





# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **1**  
Sheet 2 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**27/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type	Depth From - To(m)	N (cu)	Groundwater & Casing	Description	Depth (m)	Level (mAOD)	Legend	Well
D	11.40m		<input checked="" type="checkbox"/>	Light brown sandy MUDSTONE.	10.30	82.67		
				Grey MUDSTONE with siltstone and fine grained sandstone laminations.				
				Orange brown fine grained SANDSTONE.	11.40	81.57		
D	15.00m			End of Borehole at 15.00 m	15.00	77.97		

### Remarks and Water Observations

- Water strike at 11.40m rose to 9.30m.
- Falling head permeability test carried out at 11.40m.
- Standpipe installed on completion: Slotted pipe from 15.00m to 3.00m with gravel filter.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **2**  
Sheet 1 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**27/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type Depth From - To(m) N (cu)

Description

Depth (m) Level (mAOD) Legend Well

Orange brown fine grained SANDSTONE.

Dark grey carbonaceous MUDSTONE with coal laminations.

D 3.50m

3.60 84.16

D 7.50m

Continued next sheet

## Remarks and Water Observations

1. No water strike evident during drilling.
2. Falling head permeability test carried out at base of borehole.
3. Standpipe installed on completion: Slotted pipe from 10.00 to 1.50m.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **2**  
Sheet 2 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**27/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type	Depth From - To(m)	N (cu)
D	10.00m	

Groundwater  
& Casing

Description

Depth (m)	Level (mAOD)	Legend	Well
10.00	77.76		

**Dark grey carbonaceous MUDSTONE with coal laminations.**

**End of Borehole at 10.00 m**

### Remarks and Water Observations

1. No water strike evident during drilling.
2. Falling head permeability test carried out at base of borehole.
3. Standpipe installed on completion: Slotted pipe from 10.00 to 1.50m.

Figure No.









# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **4**  
Sheet 1 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**30/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Description

Depth  
(m)

Level  
(mAOD)

Legend

Well

Type From - To(m) N (cu)

D 0.50m

MADE GROUND: Dark grey mudstone, siltstone and sandstone with clay.

Grey and brown silty MUDSTONE.

D 6.50m

3.60

101.43

D 9.30m

COAL

9.30

95.73

9.80

95.23

Continued next sheet

## Remarks and Water Observations

1. No water strike evident during drilling.
2. Falling head permeability test carried out at base of borehole.
3. Standpipe installed on completion: slotted pipe from 20.00 to 6.00m with gravel filter.

Figure No.





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **4**  
Sheet 2 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**30/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type	Depth From - To(m)	N (cu)	Groundwater & Casing	Description	Depth (m)	Level (m AOD)	Legend	Well
D	10.50m			Grey MUDSTONE with siltstone and fine grained sandstone bands.				
D	12.50m							
D	16.20m			Dark grey silty MUDSTONE.	15.70	89.33		
				Light brown fine grained SANDSTONE.	16.20	88.83		
				Light grey fine grained SANDSTONE.	17.10	87.93		
D	18.50m			Grey MUDSTONE.	18.70	86.33		

Continued next sheet

### Remarks and Water Observations

- No water strike evident during drilling.
- Falling head permeability test carried out at base of borehole.
- Standpipe installed on completion: slotted pipe from 20.00 to 6.00m with gravel filter.

Figure No.





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **4**  
Sheet 3 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**30/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

Type	Depth From - To(m)	N (cu)
D	20.00m	

Groundwater  
& Casing

## STRATA RECORD

Description

**Grey MUDSTONE.**

End of Borehole at 20.00 m

Driller:

Logged By:

Depth (m)	Level (mAOD)	Legend	Well
20.00	85.03		

## Remarks and Water Observations

1. No water strike evident during drilling.
2. Falling head permeability test carried out at base of borehole.
3. Standpipe installed on completion: slotted pipe from 20.00 to 6.00m with gravel filter.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **5**  
Sheet 1 of 4

Site Lane Side Quarry, Kirkheaton

Contract No:  
AQ174

Client P Casey Enviro Ltd

Dates:  
30/04/2001

Method  
Rotary open hole drilling

Scale 1:50

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type Depth From - To (m) N (cu)

Description

Depth (m)

Level (mAOD)

Legend

Well

D 1.00m

MADE GROUND: Mudstone, coal, siltstone and sandstone.

D 4.00m

Grey silty MUDSTONE.

3.80

108.89

D 8.00m

COAL.

7.50

105.19

Grey MUDSTONE with siltstone and fine grained  
Continued next sheet

9.50

103.19

## Remarks and Water Observations

1. Water strike at 13.00m rose to 10.70m.
2. Falling head permeability test carried out at 13.00m.
3. Standpipe installed on completion: Slotted pipe from 21.00 to 6.00m with gravel filter.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **5**  
Sheet 2 of 4

Site Lane Side Quarry, Kirkheaton

Contract No:  
AQ174

Client P Casey Enviro Ltd

Dates:  
30/04/2001

Method  
Rotary open hole drilling

Scale 1:50

## SAMPLE DETAILS

Type	Depth From - To(m)	N (cu)	Groundwater & Casing
D	10.00m		
D	13.50m		

## STRATA RECORD

Description	Depth (m)	Level (mAOD)	Legend	Well
sandstone bands.				
Grey SILTSTONE tending to fine grained SANDSTONE in parts.	13.00	99.69		
Light brown silty fine grained SANDSTONE.	16.20	96.49		
Brown fine grained SANDSTONE.	18.70	93.99		

Continued next sheet

## Remarks and Water Observations

- Water strike at 13.00m rose to 10.70m.
- Falling head permeability test carried out at 13.00m.
- Standpipe installed on completion: Slotted pipe from 21.00 to 6.00m with gravel filter.

Figure No.





# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **5**  
Sheet 3 of 4

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**30/04/2001**

Method  
**Rotary open hole drilling**

**Scale 1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Type	Depth		N (cu)	Groundwater & Casing	Description	Depth (m)	Level (mAOD)	Legend	Well
	From	To(m)							
					Brown fine grained SANDSTONE.				
					Dark grey MUDSTONE.	21.20	91.49		
					Light brown silty fine grained SANDSTONE.	25.30	87.39		

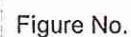
Continued next sheet

## **Remarks and Water Observations**

1. Water strike at 13.00m rose to 10.70m.
2. Falling head permeability test carried out at 13.00m.
3. Standpipe installed on completion: Slotted pipe from 21.00 to 6.00m with gravel filter.

Figure No.







# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **6**  
Sheet 1 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**30/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type	Depth From - To(m)	N (cu)	Groundwater & Casing	Description	Depth (m)	Level (mAOD)	Legend	Well
				MADE GROUND: Clay, sandstone and mudstone.				
D	3.00m			Brown sandy MUDSTONE.	2.60	118.23		
D	7.00m			Grey and brown silty MUDSTONE.	6.70	114.13		
				Grey and brown silty MUDSTONE with siltstone and fine grained sandstone bands.	7.10	113.73		

Continued next sheet

## Remarks and Water Observations

1. Water strike at 22.00m, rose to 18.20m overnight.
2. Falling head permeability test carried out at 22.00m.
3. Standpipe installed on completion: Slotted from 30.00 to 20.00m with gravel filter from 40.00 to 20.00m.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **6**  
Sheet 2 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**30/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type	Depth From - To(m)	N (cu)	Groundwater & Casing	Description	Depth (m)	Level (mAOD)	Legend	Well
D	10.50m			Grey and brown silty MUDSTONE with siltstone and fine grained sandstone bands.				
D	12.00m							
D	15.00m							
D	18.00m							
				COAL	18.70	102.13		
				Grey silty MUDSTONE	19.20	101.63		

Continued next sheet

## Remarks and Water Observations

1. Water strike at 22.00m, rose to 18.20m overnight.
2. Falling head permeability test carried out at 22.00m.
3. Standpipe installed on completion: Slotted from 30.00 to 20.00m with gravel filter from 40.00 to 20.00m.

Figure No.





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **6**  
Sheet 3 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**30/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type      Depth  
From - To(m)      N  
(cu)

Groundwater  
& Casing

Description

Depth (m)      Level (mAOD)      Legend      Well

Grey silty MUDSTONE

Grey silty MUDSTONE with bands of siltstone.

Continued next sheet

## Remarks and Water Observations

1. Water strike at 22.00m, rose to 18.20m overnight.
2. Falling head permeability test carried out at 22.00m.
3. Standpipe installed on completion: Slotted from 30.00 to 20.00m with gravel filter from 40.00 to 20.00m.

Figure No.





# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **6**  
Sheet 4 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**30/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Type **D** Depth **30.00m** N **(cu)**

Description

Depth (m) Level (mAOD) Legend Well

**Grey silty MUDSTONE with bands of siltstone.**

**D 35.00m**

**Grey fine grained SANDSTONE.**

**37.00 83.83**

Continued next sheet

## **Remarks and Water Observations**

1. Water strike at 22.00m, rose to 18.20m overnight.
2. Falling head permeability test carried out at 22.00m.
3. Standpipe installed on completion: Slotted from 30.00 to 20.00m with gravel filter from 40.00 to 20.00m.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **6**  
Sheet 5 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**30/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

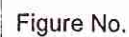
Logged By:

Type	Depth		N (cu)	Groundwater & Casing	Description	Depth (m)	Level (mAOD)	Legend	Well
	From	To(m)							
D	40.00m				Grey fine grained SANDSTONE.				
						41.20	79.63		
					Dark grey MUDSTONE.				
						43.40	77.43		
					Light grey silty MUDSTONE.				
D	45.00m				End of Borehole at 45.00 m	45.00	75.83		

### Remarks and Water Observations

- Water strike at 22.00m, rose to 18.20m overnight.
- Falling head permeability test carried out at 22.00m.
- Standpipe installed on completion: Slotted from 30.00 to 20.00m with gravel filter from 40.00 to 20.00m.

Figure No.







# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **7**  
Sheet 2 of 5

Site Lane Side Quarry, Kirkheaton

Contract No:  
AQ174

Client P Casey Enviro Ltd

Dates:  
01/05/2001

Method  
Rotary open hole drilling

Scale 1:50

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type Depth From - To(m) N (cu)

Description

Depth (m) Level (mAOD) Legend Well

Grey silty MUDSTONE with siltstone bands.

Grey silty MUDSTONE with siltstone and fine grained sandstone bands.

Continued next sheet

## Remarks and Water Observations

1. Water strike at 16.00 rose to 11.20m.
2. Falling head permeability test carried out at 16.00m.
3. Standpipe installed on completion: Slotted pipe from 38.00 to 12.00m with gravel filter 45.00m to 12.00m.

Figure No.





# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **7**  
Sheet 3 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**01/05/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## **SAMPLE DETAILS**

Type      Depth      N  
From - To(m)      (cu)

Groundwater  
& Casing

## **STRATA RECORD**

Description

Driller:

Logged By:

Depth      Level      Legend      Well  
(m)      (mAOD)

Grey silty MUDSTONE with siltstone and fine  
grained sandstone bands.

Continued next sheet

## **Remarks and Water Observations**

1. Water strike at 16.00 rose to 11.20m.
2. Falling head permeability test carried out at 16.00m.
3. Standpipe installed on completion: Slotted pipe from 38.00 to 12.00m with gravel filter 45.00m to 12.00m.

Figure No.



# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **7**  
Sheet 4 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**01/05/2001**

Method  
**Rotary open hole drilling**

**Scale 1:50**

## **SAMPLE DETAILS**

Type	Depth		N (cu)
	From -	To(m)	
D	30.00m		

Groundwater  
& Casing

## **STRATA RECORD**

Description

Grey silty MUDSTONE with siltstone and fine grained sandstone bands.

Driller:

Logged By:

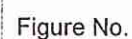
Depth (m) Level (mAOD) Legend Well

Continued next sheet

## **Remarks and Water Observations**

1. Water strike at 16.00 rose to 11.20m.
2. Falling head permeability test carried out at 16.00m.
3. Standpipe installed on completion: Slotted pipe from 38.00 to 12.00m with gravel filter 45.00m to 12.00m.

Figure No.







# **BOREHOLE RECORD** (Rotary Openhole Drilling)

**BH No. 9**  
Sheet 1 of 7

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**08/05/2001**

Method  
**Rotary open hole drilling**

**Scale 1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Description

Depth  
(m)

Level  
(mAOD)

Legend

Well

D 1.00m - 4.00

**Brown sandy MUDSTONE.**

3.00 125.31

**Grey silty MUDSTONE**

3.60 124.71

D 4.00m - 7.00

**Brown silty MUDSTONE.**

4.40 123.91

**Grey silty MUDSTONE with siltstone and carbonaceous mudstone bands.**

D 7.00m - 10.00

Continued next sheet

### **Remarks and Water Observations**

- Groundwater entry between 42.00 and 45.00m, rose to 37.50m.
- Falling head permeability test carried out at 45m.
- Standpipe installed on completion: Slotted pipe from 60.00 to 40.00m with gravel filter.
- Borehole cased to 40m.

Figure No.



# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **9**  
Sheet 2 of 7

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**08/05/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Type	Depth From - To(m)	N (cu)
D	10.00m - 13.00	
D	13.00m - 16.00	
D	16.00m - 19.00	
D	19.00m - 22.00	

Groundwater  
& Casing

Description

Grey silty MUDSTONE with siltstone and carbonaceous mudstone bands.

