CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 69

PROJECT No: 39663C **DATE:** 02 Nov 07 SHEET 1 OF 1

	.	Description	jic T		Sam		& In Situ Testing	<u></u>	Dynamic Penetrometer Test
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
		Strata	0	F		Sar			5 10 15 20
	- 0.2	FILLING - Stiff grey mottled red silty clay, trace gravel (siltstone 1-2%), with abundant rootlets, humid		D, PID,	0.0		<1ppm 250kPa		
	-	FILLING - Generally comprising dark brown clayey silt, trace gravel (1%), trace rootlets, humid		D, A, PID, pp	0.2		<1ppm 80kPa		
	- 0.7	CLAYEY SILT - Soft brown clayey silt		A	0.8		Moist		
	- 1 - - -	from 1.1m, trace sand		A, pp	1.0		13 kPa, saturated		-1
	-	from 1.7m, dark brown with some sand and trace rootlets		A, pp	1.5 1.8 1.9		40kPa		
	-2 2.0 - -	CLAYEY SAND/SANDY CLAY - Soft grey clayey sand/sandy clay			2.3		40kPa		-2
	-	from 2.4m, with gravel and cobble inclusions		A, pp	2.5				
	2.9	Pit discontinued at 2.9m, refusal on sandstone							
	- 3 - - - - -								-3
	- 4 4								-4
	-								

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 70

PROJECT No: 39663C **DATE:** 02 Nov 07

SHEET 1 OF 1

Donth	Description	hic L		Sam		& In Situ Testing	_ h	Dynamic Penetrometer Test
z Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
	FILLING - Light grey clay filling, trace silt with some rootlets to 0.2m, dry			0.0 0.15	S	<1ppm 270kPa <1ppm 220kPa		
-1 - 1.1 - 1.4	FILLING - Generally comprising red brown clayey sandy gravel, predominately angular sandstone, trace sandstone cobbles, humid FILLING - Generally comprising clayey sandy gravel, gravel predominately sandstone with up to 20% sand and gravel sized coal/coal chitter, humid		D, PID,	1.2		<1ppm		-1
1.6	gravel sized coal/coal chitter, humid SANDSTONE - Low strength, weathered, light grey fine grained sandstone		pp D, PID, pp D, PID D, PID	1.7 1.8		<1ppm		
-3	Pit discontinued at 1.9m, refusal on sandstone			3.0				-2

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING: PROJECT No: 39663C **DATE:** 31 Oct 07

PIT No: 71

DIP/AZIMUTH: 90°/--SHEET 1 OF 1

		Description	. <u>c</u>		Sam	pling 8	& In Situ Testing		
귐	Depth (m)	of	Graphic Log	e e	th	ble	Results &	Water	Dynamic Penetrometer Test (blows per mm)
	(111)	Strata	<u>ن</u> _	Type	Depth	Sample	Results & Comments	>	5 10 15 20
	- 0.2	FILLING - Generally comprising dark brown gravelly clayey sand, fine grained sand with sub-angular sandstone gravel up to 10mm, trace rootlets, humid		D, PID	0.0		<1ppm		
	-	FILLING - Generally comprising black gravelly sand (coal), predominately up to 10mm, trace sandstone fragments up to 30mm, dry to humid		D, PID	0.3		<1ppm		
	0.65 - 0.8	SANDSTONE - Light grey, low to medium strength, extremely weathered fine grained sandstone	× ×)	D, PID	0.7 0.8		<1ppm		-
	- 0.0	Pit discontinued at 0.8m, refusal on sandstone			0.0				
	-1 -1								-1 -1
	- - - - -3 -								-3
	-4								-4

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **DATE:** 30 Oct 07 SHEET 1 OF 1

