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# MARKHAM COLLIERY

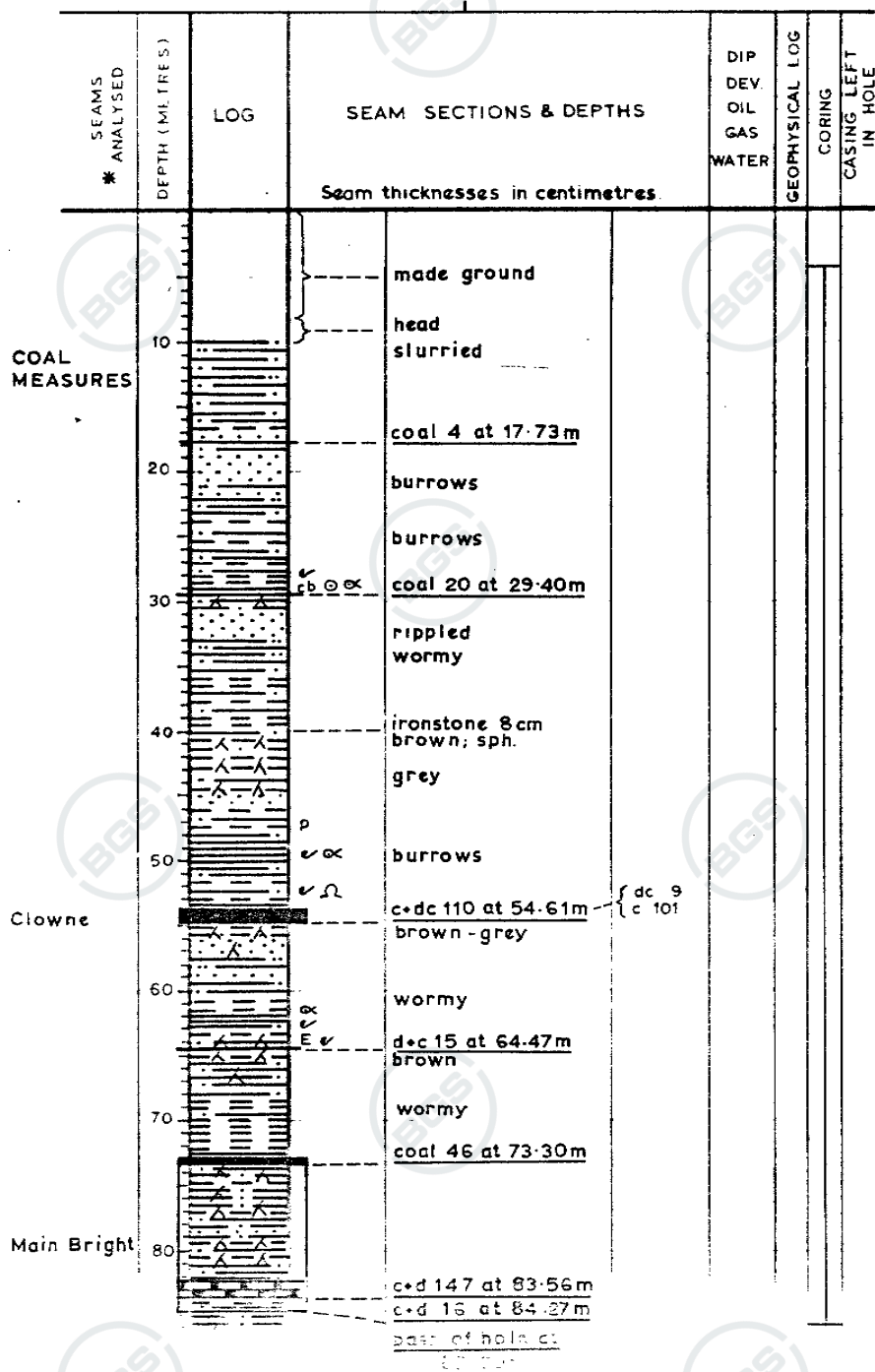
Borehole 2 for proposed  
surface drift (1985)

E 445184.2 m

DATE 1985

N 372294.4 m

STARTING LEVEL +66.56 m O.D.





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Section of: MARKHAM COLLIERY, Borehole No. 2  
for proposed surface drift (1985)

Purpose: Site investigation

(Nat. Grid, Sheet & Qtr.) B/H REG. NO.

Exact Site: E.445184.2  
N.372294.4

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Level at which bore commenced relative to  
O.D. + 66.56 m.

Date of drilling: 6.3.85 to 12.3.85

Driller: Soil Mechanics Ltd.