Depth (m)	Level (mAOD)	Legend	Well

Continued next sheet

### **Remarks and Water Observations**

- Groundwater entry between 42.00 and 45.00m, rose to 37.50m.
- Falling head permeability test carried out at 45m.
- Standpipe installed on completion: Slotted pipe from 60.00 to 40.00m with gravel filter.
- Borehole cased to 40m.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **9**  
Sheet 3 of 7

Site **Lane Side Quarry, Kirkheaton**  
Client **P Casey Enviro Ltd**  
Method **Rotary open hole drilling**

Contract No:  
**AQ174**  
Dates:  
**08/05/2001**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Description

Depth  
(m)

Level  
(mAOD)

Legend

Well

Type	Depth From - To(m)	N (cu)	Groundwater & Casing	Description	Depth (m)	Level (mAOD)	Legend	Well
				Grey silty MUDSTONE with siltstone and carbonaceous mudstone bands.				
D	22.00m - 25.00			Brown silty MUDSTONE with sandstone bands.	21.70	106.61		
D	25.00m - 28.00							
D	28.00m - 31.00			Grey SILTSTONE	27.20	101.11		

Continued next sheet

## Remarks and Water Observations

- Groundwater entry between 42.00 and 45.00m, rose to 37.50m.
- Falling head permeability test carried out at 45m.
- Standpipe installed on completion: Slotted pipe from 60.00 to 40.00m with gravel filter.
- Borehole cased to 40m.

Figure No.





# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **9**  
Sheet 4 of 7

Site Lane Side Quarry, Kirkheaton

Contract No:  
AQ174

Client P Casey Enviro Ltd

Dates:  
08/05/2001

Method  
Rotary open hole drilling

Scale 1:50

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Description

Depth  
(m)

Level  
(mAOD)

Legend

Well

D 31.00m - 34.00

D 34.00m - 35.00

Grey SILTSTONE

VOID

Grey silty MUDSTONE with sandstone bands.

35.00

93.31

37.00

91.31

Continued next sheet

## Remarks and Water Observations

1. Groundwater entry between 42.00 and 45.00m, rose to 37.50m.
2. Falling head permeability test carried out at 45m.
3. Standpipe installed on completion: Slotted pipe from 60.00 to 40.00m with gravel filter.
4. Borehole cased to 40m.

Figure No.



# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **9**  
Sheet 5 of 7

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**08/05/2001**

Method  
**Rotary open hole drilling**

**Scale 1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Description

Depth  
(m)

Level  
(mAOD)

Legend

Well

Grey silty MUDSTONE with sandstone bands.

Grey fine grained SANDSTONE tending to SILTSTONE in parts.

45.00

83.31

Continued next sheet

### **Remarks and Water Observations**

1. Groundwater entry between 42.00 and 45.00m, rose to 37.50m.
2. Falling head permeability test carried out at 45m.
3. Standpipe installed on completion: Slotted pipe from 60.00 to 40.00m with gravel filter.
4. Borehole cased to 40m.

Figure No.



# **BOREHOLE RECORD** (Rotary Openhole Drilling)

**BH No. 9**  
Sheet 6 of 7

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**08/05/2001**

Method  
**Rotary open hole drilling**

**Scale 1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Type	Depth		N (cu)
	From -	To(m)	

Description

Depth (m)	Level (mAOD)	Legend	Well
--------------	-----------------	--------	------

Grey fine grained SANDSTONE tending to SILTSTONE in parts.

Dark grey silty MUDSTONE

D 52.00m - 55.00

52.00 76.31

D 57.00m - 60.00

Continued next sheet

### **Remarks and Water Observations**

- Groundwater entry between 42.00 and 45.00m, rose to 37.50m.
- Falling head permeability test carried out at 45m.
- Standpipe installed on completion: Slotted pipe from 60.00 to 40.00m with gravel filter.
- Borehole cased to 40m.

**Figure No.**





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **9**

Sheet 7 of 7

Site **Lane Side Quarry, Kirkheaton**

Contract No:

**AQ174**

Client **P Casey Enviro Ltd**

Dates:

**08/05/2001**

Method **Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Description

Depth  
(m)

Level  
(mAOD)

Legend

Well

**Dark grey silty MUDSTONE**

**60.00**

**68.31**

**End of Borehole at 60.00 m**

## Remarks and Water Observations

1. Groundwater entry between 42.00 and 45.00m, rose to 37.50m.
2. Falling head permeability test carried out at 45m.
3. Standpipe installed on completion: Slotted pipe from 60.00 to 40.00m with gravel filter.
4. Borehole cased to 40m.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **8**  
Sheet 1 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**03/05/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type Depth From - To(m) N (cu)

Description

Depth (m) Level (mAOD) Legend Well

D 1.00m - 4.00

**Brown fine grained micaceous SANDSTONE.**

D 4.00m - 7.00

**Grey SILTSTONE**

D 7.00m - 10.00

**Brown SILTSTONE and fine grained SANDSTONE.**

3.40

113.79

7.40

109.79

Continued next sheet

## Remarks and Water Observations

1. Water strike at 10.00m rose to 7.50m overnight.
2. Falling head permeability test carried out at 10.00m.
3. Standpipe installed on completion: Slotted pipe from 41.00 to 5.00m with gravel filter from 45.00m to 5.00m.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **8**  
Sheet 2 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**03/05/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

Type	Depth From - To(m)	N (cu)
D	10.00m - 13.00	
D	13.00m - 16.00	
D	16.00m - 19.00	
D	19.00m - 22.00	

Groundwater  
& Casing

## STRATA RECORD

Description
Brown SILTSTONE and fine grained SANDSTONE.
Grey silty MUDSTONE.
Grey fine grained SANDSTONE.
Grey MUDSTONE.
Grey fine grained SANDSTONE.
Continued next sheet

Driller:

Logged By:

Depth (m)	Level (mAOD)	Legend	Well
10.00	107.19		
14.60	102.59		
15.20	101.99		
19.20	97.99		
19.70	97.49		

## Remarks and Water Observations

- Water strike at 10.00m rose to 7.50m overnight.
- Falling head permeability test carried out at 10.00m.
- Standpipe installed on completion: Slotted pipe from 41.00 to 5.00m with gravel filter from 45.00m to 5.00m.

Figure No.





# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **8**  
Sheet 3 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**03/05/2001**

Method  
**Rotary open hole drilling**

**Scale 1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Type	Depth		N (cu)
	From -	To(m)	

Description

Depth (m)	Level (mAOD)	Legend	Well
--------------	-----------------	--------	------

Grey silty MUDSTONE with sandstone bands.

D 22.00m - 25.00

Grey fine grained SANDSTONE with some mudstone bands.

D 25.00m - 28.00

26.00 91.19

Continued next sheet

### **Remarks and Water Observations**

- Water strike at 10.00m rose to 7.50m overnight.
- Falling head permeability test carried out at 10.00m.
- Standpipe installed on completion: Slotted pipe from 41.00 to 5.00m with gravel filter from 45.00m to 5.00m.

Figure No.



# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **8**  
Sheet 4 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**03/05/2001**

Method  
**Rotary open hole drilling**

**Scale 1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Type      Depth  
From - To(m)      N  
(cu)

Groundwater  
& Casing

Description

Depth      Level      Legend      Well  
(m)      (mAOD)

Grey fine grained SANDSTONE with some mudstone bands.

Grey MUDSTONE with some sandstone bands.

34.10

83.09

Continued next sheet

### **Remarks and Water Observations**

1. Water strike at 10.00m rose to 7.50m overnight.
2. Falling head permeability test carried out at 10.00m.
3. Standpipe installed on completion: Slotted pipe from 41.00 to 5.00m with gravel filter from 45.00m to 5.00m.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **8**  
Sheet 5 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**03/05/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type Depth From - To(m) N (cu)

Groundwater & Casing

Description

Depth (m) Level (mAOD) Legend Well

Grey MUDSTONE with some sandstone bands.

COAL.

Brown fine grained SANDSTONE.

End of Borehole at 45.00 m

42.80 74.39

43.20 73.99

45.00 72.19

## Remarks and Water Observations

1. Water strike at 10.00m rose to 7.50m overnight.
2. Falling head permeability test carried out at 10.00m.
3. Standpipe installed on completion: Slotted pipe from 41.00 to 5.00m with gravel filter from 45.00m to 5.00m.

Figure No.





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **10**  
Sheet 1 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**26/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

Type	Depth From - To(m)	N (cu)
------	-----------------------	-----------

Groundwater  
& Casing

## STRATA RECORD

Description

Driller:

Logged By:

Depth (m)	Level (mAOD)	Legend	Well
--------------	-----------------	--------	------

Grey silty MUDSTONE with siltstone bands.

COAL and carbonaceous MUDSTONE.

Dark grey shaley MUDSTONE with coal laminations.

Dark silty MUDSTONE.

Continued next sheet

## Remarks and Water Observations

1. Water strike at 6.70m rose to 4.70m.
2. No permeability test carried out. Unable to fill borehole above standing water level.
3. Standpipe installed on completion: Slotted pipe from 12.00 to 1.00m with gravel filter.

Figure No.



# **BOREHOLE RECORD** (Rotary Openhole Drilling)

**BH No. 10**  
Sheet 2 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**26/04/2001**

Method  
**Rotary open hole drilling**

**Scale 1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Type      Depth  
From - To(m)      N  
(cu)

Groundwater  
& Casing

Description

Depth (m)      Level (mAOD)      Legend      Well

**Dark silty MUDSTONE.**

12.00

79.44

**End of Borehole at 12.00 m**

## **Remarks and Water Observations**

1. Water strike at 6.70m rose to 4.70m.
2. No permeability test carried out. Unable to fill borehole above standing water level.
3. Standpipe installed on completion: Slotted pipe from 12.00 to 1.00m with gravel filter.

**Figure No.**



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **11**  
Sheet 1 of 3

Site Lane Side Quarry, Kirkheaton

Contract No:  
AQ174

Client P Casey Enviro Ltd

Dates:  
26/04/2001

Method  
Rotary open hole drilling

Scale 1:50

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type Depth From - To(m) N (cu)

Description

Depth (m) Level (mAOD) Legend Well

Grey MUDSTONE with siltstone and fine grained sandstone bands.

D 3.50m

Continued next sheet

## Remarks and Water Observations

1. Water strike at 14.70m rose 11.28m.
2. No permeability test carried out: Unable to fill borehole beyond 11.10m water level returned to 11.28 after 20 seconds.
3. Standpipe installed on completion: slotted pipe from 10.50 to 1.50 with gravel filter from 12.00 to 1.50m.

Figure No.





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **11**  
Sheet 2 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**26/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type Depth From - To(m) N (cu)

Description

Depth (m) Level (mAOD) Legend Well

Grey MUDSTONE with siltstone and fine grained sandstone bands.

BROKEN GROUND: Shale, mudstone and sandstone.

Dark grey silty MUDSTONE with siltstone laminations.

From 15.40m to 19.20m: With siltstone bands.

Dark grey MUDSTONE.

Continued next sheet

## Remarks and Water Observations

1. Water strike at 14.70m rose 11.28m.
2. No permeability test carried out: Unable to fill borehole beyond 11.10m water level returned to 11.28 after 20 seconds.
3. Standpipe installed on completion: slotted pipe from 10.50 to 1.50 with gravel filter from 12.00 to 1.50m.

Figure No.



# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **11**  
Sheet 3 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**26/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

Type      Depth      N  
From - To(m)      (cu)

Description

Depth      Level      Legend      Well  
(m)      (mAOD)

**Dark grey MUDSTONE.**

**End of Borehole at 20.00 m**

20.00

78.14

## **Remarks and Water Observations**

1. Water strike at 14.70m rose 11.28m.
2. No permeability test carried out: Unable to fill borehole beyond 11.10m water level returned to 11.28 after 20 seconds.
3. Standpipe installed on completion: slotted pipe from 10.50 to 1.50 with gravel filter from 12.00 to 1.50m.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **11A**

Sheet 1 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:

**AQ174**

Client **P Casey Enviro Ltd**

Dates:

**10/05/2001**

Method **Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Description

Depth

Level

Legend

Well

Type From - To(m)

N (cu)

Groundwater & Casing

D 1.00m - 4.00

Dark grey silty MUDSTONE with carbonaceous mudstone and coal laminations.

1.00

96.97

Light grey silty MUDSTONE.

D 4.00m - 7.00

Dark grey MUDSTONE with siltstone and sandstone bands.

3.50

94.47

D 7.00m - 10.00

Continued next sheet

## Remarks and Water Observations

1. Water strike at 15.00m rose to 11.40m.
2. Falling head permeability test carried out at 15.00m.
3. Standpipe installed on completion: Slotted pipe from 17.00 to 10.00m with gravel filter from 20.00m to 10.00m.

Figure No.





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **11A**

Sheet 2 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**10/05/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Type Depth From - To(m) N (cu)

Description

Depth (m)

Level (mAOD)

Legend

Well

Dark grey MUDSTONE with siltstone and sandstone bands.

Dark grey silty MUDSTONE with siltstone bands.

Dark grey shaley MUDSTONE with traces of coal.

Continued next sheet

## Remarks and Water Observations

1. Water strike at 15.00m rose to 11.40m.
2. Falling head permeability test carried out at 15.00m.
3. Standpipe installed on completion: Slotted pipe from 17.00 to 10.00m with gravel filter from 20.00m to 10.00m.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **11A**

Sheet 3 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**AQ174**

Client **P Casey Enviro Ltd**

Dates:  
**10/05/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

Depth  
From - To(m)

N  
(cu)

Groundwater  
& Casing

Description

Depth  
(m)

Level  
(mAOD)

Legend

Well

**Dark grey shaley MUDSTONE with traces of coal.**

**End of Borehole at 20.00 m**

20.00

77.97

## Remarks and Water Observations

1. Water strike at 15.00m rose to 11.40m.
2. Falling head permeability test carried out at 15.00m.
3. Standpipe installed on completion: Slotted pipe from 17.00 to 10.00m with gravel filter from 20.00m to 10.00m.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **BH12**

Sheet 1 of 4

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**20/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: **Drilltec**

Logged By: **HC** GL (m AOD) **131.430**

Description

Depth (m) Reduced Level (m AOD) Legend Well

**Brown gravelly CLAY**

2.00

129.43

**Light grey MUDSTONE**

9.30

122.13

**COAL**

9.80

121.63

Continued next sheet

D 5.00m

## Remarks and Water Observations

1. Groundwater encountered at 7.0m.

Figure No.