PROJECT No: 39663C

PIT No: 72

Dan		Description	는 일		San		& In Situ Testing	_ _	Dynamic	Panatr	omete	r Toc
Dep (m)		of	Graphic	Туре	Depth	Sample	Results & Comments	Water	(bl	ows per	mm)	. 163
		Strata	0	É,		Saı			5	10	15	20
	0.2	FILLING - Generally comprising dark brown sandy silt trace clay and angular gravel (coal chitter), abundant rootlets, dry to humid		D,PID	0.0 0.1		<1 ppm					
	0.4	FILLING - Generally comprising light grey sandy clay, trace rootlets, humid		D,PID	0.3 0.4		<1 ppm					
	0.4	FILLING - Generally comprising brown clayey silty sand with some subangular sandy gravel, coal chitter (5%), trace brick fragments and scrap metal / pipes (40mm diameter) and possible rail lines at 1.5m		D,PID	0.4 0.5 0.6		<1 ppm					
-1								-	-1			
				D,PID	1.3		21 ppm	-				
	1.7				1.5							
	1.7	FILLING - Generally comprising grey clayey medium grained sand with some gravel sized angular coal chitter (5%) and trace angular red-brown mudstone / siltstone, trace scrap metal pipes		D,PID	1.8		2 ppm					
-2		пасе зстар птетат рірез			2.0				-2			
	2.4	FILLING - Generally comprising grey silty clay, trace angular gravel (possible natural), moist						-				
				D,PID	2.7		<1 ppm	-				
3	2.9	Pit discontinued at 2.9m, due to scrap metal in overlying fill (1.3m to 1.5m) preventing further excavation			 2.9			-	-3			
								-				
								-				
· 4									-4			

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 73

PROJECT No: 39663C **DATE:** 30 Oct 07 SHEET 1 OF 1

		Description	. <u>S</u>		Sam	npling &	& In Situ Testing		
씸	Depth (m)	of	Graphic Log	эс	oth	Sample	Results &	Water	Dynamic Penetrometer Test (blows per mm)
	(***)	Strata	Ō	Туре	Depth	San	Results & Comments	>	5 10 15 20
	- 0.1 - -	FILLING - Brown silty sand, trace subrounded gravel, abundant rootlets, humid FILLING - Generally comprising fine light red fine grained gravelly clayey sand; gravel predominantly fine grained sandstone with fragments up to 40mm		D,PID	0.2 0.3		<1 ppm		
	- 0.6 - - - - 1 -	FILLING - Generally comprising black fine to coarse gravel sized coal chitter (70%) with some dark brown silt		D,PID	0.8		<1 ppm		-1
	-2 2	some inclusions of light red gravel sized sandstone with fragments up to 150mm at 1.4m to 3m							-2
	-3 3.0	Pit discontinued at 3.0m, limit of investigation							-4

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 74

PROJECT No: 39663C **DATE:** 30 Oct 07 SHEET 1 OF 1

	Description	ji T		Sam		& In Situ Testing		Dyna	mic Pene	tromoto	ar Toot
전 Depth (m)	Of Strate	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		(blows p	er mm)	
	Strata FILLING - Generally comprising dark brown-black silty gravelly sand, gravel predominantly coal / coal chitter (10%) and coked sandstone (10-15%), humid		D,PID	0.0 0.15	Se	<1 ppm		- :	10	15	20
0.3	FILLING - Light brown gravelly clayey silt, trace coal chitter (3%), up to 10mm		D,PID	0.3		<1 ppm					
0.65	FILLING - Generally comprising dark brown-black sandy silt with some gravel, some gravel sized coal chitter (5%) and coked sandstone (5%)to 30mm, humid		D,PID	0.8		<1 ppm		-			
-1 1.0	SANDSTONE - Low strength, extremely weathered, light brown mottled orange sandstone		D,PID	1.0 1.1 1.2		<1 ppm		-1			
1.45	grading to medium strength at 1.3m							-	<u> </u>		<u> </u>
-2	Pit discontinued at 1.45m, refusal on sandstone										
-4								-4			

