

## Appendix C : BGS Borehole locations and Logs

# Norwest Holst Soil Engineering Ltd.

Borehole No.

**A**

## BOREHOLE LOG

Contract No. F5622  
 Location Midgey, Whitehaven  
 Client Hay, Barry & Partners  
 Method of Boring Rotary Coring  
 Diameter of Borehole 100 mm

Sheet 1 of 2  
 Chainage 108.14  
 Ground Level m.A.O.D.  
 Date 14/6/83 - 15/6/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.O.D.%	Daily Progress
Hardcore.		0.30	107.84				
Grey-brown sandy gravelly CLAY with some cobbles.					1.00	27	
					2.00	21	
					3.00	24	
					4.50	19	
					6.00	17	
		7.70	100.14		7.50 100%	--	
Completely weathered light grey silty very weak MUDSTONE, with ironstone nodules and siltstone band.					7.75 100%	0	
					8.75 100%	0	
Slightly weathered dark grey moderately weak, shaly MUDSTONE with bi-valves.		9.70	98.44		9.70		

### Type of Sample

- ☒ S.P.T.   ☒ Undisturbed  
☒ C.P.T.   ☒ Vane  
☐ Jar   ☐ Water  
☒ Bulk   ☒ Piezometer

### Remarks (Observations of Ground Water etc.)

Dip of strata = 15°  
 Water seepage from 7.50 m.  
 Inflow from 9.70 m.  
 Standing level 6.20 m.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

# Norwest Holst Soil Engineering Ltd.

Borehole No.

**A**

Contract No. **F5622**  
 Location **Midgway, Whitehaven**  
 Client **Hay, Barry & Partners**  
 Method of Boring **Rotary Coring**  
 Diameter of Borehole **100 mm**

## BOREHOLE LOG

Sheet **2** of **2**  
 Chainage .....  
 Ground Level ..... m.A.O.D.  
 Date **14/6/83 - 15/6/83**

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.O.D. %	Daily Progress
Slightly weathered, dark grey moderately weak shaly MUDSTONE with bivalves.		11.40	96.75		100%	35%	
Shaly COAL.		11.65	96.50				
Dark grey siltstone, SEATEARTH.		12.00	95.95				
Slightly weathered light grey moderately strong SILTSTONE with occasional fine sandstone bands.					12.50		
					100%	70%	
		15.00			15.00		

### Type of Sample

- ☒ S.P.T.   ☒ Undisturbed  
☒ C.P.T.   ☒ Vane  
☐ Jar   ☐ Water  
☒ Bulk   ☒ Piezometer

### Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant.

# Norwest Holst Soil Engineering Ltd.

Borehole No.

**B**

F5622

## BOREHOLE LOG

Contract No. ....  
Location Midgely - Whitehaven  
Client Hay, Barry & Partners  
Method of Boring Rotary Coring  
Diameter of Borehole 100 mm

Sheet 1 of 3  
Chaining 104.25  
Ground Level m.A.O.D.  
Date 22/6/83 - 23/6/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.O.D. %	Daily Progress
Firm brown sandy gravelly CLAY.		1.50	102.75		0.80		
Firm to stiff, grey-brown very sandy CLAY with some gravel.		3.00	101.25		1.80	27	
Completely weathered dark grey silty MUDSTONE.		3.50	100.75		3.20	0	
Shaly COAL.		3.60	100.65		3.70	0	
Completely weathered very highly fractured light grey silty MUDSTONE with stiff clay bands.		5.80	98.45		4.60	0	
Moderately weathered dark grey and grey interlaminated weak SILTSTONE and MUDSTONE.		7.60	96.65		7.00	15	
Slightly weathered dark grey black shaly MUDSTONE with bivalve fragments.		8.80	95.45		8.30	25	
Shaly COAL.		9.10	95.15		100%	15	
Dark grey SILTSTONE, SEATEARTH.		9.30	94.85				
Grey MUDSTONE, SEATEARTH.					9.95		

### Type of Sample

- ☒ S.P.T.   ☒ Undisturbed  
☒ C.P.T.   ☒ Vane  
☐ Jar   ☐ Water  
☒ Bulk   ☒ Piezometer

### Remarks (Observations of Ground Water etc.)

Water seepage from 3.00 m.  
 Inflow 7.50 m.  
 Standpipe installed at 12.00m.  
 Standing level 24/6/83 - 7.50 m.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

# Norwest Holst Soil Engineering Ltd.

Borehole No.