**BH12**





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **BH12**

Sheet 2 of 4

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**20/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: Driltec

Logged By: HC GL (m AOD) 131.430

Description

Depth (m) Reduced Level (m AOD) Legend Well

Type From - To(m) N (cu)

D 10.00m

Groundwater & Casing

Light grey MUDSTONE

Orange brown fine grained SANDSTONE.

Light grey MUDSTONE with occasional thin sandstone beds.

17.00 114.43

18.50 112.93

Continued next sheet

## Remarks and Water Observations

1. Groundwater encountered at 7.0m.

Figure No.  
**BH12**









**BOREHOLE RECORD**  
(Rotary Openhole Drilling)

BH No. **BH13**  
Sheet 1 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**19/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

**SAMPLE DETAILS**

Groundwater  
& Casing

**STRATA RECORD**

Driller: Driltec

Logged By: HC GL (m AOD) 139.710

Type	Depth From - To(m)	N (cu)	Description	Depth (m)	Reduced Level (m AOD)	Legend	Well
			Brown gravelly CLAY	0.40	139.31		
			Orange brown fine grained SANDSTONE.				
D	2.00m						
			Dark grey MUDSTONE	2.90	136.81		
D	5.00m						
			COAL	6.00	133.71		
			Light grey MUDSTONE	6.40	133.31		

Continued next sheet

**Remarks and Water Observations**

1. Groundwater encountered at 8.7m.

Figure No.  
**BH13**



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **BH13**

Sheet 2 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**19/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

## STRATA RECORD

Driller: Driltec

Logged By: HC GL (m AOD) 139.710

Type Depth From - To(m) N (cu)  
D 10.00m

Description

Depth (m) Reduced Level (m AOD) Legend Well

Light grey MUDSTONE

D 15.00m

COAL

15.20 124.51

Light grey MUDSTONE

15.60 124.11

Continued next sheet

## Remarks and Water Observations

1. Groundwater encountered at 8.7m.

Figure No.

**BH13**



**BOREHOLE RECORD**  
(Rotary Openhole Drilling)

BH No. **BH13**

Sheet 3 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**19/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

**SAMPLE DETAILS**

Groundwater  
& Casing

**STRATA RECORD**

Driller: **Dnilitec**

Logged By: **HC** GL (m AOD) **139.710**

Type	Depth From - To(m)	N (cu)
D	20.00m	
D	25.00m	

Light grey MUDSTONE

COAL

Dark grey MUDSTONE

Depth (m)	Reduced Level (m AOD)	Legend	Well
22.20	117.51		
23.00	116.71		

Continued next sheet

**Remarks and Water Observations**

1. Groundwater encountered at 8.7m.

Figure No.

**BH13**



BH13



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **BH13**

Sheet 5 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**19/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

Type      Depth      N  
From - To(m)      (cu)

D      40.00m

## STRATA RECORD

Description

Dark grey MUDSTONE

End of Borehole at 40.00 m

Driller: Dnilitec

Logged By: HC      GL (m AOD) 139.710

Depth (m)	Reduced Level (m AOD)	Legend	Well
40.00	99.71		

## Remarks and Water Observations

- Groundwater encountered at 8.7m.

Figure No.

**BH13**



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **BH14**  
Sheet 1 of 6

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**16/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## SAMPLE DETAILS

Type Depth From - To (m) N (cu)

Groundwater & Casing

## STRATA RECORD

Description

Driller: Driltec

Logged By: HC GL (m AOD) 149.750

Depth (m) Reduced Level (m AOD) Legend Well

Orange brown CLAY

0.60

149.15

Orange brown fine grained SANDSTONE.

D

2.00m - 2.50

2.00

147.75

Brown silty SANDSTONE

D

5.00m

5.20

144.55

Light grey MUDSTONE

D

5.80m - 6.30

5.80

143.95

Dark brown MUDSTONE with occasional coal specks.

6.30

143.45

Light grey MUDSTONE

D

7.00m

7.00

142.75

COAL

7.20

142.55

Light grey MUDSTONE with occasional sandstone bands.

9.00

140.75

Orange brown fine grained SANDSTONE with occasional mudstone bands.

Continued next sheet

Remarks and Water Observations  
1. No groundwater encountered.

Figure No.  
**BH14**





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **BH14**  
Sheet 2 of 6

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**16/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

Type	Depth From - To(m)	N (cu)
D	10.00m	
D	12.00m - 13.00	
D	15.00m	
D	17.00m	
D	19.50m	

## STRATA RECORD

Description

Orange brown fine grained SANDSTONE with occasional mudstone bands.

Dark grey MUDSTONE

Light grey MUDSTONE

Orange brown fine grained SANDSTONE with occasional mudstone bands.

Pink fine grained SANDSTONE

Continued next sheet

Driller: Dnilitec

Logged By: HC GL (m AOD) 149.750

Depth (m)	Reduced Level (m AOD)	Legend	Well
11.10	138.65		
11.30	138.45		
14.50	135.25		
17.00	132.75		

### Remarks and Water Observations

- No groundwater encountered.

Figure No.  
**BH14**



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **BH14**  
Sheet 3 of 6

Site Lane Side Quarry, Kirkheaton

Contract No:  
Q174

Client P Casey Enviro Ltd

Dates:  
16/11/2001

Method  
Rotary drilling rig

Scale 1:50

## SAMPLE DETAILS

## STRATA RECORD

Driter: Dnltet

Logged By: HC GL (m AOD) 149.750

Type	Depth From - To(m)	N (cu)	Groundwater & Casing	Description	Depth (m)	Reduced Level (m AOD)	Legend	Well
D	21.00m			Pink fine grained SANDSTONE	21.00	128.75		
D	22.00m			Dark brown MUDSTONE	22.00	127.75		
				Dark grey MUDSTONE	23.50	126.25		
D	26.00m			Light grey MUDSTONE	26.50	123.25		
D	26.50m - 27.20			COAL	27.20	122.55		
				Dark grey MUDSTONE				

Continued next sheet

## Remarks and Water Observations

1. No groundwater encountered.

Figure No.

BH14



**BOREHOLE RECORD**  
(Rotary Openhole Drilling)

BH No. **BH14**

Sheet 4 of 6

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**16/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

**SAMPLE DETAILS**

**STRATA RECORD**

Driller: **Drilltec**

Logged By: **HC** GL (m AOD) **149.750**

Type      Depth      N  
From - To(m)      (cu)

Description

Depth      Reduced      Legend      Well  
(m)      Level  
(m AOD)

**Dark grey MUDSTONE**

**D**      **35.00m**

Continued next sheet

Remarks and Water Observations  
1. No groundwater encountered.

Figure No.  
**BH14**





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **BH14**  
Sheet 5 of 6

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**16/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

## STRATA RECORD

Driller: **Driltec**

Logged By: **HC** GL (m AOD) **149.750**

Type	Depth From - To(m)	N (cu)
------	-----------------------	-----------

Description

Depth (m)	Reduced Level (m AOD)	Legend	Well
--------------	-----------------------------	--------	------

D	40.00m	
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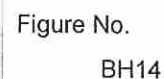
**Dark grey MUDSTONE**

D	45.00m	
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Continued next sheet

Remarks and Water Observations  
1. No groundwater encountered.

Figure No.  
**BH14**





# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **BH15**

Sheet 1 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:

**Q174**

Client **P Casey Enviro Ltd**

Dates:

**16/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

## STRATA RECORD

Driller: Onlitec

Logged By: HC

GL (m AOD)

104.140

Type Depth From - To(m) N (cu)

Description

Depth (m)

Reduced Level (m AOD)

Legend

Well

MADE GROUND: Clay fill

Brown gravelly CLAY

Light grey MUDSTONE

D 2.00m

D 5.00m

D 9.50m - 10.00

0.60

103.54

1.60

102.54

8.00

96.14

8.70

95.44

Dark brown MUDSTONE with occasional coal specks.

Light grey MUDSTONE

Continued next sheet

## Remarks and Water Observations

- Groundwater seepage at 12.0m.

Figure No.

**BH16**





# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **BH15**

Sheet 2 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**16/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: Drillec

Logged By: HC

GL (m AOD) 104.140

Type	Depth From - To(m)	N (cu)	Groundwater & Casing
D	13.00m		▼

Light grey MUDSTONE

End of Borehole at 15.00 m

Depth (m)	Reduced Level (m AOD)	Legend	Well
15.00	89.14		

### Remarks and Water Observations

- Groundwater seepage at 12.0m.

Figure No.

**BH16**



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH1**

Sheet 1 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**23/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

GL (m AOD) 90.260

Description

Depth  
(m)

Reduced  
Level  
(m AOD)

Legend

Well

MADE GROUND: Bricks.

1.00

89.26

Grey MUDSTONE.

1.70

88.56

COAL.

3.80

86.46

Grey laminated fine sandy SILTSTONE.

6.60

83.66

Grey silty MUDSTONE with siltstone bands.

Continued next sheet

## Remarks and Water Observations

1. Water strike at 6.60m rose to 3.12m.
2. Falling head permeability test carried out at 6.60m.
3. Borehole grouted on completion.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH1**

Sheet 2 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**23/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By: GL (m AOD) 90.260

Description

Depth (m) Reduced Level (m AOD) Legend Well

Type From - To(m) N (cu)

D 10.00m  
Grey silty MUDSTONE with siltstone bands.  
End of Borehole at 10.00 m

## Remarks and Water Observations

1. Water strike at 6.60m rose to 3.12m.
2. Falling head permeability test carried out at 6.60m.
3. Borehole grouted on completion.

Figure No.





# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH2**  
Sheet 1 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**23/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driker:

Logged By:

GL (m AOD) **86.990**

Type	Depth From - To(m)	N (cu)
D	0.00m - 0.50	
D	1.50m	
D	6.00m	
D	9.00m	

Groundwater  
& Casing



MADE GROUND: Soft to firm brown slightly sandy  
CLAY with brick and coal fragments.

Light grey fine sandy SILSTONE

COAL

Orange brown fine and medium grained  
SANDSTONE.

Grey fine sandy SILTSTONE.  
Continued next sheet

Depth (m)	Reduced Level (m AOD)	Legend	Well
1.00	85.99		
4.00	82.99		
6.70	80.29		
9.50	77.49		

## Remarks and Water Observations

1. Water strike at 4.00m rose to 2.13m.
2. Falling head permeability test carried out at 4.00m.
3. Borehole grouted on completion.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH2**  
Sheet 2 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**23/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

GL (m AOD) **86.990**

Type      Depth  
From - To(m)      N  
(cu)

Description

Depth  
(m)

Reduced  
Level  
(m AOD)  
**76.99**

Legend

Well

**Grey fine sandy SILTSTONE.**

**End of Borehole at 10.00 m**

## Remarks and Water Observations

1. Water strike at 4.00m rose to 2.13m.
2. Falling head permeability test carried out at 4.00m.
3. Borehole grouted on completion.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH3**  
Sheet 1 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**23/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

GL (m AOD) **88.550**

Type **D**  
Depth **From - To(m)**  
**0.00m - 0.30**  
N **(cu)**

Description

Depth (m) Reduced Level (m AOD) Legend Well

**D** **0.00m - 0.30**

**MADE GROUND:** Soft to firm brown CLAY with brick and mudstone fragments.  
Grey silty MUDSTONE.

**0.30** **88.25**

**D** **1.50m**

Light brown fine and medium grained SANDSTONE.

**5.40** **83.15**

**D** **6.10m - 6.40**

Grey fine grained SANDSTONE and SILTSTONE.

**5.90** **82.65**

Grey fine grained micaceous SANDSTONE.

**6.10** **82.45**

Grey fine grained SANDSTONE.

**6.40** **82.15**

Dark grey MUDSTONE with black carbonaceous mudstone laminations.

**6.80** **81.75**

Continued next sheet

## Remarks and Water Observations

1. Water strike at 6.40m rose to 2.13m.
2. Falling head permeability test carried out at 6.40m.
3. Borehole grouted on completion.

Figure No.





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH3**

Sheet 2 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**23/04/2001**

Method  
**Rotary open hole drilling**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

GL (m AOD) **88.550**

Type **D**

Depth  
From - To(m)

N  
(cu)

Groundwater  
& Casing

Description

Depth  
(m)

Reduced  
Level  
(m AOD)

Legend

Well

Dark grey MUDSTONE with black carbonaceous mudstone laminations.

End of Borehole at 15.00 m

15.00

73.55

## Remarks and Water Observations

1. Water strike at 6.40m rose to 2.13m.
2. Falling head permeability test carried out at 6.40m.
3. Borehole grouted on completion.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH4**  
Sheet 1 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**26/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

GL (m AOD) **99.610**

Type From - To (m) N (cu)

Description

Depth (m)

Reduced Level (m AOD)

Legend

Well

D

3.50m

Grey silty MUDSTONE with sandstone and siltstone bands.

Light brown fine grained micaceous SANDSTONE.

Grey silty MUDSTONE.

3.20

96.41

3.60

96.01

Continued next sheet

## Remarks and Water Observations

1. Water strike at 3.60m rose to 3.30m.
2. Falling head permeability test carried out at 3.60m.
3. Standpipe installed on completion; slotted pipe with gravel filter from 5.00 to 2.00m.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH4**  
Sheet 2 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**26/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

GL (m AOD) **99.610**

Type Depth From - To (m) N (cu)

Description

Depth (m)

Reduced Level (m AOD)

Legend

Well

D 12.50m

Grey silty MUDSTONE.

12.50

87.11

VOI D/ BROKEN GROUND: Black carbonaceous mudstone, traces of coal and wood.

D 15.70m

Dark grey MUDSTONE with laminations of carbonaceous mudstone.

15.70

83.91

D 18.50m

Continued next sheet

## Remarks and Water Observations

1. Water strike at 3.60m rose to 3.30m.
2. Falling head permeability test carried out at 3.60m.
3. Standpipe installed on completion: slotted pipe with gravel filter from 5.00 to 2.00m.

Figure No.



# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **PH4**  
Sheet 3 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**26/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller:

Logged By:

GL (m AOD) **99.610**

Type      Depth  
From - To(m)      N  
(cu)

Description

Depth (m)	Reduced Level (m AOD)	Legend	Well
20.00	79.61		

**Dark grey MUDSTONE with laminations of carbonaceous mudstone.**

**End of Borehole at 20.00 m**

## **Remarks and Water Observations**

1. Water strike at 3.60m rose to 3.30m.
2. Falling head permeability test carried out at 3.60m.
3. Standpipe installed on completion: slotted pipe with gravel filter from 5.00 to 2.00m.

Figure No.





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH5**

Sheet 1 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**24/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

GL (m AOD) **94.730**

Type From To(m) N (cu)

Description

Depth (m) Reduced Level (m AOD) Legend Well

D 1.50m

D 4.50m

D 7.00m

MADE GROUND: Sandstone,brick and clay.

Grey shaley MUDSTONE with laminations of black carbonaceous mudstone.

7.10 87.63

Continued next sheet

## Remarks and Water Observations

1. Water strike at 9.50m rose to 8.00m.
2. Falling head permeability test carried out at 9.50m.
3. Borehole grouted on completion.

Figure No.



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH5**

Sheet 2 of 2

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**24/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

GL (m AOD) **94.730**

Type	Depth		N (cu)
	From	To (m)	
D	10.00m		

Groundwater  
& Casing

Description

Grey shaley MUDSTONE with laminations of  
black carbonaceous mudstone.

End of Borehole at 10.00 m

Depth (m)	Reduced Level (m AOD)	Legend	Well
10.00	84.73		

### Remarks and Water Observations

1. Water strike at 9.50m rose to 8.00m.
2. Falling head permeability test carried out at 9.50m.
3. Borehole grouted on completion.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH6**  
Sheet 1 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**24/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

Type	Depth From - To(m)	N (cu)
D	0.00m - 1.00	
D	2.50m	
D	3.50m	

Groundwater  
& Casing

## STRATA RECORD

Description
MADE GROUND: Clay, brick and sandstone.
Dark grey silty laminated MUDSTONE.
COAL.
Grey silty MUDSTONE with siltstone laminations.
Light brown and green brown sandy MUDSTONE.
Dark grey MUDSTONE with bands of fine sandy SILTSTONE

Driller:

Logged By:

Depth (m)	Reduced Level (m AOD)	Legend	Well
1.00	98.90		
2.50	97.40		
3.30	96.60		
4.20	95.70		
4.50	95.40		

Continued next sheet

## Remarks and Water Observations

1. Water strike at 17.00m rose to 13.13m.
2. No permeability test carried out, unable to fill borehole above the standing water level.
3. Borehole grouted on completion.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH6**  
Sheet 2 of 3

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**24/04/2001**

Method  
Rotary open hole drilling

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller:

Logged By:

GL (m AOD) 99.900

Type Depth From To (m) N (cu)

Description

Depth (m) Reduced Level (m AOD) Legend Well

Dark grey MUDSTONE with bands of fine sandy SILTSTONE

D 15.00m

VOID

17.00 82.90

Dark grey MUDSTONE with siltstone bands.

19.00 80.90

Continued next sheet

## Remarks and Water Observations

1. Water strike at 17.00m rose to 13.13m.
2. No permeability test carried out, unable to fill borehole above the standing water level.
3. Borehole grouted on completion.

Figure No.





# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **PH6**  
Sheet 3 of 3

Site **Lane Side Quarry, Kirkheaton**  
Client **P Casey Enviro Ltd**  
Method **Rotary open hole drilling**

Contract No:  
**Q174**  
Dates:  
**24/04/2001**

Scale **1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Type      Depth  
From - To(m)      N  
(cu)

Groundwater  
& Casing

Description

Driller:

Logged By:

GL (m AOD) **99.900**

Depth  
(m)  
**20.00**

Reduced  
Level  
(m AOD)  
**79.90**

Legend

Well

**Dark grey MUDSTONE with siltstone bands.**  
**End of Borehole at 20.00 m**

## **Remarks and Water Observations**

1. Water strike at 17.00m rose to 13.13m.
2. No permeability test carried out, unable to fill borehole above the standing water level.
3. Borehole grouted on completion.

Figure No.



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH7**

Sheet 1 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**15/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Dri/ter: Dril/tec

Logged By: HC

GL (m AOD) 131.320

Type Depth From - To(m) N (cu)

Description

Depth (m) Reduced Level (m AOD) Legend Well

D 1.00m

Brown gravelly CLAY

1.20 130.12

D 2.00m

Weathered orange brown fine grained SANDSTONE.

D 5.00m

Brown fine grained SANDSTONE with very thin beds of mudstone.

5.00 126.32

Light grey MUDSTONE

9.00 122.32

Continued next sheet

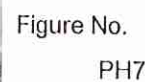
### Remarks and Water Observations

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.

PH7









(Rotary Openhole Drilling)

Sheet 4 of 5

Contract No:  
Q174

Dates:  
15/11/2001

Scale 1:50

Groundwater  
& Casing

### Description

Logged By: HC

GL (m AOD) 131.320

**B**

Depth	
From	To(m)
30.00m	

N  
(cu)

Groundwater  
& Casing

Light grey MUDSTONE

Depth  
(m)Reduced  
Level  
(m AOD)

**Legend**

100

D 35.00m

Continued next sheet

## Remarks and Water Observations

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.

PH7



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH7**  
Sheet 5 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**15/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: Drillec

Logged By: HC GL (m AOD) 131.320

Description

Depth (m) Reduced Level (m AOD) Legend Well

Type Depth From - To(m) N (cu)

D 40.00m

Light grey MUDSTONE

Soft, No returns

40.30 91.02

Dark grey MUDSTONE, part returns.

42.50 88.82

End of Borehole at 45.00 m

45.00 86.32

## Remarks and Water Observations

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.  
**PH7**



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH8**  
Sheet 1 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**14/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: **Drilltec**

Logged By: **HC**

GL (m AOD) **131.550**

Type Depth From - To(m) N (cu)

Description

Depth (m) Reduced Level (m AOD) Legend Well

D 2.00m

Weathered orange brown SANDSTONE.

D 5.00m

Light grey MUDSTONE with occasional very thin to thin siltstone beds.

D 7.00m

4.00 127.55

Continued next sheet

### Remarks and Water Observations

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.  
**PH8**



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH8**  
Sheet 2 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**14/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: **Driltec**

Logged By: **HC** GL (m AOD) **131.550**

Description

Depth (m) **10.00** Reduced Level (m AOD) **121.55** Legend Well

D 11.00m

Light grey MUDSTONE with occasional very thin to thin siltstone beds.  
Light grey MUDSTONE

D 15.00m

Continued next sheet

### Remarks and Water Observations

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.  
**PH8**





# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH8**  
Sheet 3 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**14/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: **Drilltec**

Logged By: **HC**

GL (m AOD) **131.550**

Depth  
(m)

Reduced  
Level  
(m AOD)

Legend

Well

Type  
**D**

Depth  
From - To(m)  
**20.00m**

N  
(cu)

Groundwater  
& Casing

Description

**Light grey MUDSTONE**

**D** **25.00m**

**D** **26.50m - 26.70**

**Dark brown MUDSTONE**

**Light grey MUDSTONE**

**26.50**

**105.05**

**26.70**

**104.85**

Continued next sheet

### Remarks and Water Observations

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.

**PH8**



# **BOREHOLE RECORD** (Rotary Openhole Drilling)

BH No. **PH8**  
Sheet 4 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**14/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## **SAMPLE DETAILS**

## **STRATA RECORD**

Driller: Driltec

Logged By: HC

GL (m AOD) **131.550**

Type **D**  
Depth **From - To(m)**  
**30.00m**  
N  
(cu)

Description

Depth (m)  
Reduced Level (m AOD)  
Legend  
Well

**Light grey MUDSTONE**

**D 35.00m**

Continued next sheet

### **Remarks and Water Observations**

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.  
**PH8**



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH8**  
Sheet 5 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**14/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## SAMPLE DETAILS

Type	Depth From - To(m)	N (cu)
D	40.00m	

Groundwater  
& Casing

## STRATA RECORD

Description

Driller: Driltec

Logged By: HC

GL (m AOD) 131.550

Depth (m)	Reduced Level (m AOD)	Legend	Well
41.00	90.55		
42.00	89.55		
43.00	88.55		
45.00	86.55		

Light grey MUDSTONE

Void

Soft, No returns

Hard, No returns

End of Borehole at 45.00 m

### Remarks and Water Observations

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.  
**PH8**



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH9**

Sheet 1 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**13/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: Drilltec

Logged By: HC GL (m AOD) **124.730**

Type Depth From - To(m) N (cu)

Description

Depth (m) Reduced Level (m AOD) Legend Well

**MADE GROUND: Clay fill**  
**Brown gravelly CLAY**

0.20 124.53

**Orange brown fine grained SANDSTONE.**

1.50 123.23

**Light grey MUDSTONE**

3.00 121.73

D 5.00m

Continued next sheet

## Remarks and Water Observations

1. Groundwater encountered at 28.0m.
2. Borehole backfilled with bentonite cement.

Figure No.

**PH9**





**BOREHOLE RECORD**  
(Rotary Openhole Drilling)

BH No. **PH9**

Sheet 2 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**13/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

**SAMPLE DETAILS**

**STRATA RECORD**

Driller: Drilltec

Logged By: HC

GL (m AOD) **124.730**

Type **D**

Depth  
From - To(m)  
**10.00m**

N  
(cu)

Groundwater  
& Casing

Description

**Light grey MUDSTONE**

Depth  
(m)

Reduced  
Level  
(m AOD)

Legend

Well

**D** **15.00m**

Continued next sheet

**Remarks and Water Observations**

1. Groundwater encountered at 28.0m.
2. Borehole backfilled with bentonite cement.

Figure No.

**PH9**



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH9**  
Sheet 3 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**13/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: Driltec

Logged By: HC GL (m AOD) 124.730

Type  
D

Depth  
From - To(m)  
20.00m

N  
(cu)

Groundwater  
& Casing

Description

Depth  
(m)

Reduced  
Level  
(m AOD)

Legend

Well

Light grey MUDSTONE

D 25.00m

D 26.00m - 26.70

Dark grey MUDSTONE with coal specks.

26.00 98.73

D 27.50m

Light grey MUDSTONE

27.00 97.73

Continued next sheet

### Remarks and Water Observations

- Groundwater encountered at 28.0m.
- Borehole backfilled with bentonite cement.

Figure No.  
**PH9**



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH9**  
Sheet 4 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**13/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

## STRATA RECORD

Driller: Drilltec

Logged By: HC GL (m AOD) 124.730

Type	Depth		N (cu)
	From	To(m)	
D	30.00m		

Description

Depth (m)	Reduced Level (m AOD)
30.00	94.73

Legend Well

Light grey MUDSTONE  
Dark grey MUDSTONE with thin sandstone beds.

D 35.00m

D 39.00m

Dark grey MUDSTONE.

39.00 85.73

Continued next sheet

### Remarks and Water Observations

1. Groundwater encountered at 28.0m.
2. Borehole backfilled with bentonite cement.

Figure No.  
**PH9**



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH9**  
Sheet 5 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**13/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## SAMPLE DETAILS

Type	Depth		N (cu)
	From -	To(m)	
D		41.50m	

Groundwater  
& Casing

## STRATA RECORD

Dark grey MUDSTONE.

Black MUDSTONE

Light grey MUDSTONE

End of Borehole at 45.00 m

Driller: Drilltec

Logged By: HC

GL (m AOD) 124.730

Depth (m)	Reduced Level (m AOD)	Legend	Well
41.00	83.73		
43.00	81.73		
45.00	79.73		

## Remarks and Water Observations

- Groundwater encountered at 28.0m.
- Borehole backfilled with bentonite cement.

Figure No.

PH9





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH10**  
Sheet 1 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**12/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

Type	Depth From - To(m)	N (cu)
D	0.50m - 1.00	
D	2.00m - 2.50	
D	3.00m - 3.50	
D	8.00m	

## STRATA RECORD

Description

**Brown gravelly CLAY**  
**Orange brown fine grained SANDSTONE.**

**Brown MUDSTONE**

**Light grey MUDSTONE**

Driller: **Dnilitec**

Logged By: **HC**

Depth (m) Reduced Level (m AOD) Legend Well

0.20 121.42

2.00 119.62

3.00 118.62

Continued next sheet

## Remarks and Water Observations

- Groundwater encountered at 30.0m.
- Borehole backfilled with bentonite cement.

Figure No.  
**PH10**





**BOREHOLE RECORD**  
(Rotary Openhole Drilling)

BH No. **PH10**

Sheet 3 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:

**Q174**

Client **P Casey Enviro Ltd**

Dates:

**12/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

**SAMPLE DETAILS**

Groundwater  
&  
Casing

**STRATA RECORD**

Driller: Drilitec

Logged By: HC

GL (m AOD) **121.620**

Type  
**D**

Depth  
From - To(m)  
**20.00m**

N  
(cu)

Description

Depth  
(m)

Reduced  
Level  
(m AOD)

Legend

Well

**Light grey MUDSTONE**

**D** **25.00m**

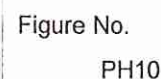
Continued next sheet

**Remarks and Water Observations**

1. Groundwater encountered at 30.0m.
2. Borehole backfilled with bentonite cement.

Figure No.

**PH10**







# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH10**  
Sheet 5 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**12/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

## STRATA RECORD

Driller: Driltec

Logged By: HC GL (m AOD) 121.620

Type	Depth		N (cu)
	From	To(m)	
D		42.00m	

Dark grey MUDSTONE with coal specks.  
Dark grey MUDSTONE with thin beds of orange  
brown sandstone.

Depth (m)	Reduced Level (m AOD)	Legend	Well
39.80	81.82		
45.00	76.62		

End of Borehole at 45.00 m

### Remarks and Water Observations

- Groundwater encountered at 30.0m.
- Borehole backfilled with bentonite cement.