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 75

PROJECT No: 39663C

DATE: 02 Nov 07 SHEET 1 OF 1

	D "	Description	je T		San		& In Situ Testing	<u></u>	Dynamic Penetrometer Test
Ζ	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
-		FILLING - Generally comprising dark brown/black sandy gravel, cobbles/minor clay inclusions up to 60% angular siltstone and gravelly cobbles (up to 150mm), some gravel sized coal chitter (<5%)		D, PID	0.3	65	21ppm		
-	0.9 - 1	FILLING - Generally comprising dark brown clayey sand, gravel cobbles, gravel and cobbles predominately (90%) siltstone, minor coal chitter (<5%), dry		D, PID	1.1		<1ppm		-1 -1
-	1.75	SILTY CLAY - Stiff orange brown mottled grey silty clay	111	D, PID,	1.8		<1ppm 310kPa		-2
-	2.7	from 2.3m, colour change to grey mottled red brown, becoming hard Pit discontinued at 2.7m, due to slow progress							
-	-3	Fit discontinued at 2.711, due to slow progress							-3 3
-	- 4								-4
-									

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 76

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description	از ا		San		& In Situ Testing		D and a Danatas mate	- T4
Ζ	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetromete (blows per mm)	er rest
	-	Strata FILLING - Generally comprising dark brown silty sand with some gravel sized coal / coal chitter (10%), abundant rootlets, humid		D,PID	0.1	Sa	<1 ppm		5 10 15	20
	-1	rootlets, humid FILLING - Generally comprising light red, fine to medium grained clayey sand / sandstone, gravel predominantly fine to medium grained sandstone, trace gravel sized fragments of siltstone from 1.7m, trace cobble sized fine grained sandstone fragments 100-300mm		D,PID	0.2		<1 ppm		-1 -122	
	-3 - 3.2	Pit discontinued at 3.2m, limit of investigation, practical		D,PID	2.8		<1 ppm		-3 3	
	- - - - - - - - -	reach of backhoe							-4	

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed REMARKS: Test pit collapse on side walls - unstable

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 77

PROJECT No: 39663C

DATE: 31 Oct 07 SHEET 1 OF 1

		Description	je		San		& In Situ Testing		D	December	
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	bynamic (bl	ows per	meter Test mm)
		Strata		<u> </u>	ŏ 0.0	Sa	<1 ppm		5	10	15 20
	- 0.21	FILLING - Generally comprising dark brown silty sand with some clay and trace gravel sized coal chitter and coked siltstone ranging up to 40mm		D,PID	0.15				-		
	- - - - - -	FILLING - Generally comprising light red-brown silty sand (coked waste) with some gravel and cobble sized coked siltstone (10-12%)		D,PID	0.3		<1 ppm		- - - - -		
	- - 1.45	from 1.2m, trace coal / coal chitter (2%)		D,PID	1.3 1.4		<1 ppm				
	-	SANDSTONE - Extremely weathered to weathered, low strength, light grey fine grained sandstone									
	- 1.8 -	Pit discontinued at 1.8m, refusal on sandstone	.								
	-2								-2		
	-										
	-										
	-										
	-3								-3		
	-										
	-										
	-										
	-4								-4		
	-										
	-								-		
	-								-		
	-								-		
	-									:	

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Sample of fibre cement collected from sfc near test pit ☐ Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 77A

PROJECT No: 39663C **DATE:** 31 Oct 07

SHEET 1 OF 1

	.	Description	jic T		Sam		& In Situ Testing	_ <u></u>	Dynam	ic Penet	romoto	r Toot
귐	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows pe	er mm)	
-	0.05					S				10	15	20
-	1	Pit discondinued at 0.3111, felusal on illi							-1			
-									-			
-	2								-2			
-												
-	3								-3			
-												
-	4								-4			
-									-			