Cores examined by D.J. Green, N.C.B. Geologist

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH	
		m	cm	m	cm
	<u>See also the geotechnical log by Soil Mechanics Ltd.</u>				
	<u>Open hole to 4.50 m</u>			0	00
<u>MADE GROUND</u>	burnt tip material	4	50	4	50
	burnt tip material (0.50 recovered)	1	60	6	10
	fill with mudstone and siltstone fragments (0.24 recovered)	0	50	6	60
(approx. boundary)					
<u>ALLUVIUM/HEAD</u>	Clay, light brown, firm with occasional sub-rounded sandstone clasts. (0.89 recovered)	2	50	9	10
	Clay, yellowish brown, stiff, with iron rich inclusions (0.27 recovered)	0	50	9	60
(approx. boundary)					

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COAL MEASURES

				9	60
Siltstone	fine, highly weathered, grey, occasional sandstone fine laminae towards the base (0.79 recovered)	0	90	10	50
Ironstone		0	05	10	55
Siltstone	fine to medium; locally slurried texture (0.80 recovered)	1	45	12	00
Siltstone	fine to medium, weathered; occasional plant debris	0	28	12	28
Siltstone	fine with common thin sandstone fine laminae (70:30)	0	16	12	44
Siltstone	fine, locally muddy; weathered; core highly fragmented (0.96 recovered)	1	06	13	50
Siltstone	fine, laminated; occasional siltstone medium layers with slurried texture up to 0.07; core highly fragmented; occasional plant fragments (1.03 recovered)	1	25	14	75
Siltstone	medium; slurried texture	0	30	15	05
Siltstone	fine, laminated, with occasional siltstone medium passages	1	20	16	25
Mudstone	highly weathered; soft (0.60 recovered)	1	30	17	55
Sandstone	medium	0	09	17	64
Sandstone	medium detached	0	05	17	69

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<u>COAL</u>	bright (part cylinder)	0	04	17	73
Seatearth:					
Mudstone	silty, grey, soft; common ironstone nodules, common roots	0	30	18	03
Siltstone	fine, grey, unlaminated, common roots	0	25	18	28
Siltstone	fine to medium; common ironstone nodules; common roots	0	51	18	79
Siltstone	fine with common highly disturbed sandstone fine laminae (80:20) common roots	0	11	18	90
Sandstone	medium; common micaceous carbonaceous planes; rippled	0	10	19	00
Sandstone	medium; common micaceous carbonaceous planes; rippled	0	98	19	98
Sandstone	medium; common micaceous carbonaceous planes; rippled	0	26	20	24
Sandstone	fine and siltstone fine; common lenticular ripples	0	30	20	54
Sandstone	fine with occasional siltstone fine laminae (80:20); common micaceous carbonaceous planes; common small sand-filled burrows	0	54	21	08
Siltstone	fine with rare sandstone fine wisps near the top; local siltstone medium passages; becoming finer towards the base; common comminuted plant debris	1	47	22	55
Siltstone	fine, laminated; common comminuted plant debris passage	0	75	23	30

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Mudstone	silty, laminated 100% recovery	0	20	23	50
Mudstone	silty with occasional siltstone fine layers; core highly broken; scattered plant debris; locally common small burrows 100% recovery	2	00	25	50
Siltstone	fine, laminated; occasional iron-rich layers; occasional small <u>non-marine</u> <u>lamellibranchs</u> including <u>Anthracosia</u> ; locally common small burrows 100% recovery	0	90	26	40
Mudstone	silty, laminated; occasional finer layers, core highly broken; common worm tracks; sporadic thin shelled non-marine lamellibranchs	2	04	28	44
Mudstone	carbonaceous, laminated; occasional irregular phosphatic nodules; occasional fish scales and spines; Planolites cf. ophthalmoides locally abundant  detached	0	76	29	20
<u>COAL</u>	mainly bright (cylinders and broken cylinders) 0.10 recovered, with coal and mudstone fragments below; contractor reports coal 0.20 detached	0	20	29	40
Seatearth:					
Siltstone	fine to medium, grey, unlaminated, occasional iron rich patches abundant roots (0.30 recovered)	0	46	29	86
Siltstone	fine to medium with occasional irregular sandstone fine laminae (90:10)	0	50	30	36
Sandstone	fine with occasional siltstone fine laminae (90:10); irregular ripples	0	54	30	90

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Sandstone	fine with occasional siltstone fine laminae and layers; common ripples, common minor erosional surfaces passage	1	55	32	45
Siltstone	fine with occasional sandstone fine laminae and lenses, 70:30 becoming 90:10 towards the base; occasional zones of highly broken core up to 0.15 passage	1	55	34	00
Siltstone	fine to medium with rare sandstone fine laminae; occasional thin zones of highly broken core. occasional plant fragments passage	0	75	34	75
Siltstone	fine laminated; occasional zones of highly broken core; locally common worm tracks	0	75	35	50
Mudstone	silty, laminated; occasional ironstone bands; occasional plant fragments; locally common worm tracks	3	05	38	55
Mudstone	silty, laminated, becoming less silty towards the base; 0.08 ironstone band at the base; locally common worm tracks	1	20	39	75
Mudstone	laminated; occasional coalified plant debris including Lepidodendron; occasional shell slip marks	0	25	40	00
Mudstone	shaly	0	07	40	07
<u>Seatearth</u>					
Mudstone	silty, weak; core completely fragmented (0.23 recovered) approx.	2	08	42	15