Figure No.  
**PH10**



**BOREHOLE RECORD**  
(Rotary Openhole Drilling)

BH No. **PH11**  
Sheet 1 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**15/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

**SAMPLE DETAILS**

Groundwater  
& Casing

**STRATA RECORD**

Driller: Dnritec

Logged By: HC GL (m AOD) 123.470

Type Depth From - To(m) N (cu)

Description

Depth (m) Reduced Level (m AOD) Legend Well

D 2.00m

D 5.00m

D 5.50m

Orange brown fine grained SANDSTONE.

Light grey MUDSTONE with occasional very thin sandstone beds.

COAL

5.00 118.47

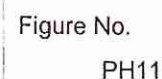
9.00 114.47

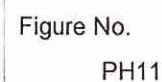
Continued next sheet

**Remarks and Water Observations**

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.  
**PH11**









**BOREHOLE RECORD**  
(Rotary Openhole Drilling)

BH No. **PH11**  
Sheet 4 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**15/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

**SAMPLE DETAILS**

Groundwater  
& Casing

**STRATA RECORD**

Driller: **Drilltec**

Logged By: **HC** GL (m AOD) **123.470**

Type	Depth From - To(m)	N (cu)
D	30.00m	

Description

Depth (m)	Reduced Level (m AOD)	Legend	Well
--------------	-----------------------------	--------	------

Light grey MUDSTONE with occasional thin sandstone beds.

D	35.00m	
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Continued next sheet

**Remarks and Water Observations**

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.  
**PH11**



**BOREHOLE RECORD**  
(Rotary Openhole Drilling)

BH No. **PH11**  
Sheet 5 of 5

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**15/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

**SAMPLE DETAILS**

Groundwater  
& Casing

**STRATA RECORD**

Driller: **Dunelm**

Logged By: **HC** GL (m AOD) **123.470**

Type **D** Depth **40.00m** N **(cu)**

Description

Depth (m) Reduced Level (m AOD) Legend Well

Light grey MUDSTONE with occasional thin sandstone beds.

45.00 78.47

End of Borehole at 45.00 m

**Remarks and Water Observations**

1. No groundwater encountered.
2. Borehole backfilled with bentonite cement.

Figure No.  
**PH11**



# BOREHOLE RECORD (Rotary Openhole Drilling)

BH No. **PH12**

Sheet 1 of 4

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**15/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

Type	Depth From - To(m)	N (cu)
D	2.00m	
D	5.00m	

Groundwater  
&  
Casing

## STRATA RECORD

Description
Brown gravelly CLAY
Weathered orange brown clayey SANDSTONE.
Light grey MUDSTONE

Driller: Drilltec

Logged By: HC GL (m AOD) 112.860

Depth (m)	Reduced Level (m AOD)	Legend	Well
0.80	112.06		
4.50	108.36		

Continued next sheet

## Remarks and Water Observations

- Groundwater encountered at 14.0m.
- Borehole backfilled with bentonite cement.

Figure No.

**PH12**



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH12**

Sheet 2 of 4

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**15/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

## STRATA RECORD

Driller: **Driltec**

Logged By: **HC** GL (m AOD) **112.860**

Type **D** Depth **10.00m** N **(cu)**

Description

Depth (m) Reduced Level (m AOD) Legend Well

**Light grey MUDSTONE**

**D** **15.00m**

Continued next sheet

### Remarks and Water Observations

1. Groundwater encountered at 14.0m.
2. Borehole backfilled with bentonite cement.

Figure No.

**PH12**





# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH12**  
Sheet 3 of 4

Site **Lane Side Quarry, Kirkheaton**

Contract No:  
**Q174**

Client **P Casey Enviro Ltd**

Dates:  
**15/11/2001**

Method  
**Rotary drilling rig**

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

Type	Depth From - To(m)	N (cu)
D	20.00m	
D	20.50m - 21.00	
D	25.00m	

## STRATA RECORD

Description
Light grey MUDSTONE
Dark brown MUDSTONE
Light grey MUDSTONE
Dark grey MUDSTONE

Driller: Drilltec			
Logged By: HC	GL (m AOD)	112.860	
Depth (m)	Reduced Level (m AOD)	Legend	Well
20.50	92.36		
21.25	91.61		
24.00	88.86		

Continued next sheet

## Remarks and Water Observations

- Groundwater encountered at 14.0m.
- Borehole backfilled with bentonite cement.

Figure No.  
**PH12**



# BOREHOLE RECORD

(Rotary Openhole Drilling)

BH No. **PH12**

Sheet 4 of 4

Site **Lane Side Quarry, Kirkheaton**

Contract No:

**Q174**

Client **P Casey Enviro Ltd**

Dates:

**15/11/2001**

Method  
Rotary drilling rig

Scale **1:50**

## SAMPLE DETAILS

Groundwater  
& Casing

Type	Depth		N (cu)
	From -	To(m)	
D	30.00m		

## STRATA RECORD

Description

**Dark grey MUDSTONE**

End of Borehole at 30.00 m

Driller: Driltec

Logged By: HC GL (m AOD) 112.860

Depth (m)	Reduced Level (m AOD)	Legend	Well
30.00	82.86		

## Remarks and Water Observations

- Groundwater encountered at 14.0m.
- Borehole backfilled with bentonite cement.

Figure No.

**PH12**

DRILLING REPORT					Well Number: BHA1	
CQA INSPECTOR: - KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Kirkheaton	
Date: 28/05/2016		Installation Details			Target Depth (m): 3.90	
Drilling Rig type: BARETTA T61		Solid AGL (m): 0.40		Actual Depth (m): 3.90		
Extruder Dimensions: 150mm		Solid BGL (m): 1.60		Dip Level (mBGL): 3.90		
Auger Dimensions:		Perforated BGL (m): 2.30		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 150mm		Bentonite (m): 1.55		HDPE Casing Dimensions: 50mm		
		Gravel (m): 2.35				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1			
0.0	0.0	0	0	Ground Level	+0.5	
0.0	1.0	1	0	Turf over TOPSOIL		GL
1.0	2.0	1	1	Brick Fill	0.5	Backfill Details
2.0	3.0	1	2	CLAY	1.5	Bentonite seal (0.0m-1.55m)
3.0	4.0	1	3		2.5	Pea Gravel (1.55m -3.90m)
4.0	5.0	1	4	Yellowish brown MUDSTONE	3.5	
5.0	6.0	1	5		4.5	
6.0	7.0	1	6		5.5	Note 1.60m length of plain+2.30m length of slotted
7.0	8.0	1	7		6.5	
8.0	9.0	1	8		7.5	
9.0	10.0	1	9		8.5	
10.0	11.0	1	10		9.5	
11.0	12.0	1	11		10.5	
12.0	13.0	1	12		11.5	
13.0	14.0	1	13		12.5	
14.0	15.0	1	14		13.5	
15.0	16.0	1	15		14.5	
16.0	17.0	1	16		15.5	
17.0	18.0	1	17		16.5	
18.0	19.0	1	18		17.5	
19.0	20.0	1	19		18.5	
20.0	21.0	1	20		19.5	
21.0	22.0	1	21		20.5	
22.0	23.0	1	22		21.5	
23.0	24.0	1	23		22.5	
24.0	25.0	1	24		23.5	
25.0	26.0	1	25		24.5	
26.0	27.0	1	26		25.5	
27.0	28.0	1	27		26.5	
28.0	29.0	1	28		27.5	
29.0	30.0	1	29		28.5	
30.0	31.0	1	30		29.5	
31.0	32↓	1	31		30.5	
					31.5	

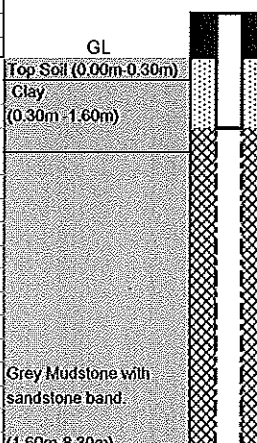
Drilling Report				Well Number: BHA2	
CQA Inspector: P. Casey & Co				Site: Kirkheaton	
Date: 28/05/2016		Installation Details		Target Depth (m): 5.73	
Drilling Rig type: BARETTA T61		Solid AGL (m): 0.40		Actual Depth (m): 5.73	
Extruder Dimensions: 150mm		Solid BGL (m): 1.60		Dip Level (mBGL): 5.73	
Auger Dimensions:		Perforated BGL (m): 4.13		Dip Level (mBGL) after 24hrs	
Casing Dimensions: 150mm		Bentonite (m): 1.55		HDPE Casing Dimensions: 50mm	
		Gravel (m): 4.18			
Depth From (m)	Depth To (m)	Interval (m)	Description		Strata
	+1.0	1	m		
			+1		
0.0	0.0	0	0	Ground Level	+0.5
0.0			0		
1.0	1.0	1	1	Turf over TOPSOIL	GL
2.0	2.0	1	2	CLAY	GL
3.0	3.0	1	3		Top Soil (0.00m-0.40m)
4.0	4.0	1	4		Clay (0.40m-1.40m)
5.0	5.0	1	5	Yellowish brown MUDSTONE	Bentonite seal (0.0m-1.55m)
6.0	6.0	1	6		Pea Gravel (1.55m-5.73m)
7.0	7.0	1	7	Grey MUDSTONE with sandstone band E.O.H 5.73m b.g.l	
8.0	8.0	1	8		
9.0	9.0	1	9		
10.0	10.0	1	10		
11.0	11.0	1	11		
12.0	12.0	1	12		
13.0	13.0	1	13		
14.0	14.0	1	14		
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25.0	25.0	1	25		
26.0	26.0	1	26		
27.0	27.0	1	27		
28.0	28.0	1	28		
29.0	29.0	1	29		
30.0	30.0	1	30		
31.0	31.0	1	31		
	32↓				





DRILLING REPORT					Well Number: BHA4	
CQA INSPECTOR:- KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Klrkheaton	
Date: 28/05/2015		Installation Details			Target Depth (m): 7.90	
Drilling Rig type: BARETTA T61		Solid AGL (m): 0.40		Actual Depth (m): 7.90		
Extruder Dimensions: 160mm		Solid BGL (m): 1.60		Dip Level (mBGL): 7.90		
Auger Dimensions:		Perforated BGL (m): 6.30		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 160mm		Bentonite (m): 1.65		HDPE Casing Dimensions: 60mm		
		Gravel (m): 6.35				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1			
0.0	0.0	0	0	Ground Level	+0.5	
0.0			0			GL
1.0	1.0	1	1	Turf over TOPSOIL	0.5	Top Soil (0.00m-0.40m)
2.0	2.0	1	2	CLAY	1.6	Clay (0.40m-1.40m)
3.0	3.0	1	3		2.5	
4.0	4.0	1	4	Yellowish brown MUDSTONE	3.5	Yellowish brown MUDSTONE (1.40m-4.10m)
5.0	5.0	1	5		4.6	
6.0	6.0	1	6		5.5	
7.0	7.0	1	7	Grey MUDSTONE with sandstone band	6.5	Grey Mudstone with sandstone band.
8.0	8.0	1	8	E.O.H at 7.90m b.g.l	7.5	(4.10m-7.90m)
9.0	9.0	1	9		8.5	
10.0	10.0	1	10		9.5	Note: 1.60m length of plain+6.30m length of slotted
11.0	11.0	1	11		10.5	
12.0	12.0	1	12		11.6	
13.0	13.0	1	13		12.5	
14.0	14.0	1	14		13.5	
15.0	15.0	1	15		14.6	
16.0	16.0	1	16		15.5	
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20		19.6	
21.0	21.0	1	21		20.5	
22.0	22.0	1	22		21.5	
23.0	23.0	1	23		22.5	
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29		28.5	
30.0	30.0	1	30		29.5	
31.0	31.0	1	31		30.5	
	32↓				31.5	

Document Number: QF/EG60

DRILLING REPORT						Well Number: BHA5A	
CQA INSPECTOR:- KAY ADEDOTUN							
CLIENT: P.CASEY & CO						Site: Kirkheaton	
Date: 28/05/2015		Installation Details				Target Depth (m): 8.30	
Drilling Rig type: BARETTA T61		Solid AGL (m):		0.40		Actual Depth (m): 8.30	
Extruder Dimensions: 150mm		Solid BGL (m):		1.60		Dip Level (mBGL): 8.30	
Auger Dimensions:		Perforated BGL (m):		6.70		Dip Level (mBGL) after 24hrs	
Casing Dimensions: 150mm		Bentonite (m):		1.55		HDPE Casing Dimensions: 50mm	
		Gravel (m):		6.75			
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION			STRATA	
			m		m		
	+1.0	1	+1		+0.5		
0.0	0.0	0	0	Ground Level		GL	GL
0.0	1.0	1	0	Turf over TOPSOIL	0.5	Top Soil (0.00m-0.30m)	Backfill Details
1.0	2.0	1	1	CLAY	1.5	Clay (0.30m - 1.60m)	Bentonite seal (0.0m-1.55m)
2.0	3.0	1	2		2.5		Pea Gravel (1.55m -8.30m)
3.0	4.0	1	3		3.5		
4.0	5.0	1	4		4.5		
5.0	6.0	1	5		5.5		
6.0	7.0	1	6	GREY MUDSTONE with sandstone band	6.5		Grey Mudstone with sandstone band.
7.0	8.0	1	7		7.5		
8.0	9.0	1	8	E.O.H at 8.30m b.g.l	8.5		
9.0	10.0	1	9		9.5		
10.0	11.0	1	10		10.5		
11.0	12.0	1	11		11.5		
12.0	13.0	1	12		12.5		
13.0	14.0	1	13		13.5		
14.0	15.0	1	14		14.5		
15.0	16.0	1	15		15.5		
16.0	17.0	1	16		16.5		
17.0	18.0	1	17		17.5		
18.0	19.0	1	18		18.5		
19.0	20.0	1	19		19.5		
20.0	21.0	1	20		20.5		
21.0	22.0	1	21		21.5		
22.0	23.0	1	22		22.5		
23.0	24.0	1	23		23.5		
24.0	25.0	1	24		24.5		
25.0	26.0	1	25		25.5		
26.0	27.0	1	26		26.5		
27.0	28.0	1	27		27.5		
28.0	29.0	1	28		28.5		
29.0	30.0	1	29		29.5		
30.0	31.0	1	30		30.5		
31.0	32↓	1	31		31.5		
						Note - 1.60m length of plain + 6.70m length of slotted	