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 77B

PROJECT No: 39663C

DATE: 31 Oct 07 SHEET 1 OF 1

		Description	i		Sam		& In Situ Testing	L			
చ	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Pene (blows p	etrometer per mm)	Test
Ш		Strata	O A	L)		Sar			5 10	15	20
	0.15	FILLING - Generally comprising silty clayey sand with trace subangular gravel sized coal / coal chitter (1-2%), abundant rootlets, humid		D,PID D,PID	0.0 0.15 0.2		<1 ppm <1 ppm				
	0.35	FILLING - Generally comprising light red-brown silty sand (coked waste), with some gravel and cobble sized sandstone (10-15%), trace coal / coal chitter (1-2%) up to		ט,רוט	0.3 0.4		<1 ppm		-		
	0.6	40mm, trace slag, humid		D,PID	-0.6						<u> </u>
		Viight grey fine grained sandstone Pit discontinued at 0.6m, refusal on sandstone									
	-	Fit discontinued at 0.011, relusar on sandstone							-		
	-1								-1		:
									[
										:	
									-		
	-2								-2	:	
									-		
	-3								-3	:	
									-		
									-		
	-4										
	.								-	:	
									}		
									-	:	

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING: PROJECT No: 39663C **DATE:** 31 Oct 07

PIT No: 78

DIP/AZIMUTH: 90°/--

SHEET 1 OF 1

П		Description	ပ		Sam	pling 8	In Situ Testing						
묍	Depth (m)	of	Graphic Log	Туре	Depth	Sample	-	Water	Dy	namic I (blo	Penetro ws per	meter mm)	Test
		Strata	Ō	Ту		San	Results & Comments						20
	0.2 0.25	FILLING - Generally comprising dark brown-black fine grained sandy gravel (coked waste), gravel predominantly coal chitter (50%) and coked sandstone (20%), with trace inclusion of grey coke ash, dry to humid		D,PID	0.0		<1 ppm		-				
-		SANDSTONE - Low to medium strength, weathered slightly grey with red ironstaining in parts, fine grained sandstone							-				
		Pit discontinued at 0.25m, refusal on sandstone							_	:	:		
										:	:		
	-1								- -1				
									_	:	:		
										:			
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	-2								- -2				
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									-	:	:	:	:
										:	:	:	<u>:</u>

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 79

PROJECT No: 39663C

DATE: 31 Oct 07 SHEET 1 OF 1

		Description	je		Sam		& In Situ Testing		Postavila Postavila Taria
Depth (m)	h	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
` ′		Strata	Ō	Ty		San		_	5 10 15 20
	0.3-	FILLING - Generally comprising dark brown sandy gravel with predominantly coal / coal chitter 40% and coked sandstone (30%, trace rootlets, humid		D,PID	0.0 0.15 0.3		<1 ppm <1 ppm, 600 kPa		
	J.5	SILTY CLAY - Hard, grey mottled orange silty clay with some fine grained sand and trace rootlets, M <wp< td=""><td>1 1 D 1 1 1 T</td><td>,PID,A,ţ</td><td>0.5 0.5</td><td></td><td>VI ppill, 000 NI a</td><td></td><td></td></wp<>	1 1 D 1 1 1 T	,PID,A,ţ	0.5 0.5		VI ppill, 000 NI a		
-1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	,PID,A,r	0.8 pp 1.0		<1 ppm, 600 kPa		-1
-		from 1.2m, grading to silty sandy clay		D,PID	1.3		<1 ppm		
1	1.6	at 1.5m, grading to extremely low strength, weathered fine grained sandstone	1/1/		1.5				-
-		Pit discontinued at 1.6m, refusal on sandstone							
-2									-2
_									
-									
-3									-3 -
-									
-									
-4									-4
-									
-									
-									
-									