**B**

F5622

## BOREHOLE LOG

Contract No. ....  
Location Midgely - Whitehaven  
Client Hay, Barry & Partners  
Method of Boring Rotary Coring  
Diameter of Borehole 100 mm

Sheet 1 of 3  
Chaining 104.25  
Ground Level m.A.O.D.  
Date 22/6/83 - 23/6/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.O.D.%	Daily Progress
Firm brown sandy gravelly CLAY.		1.50	102.75		0.80		
Firm to stiff, grey-brown very sandy CLAY with some gravel.		3.00	101.25		1.80	27	
Completely weathered dark grey silty MUDSTONE.		3.50	100.75		3.20		
Shaly COAL.		3.60	100.65		3.70	90%	0
Completely weathered very highly fractured light grey silty MUDSTONE with stiff clay bands.		5.80	98.45		4.60	100%	0
Moderately weathered dark grey and grey interlaminated weak SILTSTONE and MUDSTONE.		7.60	96.65		7.00	100%	15
Slightly weathered dark grey black shaly MUDSTONE with bivalve fragments.		8.80	95.45		8.30	100%	25
Shaly COAL.		9.10	95.15			100%	15
Dark grey SILTSTONE, SEATEARTH.		9.30	94.85				
Grey MUDSTONE, SEATEARTH.					9.95		

### Type of Sample

☒ S.P.T.   ☒ Undisturbed  
☒ C.P.T.   ☒ Vane  
☐ Jar   ☐ Water  
☒ Bulk   ☒ Piezometer

### Remarks (Observations of Ground Water etc.)

Water seepage from 3.00 m.  
 Inflow 7.50 m.  
 Standpipe installed at 12.00m.  
 Standing level 24/6/83 - 7.50 m.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

## B

Sheet 2 of 3  
Chainage.....  
Ground Level..... m.A.O.D.  
Date 22/6/83 - 23/6/83

Remarks (Observations of Ground Water etc.)

Is S.P.T. ■ Undisturbed  
Ic. C.P.T. ✕ Vane  
O Jar △ Water  
● Bulk ■ Piezometer

Water levels are subject to seasonal or tidal variations and should not be taken as constant

# Norwest Holst Soil Engineering Ltd.

Borehole No.

**B**

Contract No. F5622  
 Location Midgway - Whitehaven  
 Client Hay, Barry & Partners  
 Method of Boring Rotary Coring  
 Diameter of Borehole 100 mm

## BOREHOLE LOG

Sheet 3 of 3  
 Chainage.....  
 Ground Level..... m.A.O.D.  
 Date 22/6/83 - 23/6/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.O.D.%	Daily Progress
Grey MUDSTONE and SILTSTONE.		25.00			Openhole Drilling.		

### Type of Sample

- Is S.P.T. ☒ Undisturbed  
 Ic. C.P.T. ☒ Vane  
 O Jar ☒ Water  
 ● Bulk ☒ Piezometer

### Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant

# Norwest Holst Soil Engineering Ltd.

Borehole No.

C

Contract No. E5822  
 Location Midgey - Whitehaven  
 Client Hay Barry & Partners  
 Method of Boring Rotary Coring  
 Diameter of Borehole 100mm

## BOREHOLE LOG

Sheet 1 of 2  
 Chainage                       
 Ground Level 91.93 m.A.O.D.  
 Date 21/6/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.O.D.%	Daily Progress
TOPSOIL		0.30	91.63				
Firm grey-brown sandy gravelly CLAY.					0.70		
		1.20	90.73			27	
Stiff grey-brown sandy gravelly CLAY with some cobbles.					1.50		
					2.50	21	
					3.50		
					5.00	26	
		6.50	88.43				
BOULDER					6.50	30 for	
		7.10	84.83		60%	35mm	
Sandstone BOULDERS and COBBLES with a clay matrix.					7.00		
					55%		
		9.30	82.63		9.00		
Completely weathered, very highly fractured, dark grey-black shaly MUDSTONE.					80%	0	
					10.00		

### Type of Sample

- ☒ S.P.T.   ☒ Undisturbed  
☒ C.P.T.   ☒ Vane  
☐ Jar   ☐ Water  
☒ Bulk   ☒ Piezometer

### Remarks (Observations of Ground Water etc.)

Water seepage from 8.50m.  
 Standing level 7.00m.  
 Standpipe installed to 14.00m.

Water levels are subject to seasonal or tidal variations and should not be taken as constant



## C

Date 21/6/83

Water levels are subject to seasonal or tidal variations and should not be taken as constant

# Norwest Holst Soil Engineering Ltd.

Borehole No.

D

Contract No. F5622

## BOREHOLE LOG

Location Midgley - Whitehaven

Sheet 1 of 3

Client Hay Barry & Partners

Chainage

Method of Boring Rotary Coring

Ground Level 100.23 m.A.O.D.