DRILLING REPORT						Well Number: BHA6	
CQA INSPECTOR:- KAY ADEDOTUN							
CLIENT: P.CASEY & CO						Site: Kirkheaton	
Date: 01/06/2015			Installation Details			Target Depth (m): 10.85	
Drilling Rig type: BARETTA T51			Solid AGL (m): 0.40			Actual Depth (m): 10.85	
Extruder Dimensions: 150mm			Solid BGL (m): 3.50			Dip Level (mBGL): 10.85	
Auger Dimensions:			Perforated BGL (m): 7.35			Dip Level (mBGL) after 24hrs	
Casing Dimensions: 150mm			Bentonite (m): 3.00			HDPE Casing Dimensions: 50mm	
			Gravel (m): 7.85				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION			STRATA	
			m		m		
	+1.0	1	+1				
0.0	0.0	0	0	Ground Level	+0.5	GL	GL
0.0	1.0	1	0	Turf over TOPSOIL		Top Soil(0.00m-0.20m)	Backfill Details
1.0	2.0	1	1	CLAY	0.5	Clay(0.20m-1.00m)	Bentonite seal (0.0m-3.00m)
2.0	3.0	1	2	Yellowish brown MUDSTONE	1.5	(1.00m-1.60m)	
3.0	4.0	1	3	Coal	2.5	Coal (1.60m-2.60m)	
4.0	5.0	1	4	Grey MUDSTONE with sandstone band	3.5	Grey mudstone with sandstone band (2.60m-4.70m)	Pea gravel (3.00m-10.85m)
5.0	6.0	1	5		4.5		
6.0	7.0	1	6		5.5		
7.0	8.0	1	7		6.5		
8.0	9.0	1	8	Light grey SANDSTONE with siltstone band	8.5	Light grey sandstone with siltstone band	
9.0	10.0	1	9		9.5		
10.0	11.0	1	10	E.O.H at 10.85m b.g.l	10.5	(4.70m-10.85m)	
11.0	12.0	1	11		11.5		
12.0	13.0	1	12		12.5	Note - 3.50m length of plain + 7.35m length of slotted	
13.0	14.0	1	13		13.5		
14.0	15.0	1	14		14.5		
15.0	16.0	1	15		15.5		
16.0	17.0	1	16		16.5		
17.0	18.0	1	17		17.5		
18.0	19.0	1	18		18.5		
19.0	20.0	1	19		19.5		
20.0	21.0	1	20		20.5		
21.0	22.0	1	21		21.5		
22.0	23.0	1	22		22.5		
23.0	24.0	1	23		23.5		
24.0	25.0	1	24		24.5		
25.0	26.0	1	25		25.5		
26.0	27.0	1	26		26.5		
27.0	28.0	1	27		27.5		
28.0	29.0	1	28		28.5		
29.0	30.0	1	29		29.5		
30.0	31.0	1	30		30.5		
31.0	32.0	1	31		31.5		

DRILLING REPORT						Well Number: BHA7	
CQA INSPECTOR:- KAY ADEDOTUN							
CLIENT: P.CASEY & CO						Site: Kirkheaton	
Date: 01/06/2015		Installation Details				Target Depth (m): 13.36	
Drilling Rig type: BARETTA T61		Solid AGL (m): 0.40		Actual Depth (m): 13.36			
Extruder Dimensions: 150mm		Solid BGL (m): 1.50		Dip Level (mBGL): 13.36			
Auger Dimensions:		Perforated BGL (m): 11.86		Dip Level (mBGL) after 24hrs			
Casing Dimensions: 150mm		Bentonite (m): 1.30		HDPE Casing Dimensions: 50mm			
		Gravel (m): 12.06					
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION			STRATA	
			m		m		
	+1.0	1	+1		+0.5		
0.0	0.0	0	0	Ground Level		GL	GL
0.0			0	Turf over TOPSOIL		Top Soil(0.00m-0.30m)	Backfill Details
1.0	1.0	1	1	CLAY	0.5	Clay (0.30m-1.30m)	Bentonite seal (0.0m-1.30m)
2.0	2.0	1	2	Yellowish brown MUDSTONE	1.5	Yellowish brown mudstone (1.30m-2.80m)	Pea gravel (1.30m-13.36m)
3.0	3.0	1	3		2.5		
4.0	4.0	1	4		3.5		
5.0	5.0	1	5	Grey MUDSTONE with sandstone band	4.5	Grey mudstone with sandstone band (2.80m-6.60m)	
6.0	6.0	1	6		5.5		
7.0	7.0	1	7		6.5		
8.0	8.0	1	8	Light grey SANDSTONE with siltstone band	7.5		
9.0	9.0	1	9		8.5	Light grey sandstone with siltstone band	
10.0	10.0	1	10		9.5		
11.0	11.0	1	11		10.5		
12.0	12.0	1	12		11.5		
13.0	13.0	1	13	E.O.H at 13.36m b.g.l	12.5	(6.60m-13.36m)	
14.0	14.0	1	14		13.5		
15.0	15.0	1	15		14.5		
16.0	16.0	1	16		15.5		
17.0	17.0	1	17		16.5	Note 1.50m length of plain+ 11.86m length of slotted	
18.0	18.0	1	18		17.5		
19.0	19.0	1	19		18.5		
20.0	20.0	1	20		19.5		
21.0	21.0	1	21		20.5		
22.0	22.0	1	22		21.5		
23.0	23.0	1	23		22.5		
24.0	24.0	1	24		23.5		
25.0	25.0	1	25		24.5		
26.0	26.0	1	26		25.5		
27.0	27.0	1	27		26.5		
28.0	28.0	1	28		27.5		
29.0	29.0	1	29		28.5		
30.0	30.0	1	30		29.5		
31.0	31.0	1	31		30.5		
	32↓				31.5		

DRILLING REPORT					Well Number: BHA8	
CQA INSPECTOR:- KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Kirkheaton	
Date: 04/06/2015		Installation Details			Target Depth (m): 24.34	
Drilling Rig type: BARETTA T51		Solid AGL (m): 0.40		Actual Depth (m): 24.34		
Extruder Dimensions: 160mm		Solid BGL (m): 7.60		Dip Level (mBGL): 24.34		
Auger Dimensions:		Perforated BGL (m): 16.84		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 160mm		Bentonite (m): 7.00		HDPE Casing Dimensions: 60mm		
		Gravel (m): 17.34				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1		+0.5	
0.0	0.0	0	0	Ground Level		GL
0.0			0	Soil and brick MADEGROUND		GL
1.0	1.0	1	1		0.5	Backfill Details
2.0	2.0	1	2		1.5	Bentonite seal (0.00m-7.00m)
3.0	3.0	1	3		2.5	
4.0	4.0	1	4		3.5	
5.0	5.0	1	5	Grey MUDSTONE	4.5	(0.00m-4.40m)
6.0	6.0	1	6		5.5	Gray mudstone
7.0	7.0	1	7	COAL	6.5	(4.40m-6.10m)
8.0	8.0	1	8		7.5	coal
9.0	9.0	1	9		8.5	(6.10m-6.70m)
10.0	10.0	1	10		9.5	
11.0	11.0	1	11		10.5	
12.0	12.0	1	12		11.5	
13.0	13.0	1	13		12.5	
14.0	14.0	1	14		13.5	
15.0	15.0	1	15	Grey MUDSTONE with sandstone bands	14.5	
16.0	16.0	1	16		15.5	grey mudstone with sandstone bands
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20		19.5	
21.0	21.0	1	21		20.5	
22.0	22.0	1	22	Grey SANDSTONE	21.5	(6.70m-21.80m)
23.0	23.0	1	23		22.5	Gray sandstone
24.0	24.0	1	24		23.5	(21.80m-24.34m)
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29	E.O.H at 24.34m b.g.l	28.5	
30.0	30.0	1	30		29.5	Notes: 7.00m length of plain +17.34m of slotted Water entry at 14.00m
31.0	31.0	1	31		30.5	
	32↓				31.5	

DRILLING REPORT					Well Number: BHA8A	
CQA INSPECTOR:- KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Kirkheaton	
Date: 04/06/2016		Installation Details			Target Depth (m): 7.00	
Drilling Rig type: BARETTA T61		Solid AGL (m): 0.40		Actual Depth (m): 7.00		
Extruder Dimensions: 150mm		Solid BGL (m): 5.00		Dip Level (mBGL): 7.00		
Auger Dimensions:		Perforated BGL (m): 2.00		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 150mm		Bentonite (m): 4.50		HDPE Casing Dimensions: 50mm		
		Gravel (m): 2.50				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1		+0.5	
0.0	0.0	0	0	Ground Level		GL
0.0			0			GL
1.0	1.0	1	1	Soil and brick MADEGROUND	0.5	Backfill Details
2.0	2.0	1	2		1.5	Bentonite seal (0.00m-4.50m)
3.0	3.0	1	3		2.5	
4.0	4.0	1	4		3.5	
5.0	5.0	1	5	Grey MUDSTONE	4.5	(0.00m-4.40m)
6.0	6.0	1	6	COAL	5.5	Grey mudstone (4.40m- 6.10m)
7.0	7.0	1	7	Grey MUDSTONE with sandstone bands	6.5	coal(6.10m - 6.70m)
8.0	8.0	1	8		7.5	Pea gravel (4.50m-7.00m)
9.0	9.0	1	9		8.5	
10.0	10.0	1	10		9.5	
11.0	11.0	1	11	E.O.H at 7.00m b.g.l	10.5	Note - 5.00m length of plain + 2.00m length of slotted
12.0	12.0	1	12		11.5	
13.0	13.0	1	13		12.5	
14.0	14.0	1	14		13.5	
15.0	15.0	1	15		14.5	
16.0	16.0	1	16		15.5	
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20		19.5	
21.0	21.0	1	21		20.5	
22.0	22.0	1	22		21.5	
23.0	23.0	1	23		22.5	
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29		28.5	
30.0	30.0	1	30		29.5	
31.0	31.0	1	31		30.5	
	32↓				31.5	



DRILLING REPORT					Well Number: BHA9	
CQA INSPECTOR:- KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Kirkheaton	
Date: 03/06/2016		Installation Details			Target Depth (m): 28.58	
Drilling Rig type: BARETTA T61		Solid AGL (m): 0.40		Actual Depth (m): 28.58		
Extruder Dimensions: 160mm		Solid BGL (m): 3.00		Dip Level (mBGL): 28.58		
Auger Dimensions:		Perforated BGL (m): 24.00		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 160mm		Bentonite (m): 2.50		HDPE Casing Dimensions: 50mm		
		Gravel (m): 24.50				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1			
0.0	0.0	0	0	Ground Level	+0.5	
0.0			0	Soil and brick MADEGROUND		GL
1.0	1.0	1	1		0.5	Backfill Details
2.0	2.0	1	2		1.5	Bentonite seal (0.00m-2.50m)
3.0	3.0	1	3	Yellowish brown MUDSTONE	2.5	Pea Gravel (2.50m -27.00m)
4.0	4.0	1	4		3.5	
5.0	5.0	1	5		4.5	
6.0	6.0	1	6		5.5	
7.0	7.0	1	7		6.5	
8.0	8.0	1	8		7.5	
9.0	9.0	1	9		8.5	
10.0	10.0	1	10		9.5	
11.0	11.0	1	11		10.5	
12.0	12.0	1	12		11.5	
13.0	13.0	1	13		12.5	
14.0	14.0	1	14		13.5	
15.0	15.0	1	15		14.5	
16.0	16.0	1	16	Grey MUDSTONE with sandstone bands	15.5	grey mudstone with sandstone bands
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20		19.5	
21.0	21.0	1	21		20.5	
22.0	22.0	1	22		21.5	
23.0	23.0	1	23		22.5	
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	(4.90m- 27.20m)
28.0	28.0	1	28	COAL	27.5	coal (27.20m-27.80m)
29.0	29.0	1	29	Grey MUDSTONE with sandstone bands	28.5	(27.80m-28.58m)
30.0	30.0	1	30	E.O.H at 28.58 b.g.l	29.5	Notes: Bentonite from bottom of hole to 27.00m b.g.l
31.0	31.0	1	31		30.5	3.00m length of plain +24.00m of slotted
	32↓				31.5	Bentonite at bottom of hole from 27.00m-28.58m

## Borehole Construction Record

CQA Plan :	Geosys Contractors	<u>Installed 50mm HDPE</u>
Client /Site:	Kirkheaton Landfill Site	
Borehole Reference:	<b>A10</b>	3.00m Plain over 29.09m Perforated
Purpose of Borehole:	Gas Extraction/Control	
Drilling Equipment Used:	Berreta T51	
Drilling Company/Foreman Driller	Danbar Drilling	
Date/Time Installation Started:	09/06/2015-0930	
Date/Time Installation Completed:	09/06/2015-1330	<b>Total HDPE = 32.09m</b>
Ground Level (GL) m AOD		

Well Installation (Not To Scale)		Borehole Log		
		Depth from (m)	Depth to (m)	Description
<p>0.40m Stick up</p> <p>HDPE BGL</p> <p>2.50m</p> <p>Bentonite seal</p> <p>3.00m plain b.g.l</p> <p>over 29.09m of gravel pack</p> <p>over 29.09m slotted b.g.l</p> <p>Push fit End cap</p> <p>Installation Depth 32.09m</p>		0.00	0.30	Turf over TOPSOIL
		0.30	7.80	Yellowish brown MUDSTONE with sandstone bands
		7.80	23.9	Grey MUDSTONE with sandstone bands
		23.90	32.09	Grey SANDSTONE with mudstone bands