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 80

PROJECT No: 39663C

DATE: 31 Oct 07 SHEET 1 OF 1

П		Description	U		Sam	npling &	& In Situ Testing			
씸	Depth (m)	of	Graphic Log	Type	Depth	Sample		Water	Dynamic Penetro (blows per	meter Test mm)
		Strata	Ō	Ę		San	Results & Comments		5 10 1	5 20
		FILLING - Generally comprising light brown clayey sandy gravel; gravel predominantly coked sandstone (50-60%), trace rootlets, humid		D,PID	0.0 0.15		<1 ppm		-	
	0.45	FILLING - Generally comprising dark brown clayey sandy silt with some subangular gravel, trace rootlets, (possibly		D,PID,p	0.4 0 0.5		<1 ppm, 120 kPa			
	0.7	residual topsoil) CLAYEY SANDY SILT - Stiff, light grey fine grained clayey sandy silt)	0.8		<1 ppm, 140 kPa			
	-1	Sality Silt		I D,PID,p					-1	
					1.8		<1 ppm, 300 kPa			
	-2 -2			D,PID,p	2.0				-2	
	2.5	SILTY CLAY - Very stiff, grey mottled orange silty caly, slightly sandy, trace subangular gravel, M>Wp		D,PID	2.6 2.7		<1 ppm			
	2.75	Pit discontinued at 2.75m, slow progress in silty clay	V 1/ 1/						-	
	-3 -3								-3	
	-4								-4	

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Fine sample collected from surface near test pit 80 ☐ Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

Auger sample
Disturbed sample
Bulk sample
Tube sample (x mm dia.)
Water sample
Core drilling

pp Pocket penetrometer (kPa)
pp Pocket penetrometer (kPa)
PID Photo ionisation detector
S Standard penetration test
PL Point load strength (s(50) MPa
V Shear Vane (kPa)
D Water seep
Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 81

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	D =41-	Description	nic v		Sam		& In Situ Testing	<u></u>	Dynamic Penetrometer Test
ద	Depth (m)	of Strate	Graphic	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
+		Strata TOPSOIL - Generally comprising brown silt abundant	177	A,PID	_ _{0.0} _	Š	<1 ppm		5 10 15 20
ļ	0.15	rootlets, dry CLAYEY SILT - Very stiff, brown clayey silt, trace rootlets,		, A,I ID	0.15				
-		M <wp< td=""><td></td><td>-</td><td>0.3</td><td></td><td><1 ppm, 230 kPa</td><td></td><td><u> </u></td></wp<>		-	0.3		<1 ppm, 230 kPa		<u> </u>
Ī				A,D,PIC	0.5				
-									-
Ī	0.75	SILTY CLAY/CLAYEY SILT - Stiff, grey-brown mottled		<u></u>	0.8		<1 ppm, 110 kPa		
-		orange-brown silty clay / clayey silt, M <wp< td=""><td>1</td><td>I A,PID,p_l I</td><td></td><td></td><td></td><td></td><td>-</td></wp<>	1	I A,PID,p _l I					-
ļ	1				1.0				-1
-		from 1.2m, with trace fine grained sand							<u> </u>
Ī				D,PID,p	1.3		<1 ppm, 140 kPa		
-				 	1.5				<u> </u>
ļ									
-								_	-
Į	1.9	CLAYEY GRAVELLY SAND - (Medium dense),		A,PID	1.9		<1 ppm	ϫ	-2
-		orange-brown mottled grey clayey gravelly fine to coarse sand with some subrounded gravel, wet		.,	2.1				-
İ		Lseepage from 1.9m		1					
-				1					-
ŀ		from 2.5m, trace organics		A,PID	2.5		<1 ppm		
-				,,,,,,	2.7				-
İ				D,PID	2.8		<1 ppm		
-	3]	3.0				-3
ŀ	3.1	Pit discontinued at 3.1m, refusal on rock (sandstone?)	<i>87</i> ,×						
-									-
ŀ									
-									
ŀ									
[
ŀ	4								-4
[
+									<u> </u>
ļ									
+									<u> </u>
ļ									
-									}

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: Seepage from 1.9m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength Is(50) MPa
 V Shear Vane (kPa)
 V Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 82 PROJECT No: 39663C

