common distinct OG
131	Track				
132	4	cl/m	0-28	10YR31	few distinct O
		c	28-60	10YR52	many prominent OG
			60-100	10YR41	many prominent OG
133	4	cl/m	0-30	10YR32	
		cl/m	30-40	10YR53	common distinct OG
		zc	40-100	75YR50	many prominent G
134	3	cl/m	0-28	10YR32	
		cl/m	30-60	10YR42	common distinct OG
		scl	60-100	10YR53	many prominent G
		zc	60-100	10YR52	common distinct OG
135	4	cl/h	0-30	10YR42	
		c	30-60	10YR52	many prominent OG
		cl/h	60-100	10YR52	many prominent OG
136	Urban				
137	Urban				
138	3	cl/m	0-30	10YR42	
		cl/m	30-50	10YR54	common faint O
		c	50-100	N5	common distinct OG

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
139	3	scl	0-30	10YR42	
		scl	30-50	10YR53	few distinct 0
			50-100	N5	common distinct OG
140	2	cl/m	0-30	10YR42	
		scl	30-80	10YR53	common distinct OG
		msl	80-100	10YR52	common distinct OG
141	4	cl/m	0-27	10YR31	
		cl/h	27-36	10YR53	common distinct OG
			36-100	10YR52	common prominent OG
142	4	cl/m	0-28	10YR32	
		c	28-60	10YR52	many prominent OG
			60-100	10YR52	very many prominent OG
143	-	cl/m	0-20	10YR32	
			20-60	10YR63	many prominent OG
			60-100	10YR42	many prominent OG
144	4	cl/m	0-28	10YR31	
		c	28-100	10YR52	many prominent OG
145	3	cl/m	0-30	10YR32	
		cl/m	30-45	10YR42	
		c	45-100	10YR51	common distinct OG
146	4	cl/m	0-25	10YR42	
		cl/h	25-45	10YR52	common distinct OG
		zc	45-100	N5	common distinct OG
147	3	cl/m	0-35	10YR42	
		cl/m	35-50	10YR54	
		c	50-100	10YR51	common distinct OG
148	3	cl/m	0-30	10YR32	
		msl	30-60	10YR53	common distinct 0
		scl	60-100	10YR52	common distinct OG
149	4	cl/m	0-30	10YR32	
		cl/m	30-40	10YR64	common distinct OG
		zc	40-100	10YR63	many prominent OG
150	4	cl/m	0-25	10YR32	
		cl/h	25-40	10YR53	many distinct OG
		c	40-60	10YR61	many prominent OG
		zc	60-100	10YR61	many prominent OG

BORING	WET CLASS	TEXTURE	DEPTH	COLOUR	MOTTLES
151	4	cl/h	0-20	10YR33	
		c	20-100	10YR52	many prominent OG
152	4	cl/m	0-28	10YR31	
		zc	28-100	10YR61	many OG
153	3	cl/m	0-30	10YR32	
		scl	30-50	10YR53	
		cl/h	50-100	10YR42	common distinct OG
154	4	cl/m	0-26	10YR32	
		cl/h	26-45	10YR64	many distinct OG
		c	45-70	10YR52	many prominent OG
		zc	70-100	10YR52	many prominent OG
155	3	cl/h	0-25	10YR32	
		cl/h	25-40	10YR53	common prominent OG
		msl	40-55	10YR53	common distinct OG
		c	55-80	10YR52	many prominent OG
		zc	80-100	10YR42	many prominent OG