Diameter of Borehole 100mm

Date 27/8/83-1/7/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.O.D.%	Daily Progress
MADE GROUND:		0.40	99.93				
Firm/stiff brown sandy CLAY with some gravel.					0.70		
					1.50		
					2.50		
					4.50		
Grey shaly CLAY with some gravel.		5.90	94.33		6.00		
					30%		
					7.00		
COAL		7.80	92.43		65%		
		8.00	92.23				
Very highly weathered dark grey silty MUDSTONE with some (pseudosideritic texture).					8.30		
					100%	0	
					8.80		
					100%		
Moderately weathered, moderately fractured light grey silty MUDSTONE					9.50		
SEAFARTH.		9.80	90.43				

### Type of Sample

- ☒ S.P.T. ☒ Undisturbed  
☒ C.P.T. ☒ Vane  
☐ Jar ☐ Water  
☒ Bulk ☒ Piezometer

### Remarks (Observations of Ground Water etc.)

Water seepage from 8.00m

Water levels are subject to seasonal or tidal variations and should not be taken as constant

# Norwest Holst Soil Engineering Ltd.


























Borehole No.

**D**





## BOREHOLE LOG

Contract No. F5622  
 Location Midgey - Whitehaven  
 Client Hay Barry & Partners  
 Method of Boring Rotary Coring  
 Diameter of Borehole 100mm

Sheet 2 of 3  
 Chainage                       
 Ground Level 100.23 m.A.O.D.  
 Date 27/6/83-1/7/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.Q.D. %	Daily Progress
Moderately weathered, moderately fractured light grey silty MUDSTONE SEATEARTH with sandstone bands.	    	12.00	88.23		100%	18	
Slightly weathered, slightly fractured, dark grey black shaly MUDSTONE with occasional siltstone bands (15° dip).		13.70	86.53		100%	28	
COAL		14.05	86.18				
Slightly weathered, slightly fractured, light grey laminated SILTSTONE with fossil plant remains and occasional sandstone bands.	               	19.45	80.78		100%	75	
COAL		19.80	80.43			81	
Slightly weathered dark grey-black, shaly SILTSTONE with listric surfaces and occasional sandstone bands.		19.70					

### Type of Sample

- Is S.P.T.  Undisturbed  
 Ic. C.P.T.  Vane  
 O Jar  Water  
 ● Bulk  Piezometer

### Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant

## D

Sheet 3 of 3  
Chainage.....  
Ground Level 100.23 m.A.O.D.  
Date 27/6/83-1/7/83

Water levels are subject to seasonal or tidal variations and should not be taken as constant.

# Norwest Holst Soil Engineering Ltd.

Borehole No.

**E**

Contract No. F5622

## BOREHOLE LOG

Location Midgev - Whitehaven

Sheet 1 of 2

Client Hay, Barry & Partners

Chainage.....

Method of Boring Rotary Coring

Ground Level 102.00 m.A.O.D.

Diameter of Borehole 100 mm

Date 4/7/83 - 5/7/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.Q.D.%	Daily Progress
TOPSOIL.		0.20	101.80				
Firm brown sandy gravelly CLAY.		1.00	101.00				
Stiff brown sandy CLAY with some gravel.							
		4.80	97.20				
Moderately weathered dark grey black silty MUDSTONE.	X	5.40	96.60		5.00		
Slightly weathered, black shaly MUDSTONE.					90%	10	
		6.20	96.00		6.00		
Shaly COAL.		6.45	95.75				
Moderately weathered grey silty MUDSTONE SEATEARTH.	X	6.80	95.35				
Moderately weathered light grey silty MUDSTONE, with sandstone bands.	X				100%	15	
	X	8.00	94.00		8.00		
Moderately weathered, light grey interlaminated moderately weak SILTSTONE and fine sandstone with occasional mudstone bands.	X				100%	12	
					10.00		

### Type of Sample

- ☒ S.P.T. ☒ Undisturbed  
☒ C.P.T. ☒ Vane  
☐ Jar ☐ Water  
☒ Bulk ☒ Piezometer

### Remarks (Observations of Ground Water etc.)

Water seepage from 7.00 m.  
 Inflow from 12.80 m.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

# Norwest Holst Soil Engineering Ltd.

Borehole No.

E

## BOREHOLE LOG

Contract No. F5622

Location Midgley - Whitehaven

Client Hay Barry & Partners

Method of Boring Rotary Coring

Diameter of Borehole 100 mm

Sheet 2 of 2

Chainage 102.00

Ground Level m.A.O.D.