DATE: 31 Oct 07 SHEET 1 OF 1

	Б "	Description	je T	Sampling & In Situ Testing				<u></u>	Dynamic Penetrometer Test		
씸	Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows per mm)		
	- 0.15	FILLING - Generally comprising dark brown clayey silt, trace subangular gravel, glass and scrap metal, abundant rootlets, humid		D,PID	0.0 0.15	Se	<1 ppm		5 10 15 20		
	-	FILLING - Generally comprising light brown clayey silt, trace charcoal fragments (possibly natural), M <wp< td=""><td></td><td>D,PID</td><td>0.3</td><td></td><td><1 ppm</td><td></td><td></td></wp<>		D,PID	0.3		<1 ppm				
	0.55	CLAY - Very stiff, grey brown mottled orange-brown clay, trace rootlets, M <wp< td=""><td></td><td>,</td><td>0.5</td><td></td><td></td><td></td><td></td></wp<>		,	0.5						
	-	trace rootiets, MINVVP),PID,pp	0.8		<1 ppm, 310 kPa				
	- 1			,,, ib,p	1.0				-1		
	- 1.2 - 1.35	grading to extremely weathered medium strength claystone at 1.2m									
		CLAYSTONE? - Brown, weathered medium strength claystone? Pit discontinued at 1.35m, refusal on possible claystone									
	-										
	- -2								-2		
	-										
	-										
	-										
	-3								-3		
	-										
	-										
	-										
	-										
	-4								-4		
	-										
	-										
	-										

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED
Initials:
Date:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 83

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description Sampling & In Situ Testing						L.	Dynamic Panetrometer Test		
로 De	epth m)	of Strata	Graphic	Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)		
+	+	TOPSOIL - Generally comprising brown silt, trace clay and sand, abundant rootlets, dry	1	A,PID	_ _{0.0} _	Š	<1 ppm		5 10 15 20		
-	0.15	SILT - Very stiff, brown silt trace fine grained sand and rootlets, M <wp< td=""><td></td><td>D,A,PID,</td><td>0.15 0.3 op 0.5</td><td></td><td><1 ppm, 350 kPa</td><td></td><td></td></wp<>		D,A,PID,	0.15 0.3 op 0.5		<1 ppm, 350 kPa				
-1	0.95	CLAYEY SILT - Very stiff, brown clayey silt, M <wp< td=""><td>///</td><td>D,PID,p</td><td>0.8 p 1.0</td><td></td><td><1 ppm, 250 kPa</td><td></td><td>-1</td></wp<>	///	D,PID,p	0.8 p 1.0		<1 ppm, 250 kPa		-1		
-		at 1.2m, becoming wet to saturated with trace sand		/ / / D,PID	1.3		<1 ppm				
-2	1.7	CLAYEY SAND - (Loose to medium), brown loose fine grained clayey sand, saturated		D,A,PIC	1.8		<1 ppm	<u>_</u>	-2		
				A,PID	2.3		<1 ppm				
				D,A,PIE	2.8		<1 ppm				
-3	3.0	Pit discontinued at 3.0m, limit of investigation			—3.0—						
-4									-4		

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: Water seepage at 1.7m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 84

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description	. <u>e</u>		San		& In Situ Testing	_	
ם ויַ	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Strata	g	Ţ		San	Comments		5 10 15 20
	0.15	TOPSOIL - Generally comprising brown silt, trace clay and sand, abundant rootlets, dry		А	0.0				-
-		SANDY SILT - Hard, light brown fine grained sandy silt, trace rootlets, M <wp< td=""><td></td><td>),A,PID,_I</td><td>0.3 pp 0.5</td><td></td><td><1 ppm, 420 kPa</td><td></td><td></td></wp<>),A,PID, _I	0.3 pp 0.5		<1 ppm, 420 kPa		
-	0.6	SILTY CLAY - Stiff, grey-brown mottled orange-brown silty clay, M <wp< td=""><td></td><td>A,pp</td><td>0.8</td><td></td><td>150 kPa</td><td></td><td></td></wp<>		A,pp	0.8		150 kPa		
-1				***	1.0				-1
	1.25	SILTY CLAY - Very stiff, grey-brown silty clay with some sand and gravel		D,A,pp	1.3		350 kPa		
-					1.8				
-2				A	2.0				-2 -
-	2.2	SANDY CLAY - Very stiff, orange-brown fine grained sandy clay / clayey sand		D,A,pp	2.3				
-	2.7	CLAYEY SAND - (Stiff), orange-brown fine to medium grained clayey grained sand, (moist)		A	2.8		350 kPa		
-3 - -	3.0	Pit discontinued at 3.0m, limit of investigation	1. /		-3.0-				3
-									
-4									-4
 - -									
-									
-									