DRILLING REPORT					Well Number: BHA12	
CQA INSPECTOR:- KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Kirkheaton	
Date: 11/06/2016		Installation Details			Target Depth (m): 25.62	
Drilling Rig type: BARETTA T51		Solid AGL (m): 0.40		Actual Depth (m): 26.62		
Extruder Dimensions: 150mm		Solid BGL (m): 1.60		Dip Level (mBGL): 25.62		
Auger Dimensions:		Perforated BGL (m): 24.02		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 150mm		Bentonite (m): 1.20		HDPE Casing Dimensions: 50mm		
		Gravel (m): 24.42				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1			
0.0	0.0	0	0	Ground Level	+0.5	GL
0.0			0			GL
1.0	1.0	1	1	Yellowish brown MUDSTONE	0.5	Yellowish brown mudstone
2.0	2.0	1	2		1.5	
3.0	3.0	1	3		2.5	(0.00m-2.60m)
4.0	4.0	1	4		3.5	
5.0	5.0	1	5		4.5	
6.0	6.0	1	6		5.5	
7.0	7.0	1	7		6.5	
8.0	8.0	1	8		7.5	
9.0	9.0	1	9		8.5	
10.0	10.0	1	10	Grey MUDSTONE with sandstone bands	9.5	Grey mudstone with sandstone bands
11.0	11.0	1	11		10.5	
12.0	12.0	1	12		11.5	
13.0	13.0	1	13		12.5	
14.0	14.0	1	14		13.5	
15.0	15.0	1	15		14.5	
16.0	16.0	1	16		15.5	
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20		19.5	(2.80m-19.30m)
21.0	21.0	1	21		20.5	
22.0	22.0	1	22		21.5	
23.0	23.0	1	23	Grey SANDSTONE with mudstone bands	22.5	Grey sandstone with mudstone bands
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	(19.30m-25.62m)
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29	E.O.H at 25.62m b.g.l	28.5	
30.0	30.0	1	30		29.5	Notes: 1.60mm length of plain +24.02m of slotted Water entry at 3m and 14m
31.0	31.0	1	31		30.5	
	32↓				31.5	

DRILLING REPORT					Well Number: BHA13	
CQA INSPECTOR:- KAY ADEDOTUN					Site: Kirkheaton	
CLIENT: P.CASEY & CO					Target Depth (m): 18.76	
Date: 29/05/2016		Installation Details			Actual Depth (m): 18.76	
Drilling Rig type: BARETTA T51		Solid AGL (m): 0.40		Dip Level (mBGL): 18.76		
Extruder Dimensions: 160mm		Solid BGL (m): 1.60		Dip Level (mBGL) after 24hrs		
Auger Dimensions:		Perforated BGL (m): 17.16		HDPE Casing Dimensions: 50mm		
Casing Dimensions: 160mm		Bentonite (m): 1.65				
		Gravel (m): 17.21				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1			
0.0	0.0	0	0	Ground Level	+0.5	GL
0.0			0			GL
1.0	1.0	1	1	Clay and rock backfill	0.5	Backfill Details
2.0	2.0	1	2		1.5	Bentonite seal (0.0m-1.55m)
3.0	3.0	1	3	Yellowish brown MUDSTONE	2.5	Pea Gravel (1.55m -18.76m)
4.0	4.0	1	4		3.5	
5.0	5.0	1	5		4.5	
6.0	6.0	1	6	Grey MUDSTONE with sandstone band	5.5	
7.0	7.0	1	7		6.5	
8.0	8.0	1	8		7.5	
9.0	9.0	1	9		8.5	
10.0	10.0	1	10		9.5	
11.0	11.0	1	11		10.5	
12.0	12.0	1	12		11.5	
13.0	13.0	1	13		12.5	
14.0	14.0	1	14	Light grey SANDSTONE	13.5	
15.0	15.0	1	15		14.5	
16.0	16.0	1	16		15.5	
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20		19.5	
21.0	21.0	1	21		20.5	Note: 1.60m length of plain+17.16m length of slotted
22.0	22.0	1	22		21.5	
23.0	23.0	1	23		22.5	
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29		28.5	
30.0	30.0	1	30		29.5	
31.0	31.0	1	31		30.5	
	32↓				31.5	



DRILLING REPORT					Well Number: BHA14	
CQA INSPECTOR:- KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Kirkheaton	
Date: 29/05/2015		Installation Details			Target Depth (m): 13.10	
Drilling Rig type: BARETTA T51		Solid AGL (m): 0.40		Actual Depth (m): 13.10		
Extruder Dimensions: 160mm		Solid BGL (m): 1.60		Dip Level (mBGL): 13.10		
Auger Dimensions:		Perforated BGL (m): 11.50		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 150mm		Bentonite (m): 1.55		HDPE Casing Dimensions: 50mm		
		Gravel (m): 11.55				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1			
0.0	0.0	0	0	Ground Level	+0.5	GL
0.0			0			GL
1.0	1.0	1	1	Clay and rock backfill	0.5	Backfill Details
2.0	2.0	1	2	Yellowish brown MUDSTONE	1.5	Bentonite seal (0.0m-1.55m)
3.0	3.0	1	3		2.5	Pea Gravel (1.55m -13.10m)
4.0	4.0	1	4		3.5	
5.0	5.0	1	5		4.5	
6.0	6.0	1	6	Grey MUDSTONE with sandstone band	5.5	Grey mudstone with sandstone band
7.0	7.0	1	7		6.5	
8.0	8.0	1	8		7.5	(1.30m-7.50m)
9.0	9.0	1	9		8.5	
10.0	10.0	1	10	Light grey SANDSTONE	9.5	Light grey sandstone
11.0	11.0	1	11		10.5	
12.0	12.0	1	12		11.5	
13.0	13.0	1	13		12.5	(7.50m-13.10m)
14.0	14.0	1	14		13.5	
15.0	15.0	1	15		14.5	
16.0	16.0	1	16		15.5	Note: 1.60m length of plain+ 11.50m length of slotted
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20		19.5	
21.0	21.0	1	21		20.5	
22.0	22.0	1	22		21.5	
23.0	23.0	1	23		22.5	
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29		28.5	
30.0	30.0	1	30		29.5	
31.0	31.0	1	31		30.5	
	32↓				31.5	

DRILLING REPORT					Well Number: BHA15 SHALLOW INSTALTN	
CQA INSPECTOR:- KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Kirkheaton	
Date: 08/06/2015		Installation Details			Target Depth (m): 15.00	
Drilling Rig type: BARETTA T61		Solid AGL (m): 0.40		Actual Depth (m): 15.00		
Extruder Dimensions: 200mm		Solid BGL (m): 1.50		Dip Level (mBGL): 15.00		
Auger Dimensions:		Perforated BGL (m): 7.25		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 200mm		Bentonite (m): 2.55		HDPE Casing Dimensions: 50mm		
		Gravel (m): 12.45				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1		+0.5	
0.0	0.0	0	0	Ground Level		GL
0.0			0			GL
1.0	1.0	1	1	Soil and brick MADEGROUND	0.5	madeground (0.00m-0.80m)
2.0	2.0	1	2	Yellowish brown MUDSTONE	1.5	
3.0	3.0	1	3		2.5	Yellowish brown mudstone
4.0	4.0	1	4		3.5	(0.80m-3.80m)
5.0	5.0	1	5		4.5	
6.0	6.0	1	6		5.5	
7.0	7.0	1	7		6.5	
8.0	8.0	1	8	Grey MUDSTONE	7.5	Grey MUDSTONE
9.0	9.0	1	9		8.5	
10.0	10.0	1	10		9.5	Bentonite (8.75m-10.50m)
11.0	11.0	1	11		10.5	
12.0	12.0	1	12		11.5	
13.0	13.0	1	13	COAL	12.5	Coal (12.60m-13.60m)
14.0	14.0	1	14	Grey MUDSTONE with sandstone bands	13.5	Grey mudstone with sandstones bands (13.60m-15.00m)
15.0	15.0	1	15		14.5	
16.0	16.0	1	16		15.5	
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20	E.O.H at 15.00m b.g.l	19.5	
21.0	21.0	1	21		20.5	Note: 1.50m length of plain+ 7.25m length of slotted
22.0	22.0	1	22		21.5	
23.0	23.0	1	23		22.5	
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29		28.5	
30.0	30.0	1	30		29.5	
31.0	31.0	1	31		30.5	
	32↓				31.5	

DRILLING REPORT					Well Number: BHA15 DEEP INSTALLATION		
CQA INSPECTOR:- KAY ADEDOTUN							
CLIENT: P.CASEY & CO					Site: Kirkheaton		
Date: 08/06/2015		Installation Details			Target Depth (m): 15.00		
Drilling Rig type: BARETTA T51		Solid AGL (m): 0.40		Actual Depth (m): 15.00			
Extruder Dimensions: 200mm/150mm		Solid BGL (m): 10.50		Dip Level (mBGL): 15.00			
Auger Dimensions:		Perforated BGL (m): 4.50		Dip Level (mBGL) after 24hrs			
Casing Dimensions: 200mm		Bentonite (m): 2.55		HDPE Casing Dimensions: 50mm			
		Gravel (m): 12.45					
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA		
			m		m		
	+1.0	1	+1				
0.0	0.0	0	0	Ground Level	+0.5		
0.0			0				
1.0	1.0	1	1	Soil and brick MADEGROUND	0.5	GL	
2.0	2.0	1	2	Yellowish brown MUDSTONE	1.5	GL	
3.0	3.0	1	3		2.5	Backfill Details	
4.0	4.0	1	4		3.5	Bentonite seal (0.0m-1.30m)	
5.0	5.0	1	5		4.5	Pea Gravel (1.30m-8.75m)	
6.0	6.0	1	6	Grey MUDSTONE	5.5	Pea Gravel (1.30m-8.75m)	
7.0	7.0	1	7		6.5		
8.0	8.0	1	8		7.5		
9.0	9.0	1	9		8.5		
10.0	10.0	1	10	COAL	9.5	Bentonite (8.75m-10.50m)	
11.0	11.0	1	11		10.5		
12.0	12.0	1	12		11.5		
13.0	13.0	1	13		12.5	Pea Gravel (10.50m-15.00m)	
14.0	14.0	1	14	Grey MUDSTONE with sandstone bands	13.5		
15.0	15.0	1	15		14.5		
16.0	16.0	1	16	E.O.H at 15.00m b.g.l	15.5		
17.0	17.0	1	17		16.5		
18.0	18.0	1	18		17.5		
19.0	19.0	1	19		18.5		
20.0	20.0	1	20		19.5		
21.0	21.0	1	21		20.5	Note: 10.50m length of plain+ 4.50m length of slotted	
22.0	22.0	1	22		21.5		
23.0	23.0	1	23		22.5		
24.0	24.0	1	24		23.5		
25.0	25.0	1	25		24.5		
26.0	26.0	1	26		25.5		
27.0	27.0	1	27		26.5		
28.0	28.0	1	28		27.5		
29.0	29.0	1	29		28.5		
30.0	30.0	1	30		29.5		
31.0	31.0	1	31		30.5		
	32↓			31.5			

DRILLING REPORT						Well Number: BHA16	
CQA INSPECTOR:- KAY ADEDOTUN							
CLIENT: P.CASEY & CO						Site: Kirkheaton	
Date: 01/06/2015			Installation Details			Target Depth (m): 6.57	
Drilling Rig type: BARETTA T51			Solid AGL (m): 0.40			Actual Depth (m): 6.57	
Extruder Dimensions: 150mm			Solid BGL (m): 1.60			Dip Level (mBGL): 6.57	
Auger Dimensions:			Perforated BGL (m): 4.97			Dip Level (mBGL) after 24hrs	
Casing Dimensions: 150mm			Bentonite (m): 1.55			HDPE Casing Dimensions: 50mm	
			Gravel (m): 5.02				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION			STRATA	
			m		m		
	+1.0	1	+1				
0.0	0.0	0	0	Ground Level	+0.5	GL	GL
0.0	1.0	1	1	Clay and rock MADEGROUND		(0.00m-0.20m)	Backfill Details
1.0	2.0	1	2	Brick fill	0.5	Brick fill (0.20m -1.40m)	Bentonite seal (0.00m-1.55m)
2.0	3.0	1	3	Yellowish brown MUDSTONE	1.5	Yellowish brown mudstone (1.40m-2.80m)	Pea Gravel (1.55m -6.57m)
3.0	4.0	1	4	Grey MUDSTONE with sandstone band	2.5		
4.0	5.0	1	5		3.5		
5.0	6.0	1	6		4.5	Grey mudstone with sandstone band	
6.0	7.0	1	7	E.O.H at 6.57m b.g.l	5.5	(2.80m-6.57m)	
7.0	8.0	1	8		6.5		
8.0	9.0	1	9		7.5		Note 1.60m length of plain+4.97m length of slotted
9.0	10.0	1	10		8.5		
10.0	11.0	1	11		9.5		
11.0	12.0	1	12		10.5		
12.0	13.0	1	13		11.5		
13.0	14.0	1	14		12.5		
14.0	15.0	1	15		13.5		
15.0	16.0	1	16		14.5		Note: 1.60m length of plain+ 11.50m length of slotted
16.0	17.0	1	17		15.5		
17.0	18.0	1	18		16.5		
18.0	19.0	1	19		17.5		
19.0	20.0	1	20		18.5		
20.0	21.0	1	21		19.5		
21.0	22.0	1	22		20.5		
22.0	23.0	1	23		21.5		
23.0	24.0	1	24		22.5		
24.0	25.0	1	25		23.5		
25.0	26.0	1	26		24.5		
26.0	27.0	1	27		25.5		
27.0	28.0	1	28		26.5		
28.0	29.0	1	29		27.5		
29.0	30.0	1	30		28.5		
30.0	31.0	1	31		29.5		
31.0	32.0	1	32		30.5		
					31.5		