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Siltstone	medium, brownish; abundant sphaerosiderite, 30 degree hade unmineralized joint throughout	0	25	42	40
Mudstone	silty, unlaminated; common small polished surfaces; grey; common roots	0	60	43	00
Mudstone	silty; grey; unlaminated; common roots	1	50	44	50
Sandstone	fine with common micaceous carbonaceous planes; regular ripples	0	82	45	32
Mudstone	silty, poorly laminated; scattered plant fragments; locally common plant fragments	1	83	47	15
Mudstone	silty, poorly laminated passage	1	25	48	40
Mudstone	highly carbonaceous, occasional small burrows; occasional non-marine lamellibranchs including Anthracosia	1	70	50	10
Mudstone	highly carbonaceous, shaly; locally common pyritised non-marine lamellibranchs; occasional fish debris	0	56	50	66
Mudstone	silty, slightly carbonaceous, laminated; occasional thin ironstone bands; becoming less silty downwards; locally abundant non-marine lamellibranch fragments; locally common ostracods; faunal assemblage becoming restricted below 51:50	2	34	53	00
Mudstone	carbonaceous, shaly, common pyritised plant debris	0	51	53	51

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CLOWNE  
SEAM

coal, dirty	9 (cylinders)		
Coal, mainly bright;			
few pyritic nodules	60 (cyls. & fragments)		
Coal, mainly bright	<u>41</u> (cylinders)		
	<u>110</u>	<u>1</u>	<u>10</u>
			<u>54</u> <u>61</u>

Seatearth:

Mudstone	silty, unlaminated, pale brownish-grey, abundant roots	0	31		54	92
Siltstone	coarse, unlaminated, strong; pale brownish grey; occasional sandstone fine laminae in the basal 0.10; common roots	0	69		55	61
Siltstone	fine and sandstone fine, irregularly interlaminated and interlayered; occasional small ironstone nodules; occasional small load-and-pouch structures; common roots	0	26		55	87
Sandstone	fine with common micaceous carbonaceous planes; ripple bedded throughout; occasional minor erosional surfaces; rare roots	1	11		56	98
Siltstone	fine to medium with common sandstone fine laminae and thin layers, 70:30; locally 60:40; common load and pouch structures; occasional ripple lenses in basal 0.20; common comminuted plant debris	0	82		57	80
Siltstone	fine with common sandstone fine laminae and ripple marked lenses (80:20); common comminuted plant debris	0	39		58	19



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Sandstone	fine with common micaceous carbonaceous planes	0	13	58	32
Siltstone	fine, laminated, with very rare sandstone fine micro lenses; 0.04 ironstone band at the base	1	70	60	02
Mudstone	silty, laminated; locally common worm tracks	0	38	60	40
Mudstone	laminated, occasional thin ironstone bands; locally common worm tracks	0	98	61	38
Mudstone	carbonaceous, shaly; occasional fish remains including spines and scales	0	24	61	62
Mudstone	highly carbonaceous, shaly	0	17	61	79
Mudstone	silty, slightly carbonaceous, laminated; locally iron rich	0	20	61	99
Mudstone	carbonaceous, shaly; locally common worm tracks; rare plant debris passage	0	20	62	19
Mudstone	silty, slightly carbonaceous, laminated passage	0	60	62	79
Siltstone	fine, slightly carbonaceous; locally muddy; rare non-marine lamellibranch fragments, rare plant debris passage	0	40	63	19
<u>MANTON</u> <u>ESTHERIA BAND</u>					
Mudstone	silty, slightly carbonaceous, laminated; locally common "Estheria".	0	71	63	90

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Mudstone	silty, carbonaceous, laminated; rare non-marine lamellibranchs including Anthracosia; abundant "Estheria"	0	28	64	18
Mudstone	highly carbonaceous; shaly; 0.02 ironstone band at the base; abundant faunal debris	0	09	64	27
<u>Seatearth:</u>					
Mudstone	carbonaceous; unlaminated; common irregular polished surfaces; common roots detached	0	05	64	32
<u>COAL</u>	mainly bright 0.03 (Broken cylinders)	0	03		
Seatearth:	detached			64	35
Mudstone	dark grey, unlaminated; common irregular polished surfaces common roots	0	10	64	45
<u>COAL AND DIRT</u>	mudstone and coal, interleaved	0	02	64	47
Mudstone	unlaminated; grey; common small irregular polished surfaces, common roots	0	16	64	63
Siltstone	fine, muddy, brownish; unlaminated, common irregular polished surfaces, abundant roots	0	68	65	31
Siltstone	fine, unlaminated; brownish; common roots	0	34	65	65
Mudstone	silty, unlaminated, pale grey, common roots	0	20	65	85
Siltstone	fine, unlaminated; grey; common roots	0	40	66	25