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 85

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	5 "	Description	je _		Sam		& In Situ Testing		Dunamia Danatromet	or Toot
귙	Depth (m)	of Strate	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetromete (blows per mm))
-		Strata FILLING - Generally comprising brown sandy silt, slightly gravelly, gravel and trace cobbles predominantly comprising angular siltstone (10%) and coal / coal chitter (10%) with abundant rootlets to 0.15m, dry to moist		D	0.3	Se			5 10 15	20
-	0.55 -	FILLING - Dark brown clayey silt, trace subangular gravel, M <wp< td=""><td></td><td></td><td>0.5</td><td></td><td>300 kPa</td><td></td><td></td><td></td></wp<>			0.5		300 kPa			
-	1			D,A,pp	1.0				-1	
-	1.2-	FILLING - Grey-brown mottled orange-brown silty clay, M <wp< td=""><td></td><td>A,pp</td><td>1.3</td><td></td><td>150 kPa</td><td></td><td></td><td></td></wp<>		A,pp	1.3		150 kPa			
-		from 1.7m, fine grained sandy clay fill		D,A,pp	1.8		130 kPa			
-	2 2.1-	FILLING - Light brown fine grained silty clayey sand, moist to wet			2.0				-2	
-				A	2.5					
 - -	3	saturated at 2.85m		D,A	2.9 3.0			<u>▼</u>	-3	
-	3.2-	Pit discontinued at 3.2m, limit of investigation								
-	4								-4	
- - -										
-										
-										

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: Free groundwater observed at 2.85m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --**EASTING:**

DIP/AZIMUTH: 90°/--

NORTHING:

PROJECT No: 39663C **DATE:** 30 Oct 07 SHEET 1 OF 1

PIT No: 86

	Depth	Description	Graphic Log				& In Situ Testing	Water	Dynamic Pen	etromete	r Test
R	(m)	of Strata	Gra	Туре	Depth	Sample	Results & Comments	Wa	(blows	per mm)	20
	- - - - 0.5-	FILLING - Generally comprising dark brown silty sand with some cobble and gravel sized coal chitter (10%) rootlets at 0.2m, humid		D,PID	0.3	8	<1 ppm				
	- - - -1	SANDY SILT - Stiff, light brown fine grained sandy silt, M <wp< td=""><td></td><td>D,PID,p</td><td>0.8</td><td></td><td><1 ppm, 150 kPa</td><td></td><td>-1</td><td></td><td></td></wp<>		D,PID,p	0.8		<1 ppm, 150 kPa		-1		
	- - 1.2- - -	SILTY CLAY - Hard, light brown mottled red silty clay, trace gravel (ironstone), M <wp< td=""><td></td><td>D,PID,p</td><td>1.3 p</td><td></td><td><1 ppm, 400 kPa</td><td></td><td></td><td></td><td></td></wp<>		D,PID,p	1.3 p		<1 ppm, 400 kPa				
	- 2 - 2 	from 2m, colour change to light brown, trace sand and trace gravel		D,PID,p	2.2 p 2.4		<1 ppm, 400 kPa		-2		
	- 2.7 - - - 3 - -	at 2.7m, damp, M <wp 2.7m,="" at="" discontinued="" pit="" progress<="" slow="" td=""><td><u> </u></td><td></td><td></td><td></td><td></td><td></td><td>-3</td><td></td><td></td></wp>	<u> </u>						-3		
	- - - - - - - -								-4		
	- - - -										