DRILLING REPORT						Well Number: BHA17	
CQA INSPECTOR:- KAY ADEDOTUN							
CLIENT: P.CASEY & CO						Site: Kirkheaton	
Date: 01/06/2015			Installation Details			Target Depth (m): 6.48	
Drilling Rig type: BARETTA T51			Solid AGL (m): 0.40		Actual Depth (m): 6.48		
Extruder Dimensions: 150mm			Solid BGL (m): 1.60		Dip Level (mBGL): 6.48		
Auger Dimensions:			Perforated BGL (m): 4.88		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 150mm			Bentonite (m): 1.55		HDPE Casing Dimensions: 50mm		
			Gravel (m): 4.93				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION			STRATA	
			m		m		
	+1.0	1	+1		+0.5		
0.0	0.0	0	0	Ground Level		GL	GL
0.0			0	Clay and rock MADEGROUND	(0.00m-0.40m)	Backfill Details	
1.0	1.0	1	1	Brick fill	0.5 (0.20m -1.90m)	Bentonite seal (0.00m-1.55m)	
2.0	2.0	1	2	Yellowish brown MUDSTONE	1.5 (1.90m-2.20m)	Pea Gravel (1.55m -6.48m)	
3.0	3.0	1	3	Grey MUDSTONE with sandstone band	2.5		
4.0	4.0	1	4		3.5		
5.0	5.0	1	5		4.5		
6.0	6.0	1	6	E.O.H at 6.48m b.g.l	5.5 (2.80m-6.48m)		
7.0	7.0	1	7		6.5	Note 1.60m length of plain+4.88m length of slotted	
8.0	8.0	1	8		7.5		
9.0	9.0	1	9		8.5		
10.0	10.0	1	10		9.5		
11.0	11.0	1	11		10.5		
12.0	12.0	1	12		11.5	Note: 1.60m length of plain+ 11.50m length of slotted	
13.0	13.0	1	13		12.5		
14.0	14.0	1	14		13.5		
15.0	15.0	1	15		14.5		
16.0	16.0	1	16		15.5		
17.0	17.0	1	17		16.5		
18.0	18.0	1	18		17.5		
19.0	19.0	1	19		18.5		
20.0	20.0	1	20		19.5		
21.0	21.0	1	21		20.5		
22.0	22.0	1	22		21.5		
23.0	23.0	1	23		22.5		
24.0	24.0	1	24		23.5		
25.0	25.0	1	25		24.5		
26.0	26.0	1	26		25.5		
27.0	27.0	1	27		26.5		
28.0	28.0	1	28		27.5		
29.0	29.0	1	29		28.5		
30.0	30.0	1	30		29.5		
31.0	31.0	1	31		30.5		
32.0	32.0	1	32		31.5		

DRILLING REPORT					Well Number: A18 SHALLOW INSTALLATN	
CQA INSPECTOR:- KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Kirkheaton	
Date: 05/06/2015		Installation Details			Target Depth (m): 15.40	
Drilling Rig type: BARETTA T51		Solid AGL (m): 0.40		Actual Depth (m): 15.40		
Extruder Dimensions: 200mm		Solid BGL (m): 1.50		Dip Level (mBGL): 15.40		
Auger Dimensions:		Perforated BGL (m): 6.90		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 200mm		Bentonite (m): 2.40		HDPE Casing Dimensions: 50mm		
		Gravel (m): 13.00				
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1			
0.0	0.0	0	0	Ground Level	+0.5	GL
0.0			0			GL
1.0	1.0	1	1	Soil and brick MADEGROUND	0.5	Backfill Details
2.0	2.0	1	2		1.5	Bentonite seal (0.0m-1.30m)
3.0	3.0	1	3		2.5	Pea Gravel (1.30m-8.40m)
4.0	4.0	1	4		3.5	
5.0	5.0	1	5		4.5	
6.0	6.0	1	6		5.5	(0.00m-6.30m)
7.0	7.0	1	7		6.5	
8.0	8.0	1	8	Yellowish brown MUDSTONE with sandstone bands	7.5	Yellowish brown mudstone with sandstone bands
9.0	9.0	1	9		8.5	Bentonite (8.40m-9.50m)
10.0	10.0	1	10		9.5	
11.0	11.0	1	11	Grey MUDSTONE	10.5	(6.30m-10.40m)
12.0	12.0	1	12		11.5	Grey mudstone (10.40m-12.10m)
13.0	13.0	1	13	Grey SANDSTONE	12.5	Grey sandstone (12.10m-13.60m)
14.0	14.0	1	14		13.5	
15.0	15.0	1	15	Grey MUDSTONE	14.5	Grey mudstone (13.60m-15.40m)
16.0	16.0	1	16		15.5	
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20	E.O.H at 15.40m b.g.l	19.5	Note: 1.50m length of plain+.6.90m length of slotted
21.0	21.0	1	21		20.5	
22.0	22.0	1	22		21.5	
23.0	23.0	1	23		22.5	
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29		28.5	
30.0	30.0	1	30		29.5	
31.0	31.0	1	31		30.5	
	32↓				31.5	

DRILLING REPORT					Well Number: BHA18 DEEP INSTALLATION	
CQA INSPECTOR:- KAY ADEDOTUN						
CLIENT: P.CASEY & CO					Site: Kirkheaton	
Date: 08/06/2015		Installation Details			Target Depth (m): 15.40	
Drilling Rig type: BARETTA T61		Solid AGL (m):		Actual Depth (m): 15.40		
Extruder Dimensions: 200mm/150mm		Solid BGL (m):		Dip Level (mBGL): 15.40		
Auger Dimensions:		Perforated BGL (m):		Dip Level (mBGL) after 24hrs		
Casing Dimensions: 200mm		Bentonite (m):		HDPE Casing Dimensions: 50mm		
		Gravel (m):		13.00		
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION		STRATA	
			m		m	
	+1.0	1	+1			
0.0	0.0	0	0	Ground Level	+0.5	GL
0.0			0			GL
1.0	1.0	1	1	Soil and brick MADEGROUND	0.5	Backfill Details
2.0	2.0	1	2		1.5	Bentonite seal (0.0m-1.30m)
3.0	3.0	1	3		2.5	Pea Gravel (1.00m-8.40m)
4.0	4.0	1	4		3.5	
5.0	5.0	1	5		4.5	
6.0	6.0	1	6		5.5	(0.00m-6.30m)
7.0	7.0	1	7		6.5	
8.0	8.0	1	8	Yellowish brown MUDSTONE with sandstone bands	7.5	Yellowish brown mudstone with sandstone bands
9.0	9.0	1	9		8.5	
10.0	10.0	1	10		9.5	Bentonite (8.40m-9.50m)
11.0	11.0	1	11	Grey MUDSTONE	10.5	
12.0	12.0	1	12		11.5	(6.30m-10.40m)
13.0	13.0	1	13	Grey SANDSTONE	12.5	Grey sandstone (12.10m-13.60m)
14.0	14.0	1	14		13.5	
15.0	15.0	1	15	Grey MUDSTONE	14.5	Grey mudstone (13.60m-15.40m)
16.0	16.0	1	16		15.5	
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20	E.O.H at 15.40m b.g.l	19.5	Note: 10.00m length of plain+5.40m length of slotted
21.0	21.0	1	21		20.5	
22.0	22.0	1	22		21.5	
23.0	23.0	1	23		22.5	
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29		28.5	
30.0	30.0	1	30		29.5	
31.0	31.0	1	31		30.5	
	32↓				31.5	

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DRILLING REPORT						Well Number: A20 SHALLOW INSTALLATN		
CQA INSPECTOR:- KAY ADEDOTUN						Site: Kirkheaton		
CLIENT: P.CASEY & CO						Target Depth (m): 15.40		
Date: 05/06/2015		Installation Details				Actual Depth (m): 15.40		
Drilling Rig type: BARETTA T51		Solid AGL (m): 0.40		Dip Level (mBGL): 15.40		Dip Level (mBGL) after 24hrs		
Extruder Dimensions: 150mm		Solid BGL (m): 2.40		HDPE Casing Dimensions: 50mm				
Auger Dimensions:		Perforated BGL (m): 6.00						
Casing Dimensions: 150mm		Bentonite (m): 3.30						
		Gravel (m): 12.10						
Depth From (m)	Depth To (m)	Interval (m)	DESCRIPTION			STRATA		
			m		m			
	+1.0	1	+1					
0.0	0.0	0	0	Ground Level	+0.5	GL	GL	
0.0	1.0	1	0	Soil and brick MADEGROUND	0.5	Soil and brick madeground	Backfill Details	
1.0	2.0	1	1		1.5		Bentonite seal (0.0m-2.20m)	
2.0	3.0	1	2		2.5		Pea Gravel (2.20m-8.40m)	
3.0	4.0	1	3		3.5			
4.0	5.0	1	4		4.5			
5.0	6.0	1	5		5.5		(0.00m-6.40m)	
6.0	7.0	1	6	Yellowish brown MUDSTONE with sandstone bands	6.5	Yellowish brown mudstone with sandstone bands		
7.0	8.0	1	7		7.5			
8.0	9.0	1	8		8.5			
9.0	10.0	1	9		9.5		Bentonite (8.40m-9.50m)	
10.0	11.0	1	10	Grey MUDSTONE	10.5	(6.90m-11.90m)	Pea Gravel (9.50m-15.40m)	
11.0	12.0	1	11		11.5			
12.0	13.0	1	12		12.5			Grey mudstone
13.0	14.0	1	13	Light grey SANDSTONE	13.5	(11.90m-13.70m)		
14.0	15.0	1	14		14.5			Light grey sandstone (13.70m-15.40m)
15.0	16.0	1	15	E.O.H at 15.40m b.g.l	15.5	Note: 2.40m length of plain+6.00m length of slotted		
16.0	17.0	1	16		16.5			
17.0	18.0	1	17		17.5			
18.0	19.0	1	18		18.5			
19.0	20.0	1	19		19.5			
20.0	21.0	1	20		20.5			
21.0	22.0	1	21		21.5			
22.0	23.0	1	22		22.5			
23.0	24.0	1	23		23.5			
24.0	25.0	1	24		24.5			
25.0	26.0	1	25		25.5			
26.0	27.0	1	26		26.5			
27.0	28.0	1	27		27.5			
28.0	29.0	1	28		28.5			
29.0	30.0	1	29		29.5			
30.0	31.0	1	30	30.5				
31.0	32↓	1	31	31.5				

DRILLING REPORT					Well Number: BHA20 DEEP INSTALLATION	
CQA INSPECTOR:- KAY ADEDOTUN					Site: Klrkheaton	
CLIENT: P.CASEY & CO					Target Depth (m): 15.40	
Date: 05/06/2015		Installation Details			Actual Depth (m): 15.40	
Drilling Rig type: BARETTA T61		Solid AGL (m):		0.40		
Extruder Dimensions: 200mm		Solid BGL (m):		10.00		
Auger Dimensions:		Perforated BGL (m):		5.40		
Casing Dimensions: 200mm		Bentonite (m):		3.30		
		Gravel (m):		12.10		
Depth From (m)		Depth To (m)	Interval (m)	DESCRIPTION	STRATA	
			m		m	
	+1.0	1	+1			
0.0	0.0	0	0	Ground Level	+0.5	
0.0			0			GL
1.0	1.0	1	1	Soil and brick MADEGROUND	0.5	Soil and brick madeground
2.0	2.0	1	2		1.5	
3.0	3.0	1	3		2.5	
4.0	4.0	1	4		3.5	
5.0	5.0	1	5		4.5	
6.0	6.0	1	6		5.5	(0.00m-6.40m)
7.0	7.0	1	7		6.5	
8.0	8.0	1	8	Yellowish brown MUDSTONE with sandstone bands	7.5	Yellowish brown mudstone with sandstone bands
9.0	9.0	1	9		8.5	
10.0	10.0	1	10		9.5	Bentonite (8.40m-9.50m)
11.0	11.0	1	11		10.5	
12.0	12.0	1	12		11.5	
13.0	13.0	1	13	Grey MUDSTONE	12.5	Grey mudstone
14.0	14.0	1	14		13.5	(11.90m-13.70m)
15.0	15.0	1	15	Light grey SANDSTONE	14.5	Light grey sandstone (13.70m-15.40m)
16.0	16.0	1	16		15.5	
17.0	17.0	1	17		16.5	
18.0	18.0	1	18		17.5	
19.0	19.0	1	19		18.5	
20.0	20.0	1	20	E.O.H at 15.40m b.g.l	19.5	Note: 10.00m length of plain+5.40m length of slotted
21.0	21.0	1	21		20.5	
22.0	22.0	1	22		21.5	
23.0	23.0	1	23		22.5	
24.0	24.0	1	24		23.5	
25.0	25.0	1	25		24.5	
26.0	26.0	1	26		25.5	
27.0	27.0	1	27		26.5	
28.0	28.0	1	28		27.5	
29.0	29.0	1	29		28.5	
30.0	30.0	1	30		29.5	
31.0	31.0	1	31		30.5	
	32↓				31.5	

## Borehole Construction Record

CQA Plan :	Geosys Contractors	<u>Installed 50mm HDPE</u>
Client /Site:	Kirkheaton Landfill Site	
Borehole Reference:	<b>BH7</b>	27.00m Plain over 11.50m Perforated
Purpose of Borehole:	Gas Extraction/Control	
Drilling Equipment Used:	Berreta T51	
Drilling Company/Foreman Driller	Danbar Drilling	
Date/Time Installation Started:	10/06/2015-0930	
Date/Time Installation Completed:	10/06/2015-1330	<b>Total HDPE = 38.50m</b>
Ground Level (GL) m AOD		

Well Installation (Not To Scale)		Borehole Log		
		Depth from (m)	Depth to (m)	Description
<p>22.80m of arising over 3.70m Bentonite</p> <p>12.00m gravel pack</p> <p>Push fit End cap</p> <p>Installation Depth 38.50m</p> <p>0.40m Stick up</p> <p>HDPE BGL</p> <p>27.00m plain b.g.l</p> <p>11.50m slotted b.g.l</p>		0.00	0.30	Turf over TOPSOIL
		0.30	7.60	Yellowish brown MUDSTONE with sandstone bands
		7.60	23.8	Grey MUDSTONE with sandstone bands
		23.80	37.40	Grey SANDSTONE with mudstone bands
		34.70	38.40	Broken ground possibly collapsed working
		38.40	38.50	Grey MUDSTONE