Date 4/7/83 - 5/7/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.O.D.%	Daily Progress
Moderately weathered, light grey interlaminated moderately weak SILTSTONE and fine sandstone with occasional mudstone bands.	+++++	11.30	89.70		100%	18	
Moderately weathered light grey weak silty MUDSTONE, with ironstone nodules.	X	12.60	89.40		12.20		
Shaly COAL.		12.80	89.20				
Moderately weathered grey silty MUDSTONE SEATEARTH with listric surfaces.	Y	13.10	89.00		100%	13	
Slight weathered, moderately fractured, clayey grey occasionally black silty MUDSTONE, SEATEARTH with listric surfaces.	X	15.00	87.00		14.10		
Slightly weathered dark grey black shaly MUDSTONE with bivalves.	Y	15.50	86.50		100%	21	
COAL.		15.60	86.40				
Slightly weathered dark grey SILTSTONE SEATEARTH with ironstone.	Y	16.30			16.30		

### Type of Sample

- Is S.P.T. Undisturbed  
 Ic. C.P.T. X Vane  
 O Jar Δ Water  
 ● Bulk Piezometer

### Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant

# Norwest Holst Soil Engineering Ltd.

Borehole No.

**F**

## BOREHOLE LOG

Contract No. F5622

Location Midgley - Whitlhaven

Client Hay Berry & Partners

Method of Boring Rotary Openhole

Diameter of Borehole 100 mm

Sheet 1 of 3

Chainage

Ground Level 91.90 m.A.O.D.

Date 5/7/83

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.O.D.%	Daily Progress
TOPSOIL		0.20	91.70				
Firm brown CLAY.		1.20	90.70				
Stiff brown sandy gravelly CLAY.							
Sandstone Boulders.		6.00	84.90				
Weathered grey MUDSTONE.		9.30	82.60				

### Type of Sample

Is S.P.T. ☒ Undisturbed

Ic. C.P.T. ☒ Vane

O Jar ☒ Water

● Bulk ☒ Piezometer

### Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant

## F

Sheet 2 of 3

Chainage.....

Ground Level..... 91.90 m.A.O.D.

Date 5/7/83

Date.....	
-----------	--

Weathered grey MUDSTONE.

Grey MUDSTONE.

COAL.

**MUDSTONE.**

Type of Sample

Is S.P.T. ☐ Undisturbed

Ic. C.P.T. X Vane

O Jar      Δ Water

● Bulk      ■ Piezometer

Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant



## F

Sheet 3 of 3  
Chainage.....  
Ground Level..... m.A.O.D.  
Date 5/7/83

Type of Sample

● Bulk      ■ Piezometer

Remarks (Observations of Ground Water etc.)

Water levels are subject to seasonal or tidal variations and should not be taken as constant.

DEVELOPMENT AT MIDGEY WHITEHAVEN

WHITEHAVEN

DOCK

1770/1771/1772/1773

WHITEHAVEN

AND BOROUGH COUNCIL

15 APR 1985

RECEIVED

TBM  
100m



NX 4887

HENSING WARD

Norwest Holst  
Soil Engineering Ltd.

**SITE INVESTIGATION**

Location: MIDGEY, WHITEHAVEN

Title: SITE PLAN

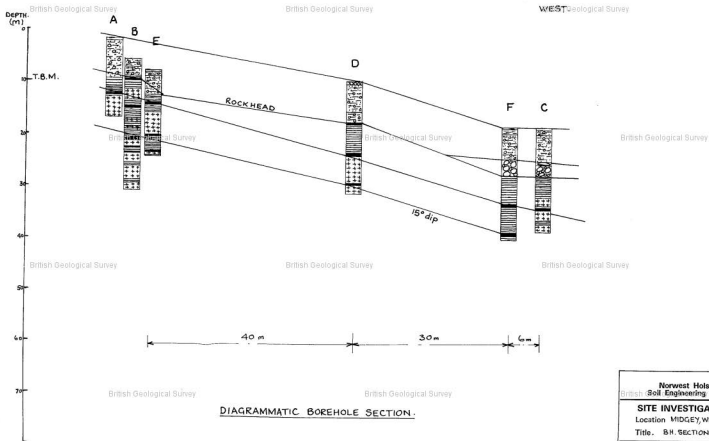
Scale

Job No. F5622

POSITIONS OF BOREHOLES ONLY  
INDICATIVE UNLESS DIMENSIONED

Note! T.B.M located at Base of western Gatepost.

EAST.



DIAGRAMMATIC BOREHOLE SECTION.

Levels related to T.B.M. of 100m. (See Site Plan).

Norwest Holst Soil Engineering Ltd.	
<b>SITE INVESTIGATION</b>	
Location MIDGEY, WHITEHAVEN.	
Title. B.H. SECTION	
Scale 1:500	Job No. F5622
POSITIONS OF BOREHOLES ONLY INDICATIVE UNLESS DIMENSIONED	