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Siltstone	fine, muddy, laminated; rare roots in top 0.20 passage	1	05	67	30
Mudstone	silty, laminated; occasional ironstone lenses; locally common worm tracks passage	0	50	67	80
Siltstone	fine, locally muddy; laminated; occasional thin ironstone bands; common small burrows in top 0.50 passage	1	50	69	30
Mudstone	silty, laminated; common worm tracks passage	1	10	70	40
Mudstone	laminated, local minor silty passages, common worm tracks; rare plant remains	2	33	72	73
Mudstone	highly carbonaceous, shaly detached	0	11	72	84
<u>MAIN BRIGHT</u>					
	Coal, mainly bright 4(fragments)				
	Coal, mainly bright 14(cylinders)				
	Coal, mainly bright 4(fragments)				
	Coal, mainly bright 16(cylinders)				
	Coal, mainly bright 8(fragments)				
	46				
	detached	0	46	73	30
<u>Seatearth:</u>					
Siltstone	fine, grey, unlaminated; occasional small polished surfaces; common roots including Stigmara	0	30	73	60
Siltstone	medium, unlaminated; grey; occasional large ironstone nodules near the base; common roots	0	92	74	52
Mudstone	silty, poorly laminated; grey; common roots; common plant remains	0	13	74	65

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Mudstone	dark; common coalified plant remains	0	11	74	76
Siltstone	medium, unlaminated; grey; occasional roots	1	94	76	70
Mudstone	poorly laminated; common small irregular polished surfaces; 0.15 ironstone band at the base; common roots	0	44	77	14
Siltstone	fine, poorly laminated; common plant remains including straps; common roots	0	16	77	30
Siltstone	fine, poorly laminated; occasional roots	0	46	77	76
Siltstone	medium, unlaminated; occasional roots	0	29	78	05
Sandstone	fine, pale grey; occasional roots	0	35	78	40
Siltstone	medium; strong; slurried texture	0	29	78	69
Mudstone	silty, poorly laminated; common irregular polished surfaces; common roots	0	66	79	35
Siltstone	fine unlaminated; grey; occasional small ironstone nodules; common roots	0	54	79	89
Mudstone	poorly laminated; occasional large ironstone bands; abundant plant remains including Sigillaria; common roots	1	21	81	10



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Siltstone	fine, poorly laminated, grey; occasional ironstone nodules; common plant remains; common roots	0	99	82	09
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attached

MAIN BRIGHT  
(part)

Coal and dirt, interleaved	6	cylinder	
Seatearth, muddy siltstone	32	"	
Coal and dirt	3	broken cylinders	
Seatearth; muddy siltstone	16	"	
Ironstone	6	"	
detached			
Coal and dirt	3	fragments	
Mudstone	4	cylinder	
Coal, dirty	9	Broken cyl. & fragments	
Mudstone, carbonaceous	10	cylinder	
Coal, mainly bright	10	cylinder	
Coal and dirt	3	fragments	
Seatearth; mudstone, grey	27	"	
Coal	1	cylinder	
Mudstone	1	cylinder	
Coal, bright	2	cylinder	
Seatearth; mudstone, grey	13		
Coal	1	cylinder	
attached	1	47	

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Seatearth:

Mudstone	dark grey, unlaminated; common roots	0	04	83	60
Mudstone	dark grey, unlaminated; common small irregular polished surfaces, common roots	0	15	83	75
Mudstone	with common <u>coal</u> streaks	0	03	83	78
Siltstone	fine, muddy; grey; unlaminated; 0.15 septarian ironstone at the base; common roots	0	33	84	11
	detached				

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MAIN BRIGHT  
(part)

Coal and dirt 9 cylinders  
Mudstone 4 cylinder  
Coal and dirt 3 cylinder  
detached

0 16

84 27

Mudstone

silty; grey; unlaminated;  
common plant remains;  
occasional roots

0 13

84 40

Siltstone

medium; grey; unlaminated;  
common ironstone lenses towards  
the base; common roots

1 20+

85 60

Base of hole at 85.60 m

Photographs of the cores are  
available in the report by  
Soil Mechanics Ltd. on the  
proposed Markham Colliery  
surface drift (1985)

JR/0110r/PH