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED
Initials:
Date:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 87 PROJECT No: 39663C

DATE: 07 Nov 07 SHEET 1 OF 1

		Description	. <u>o</u>	Sampling & In Situ Testing						
귐	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20	
	-	FILLING - Generally comprising brown fine grained sandy clay with some angular gravel predominantly coal chitter (5-10%) and siltstone (5%), humid from 0.2m, trace sandstone gravel (2%)		D,PID	0.0 0.05	9	<1 ppm			
	-1 - - 1.45 - - -	FILLING - (Dense) orange-brown fine grained clayey sand with some sand and gravel sized coal (5-10%), humid		D,PID	1.0 1.6 1.7		<1 ppm		-1	
	- 1.9 -2	SANDSTONE - Low strength, weathered grey fine grained sandstone Pit discontinued at 1.9m, refusal on sandstone							-2	
	- - - - - - -								-3	
									-4	
	-									

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 88

PROJECT No: 39663C

DATE: 07 Nov 07 SHEET 1 OF 1

	Description	Sampling & In Situ Testing						্ট্ Dynamic Penetrometer Test				
전 Depth (m)	of Out to	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows per mm)				
0.3	cLAYEY SAND/SANDY CLAY - (Medium dense to hard), yellow fine grained clayey sand / sandy clay, trace subangular gravel at 0.6m, grading to low strength, weathered sandstone SANDSTONE - Low strength weathered yellow fine		D,PID,pp	0.0 0.05	Sa	<1 ppm <1 ppm, 420 kPa		5 10 15 20				
- 0.9	SANDSTONE - Low strength weathered yellow fine grained sandstone Pit discontinued at 0.9m, refusal on sandstone	, Linea						-1 -1				
-4								-4				

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 89

PROJECT No: 39663C **DATE:** 06 Nov 07 SHEET 1 OF 1

	Depth	Description	hic				& In Situ Testing	e e	Dynami	c Penet	romete	r Test
<u>.</u>	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	5 (k	olows pe	r mm)	20
-		FILLING - Generally comprising brown gravelly clayey fine grained sand, gravel predominantly coal chitter (20%) angular sandstone (15%) up to 100mm, dry to humid		D,PID	0.3	S	<1 ppm					20
-	0.7	FILLING - Black gravel with minor clay and sand, gravel predominantly coal chitter (80-90%) up to 100mm		D,PID	1.3		<1 ppm		-1 -1 1 			
-2	1.9- 2	FILLING - Generally comprising light brown fine grained clayey sand with some angular sandstone gravel and trace sand sized coal chitter (1-2%), dry		D,PID	2.1		<1 ppm		-2			
-	2.6 -	FILLING - (Medium dense), yellow-brown clayey sand with minor subrounded sandstone, gravel (dry)										
-3 -	3			D,PID	3.0		<1 ppm		-3			
	3.2-	Pit discontinued at 3.2m, limit of investigation			-3.2-							
	4								-4 			
-												

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Ptv Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 90

PROJECT No: 39663C **DATE: 07 Nov 07** SHEET 1 OF 1

Sampling & In Situ Testing Description Graphic Dynamic Penetrometer Test Depth Log 닒 of (blows per mm) Depth Fype Results & Comments (m) Strata 20 FILLING - Generally comprising brown silty clay, 0.05 0.1 <1 ppm, 120 kPa \abundant rootlets, damp D,PID,pp 0.2 FILLING - Generally comprising (dense) to medium grained clayey sand with some subangular gravel, predominantly coal chitter (10-15%), humid <1 ppm D,PID 1.0 FILLING - Black clayey silty gravel, gravel predominantly ∖coal (40-50%), humid <1 ppm, 170 kPa 1.8 FILLING - Generally comprising grey mottled orange gravelly silty clayey gravel, typically angular ironstone (10%), claystone (10%) and coal (15%) .X D,PID,pp - 2 2.0 -2 FILLING - Generally comprising, clayey silty gravel, gravel 2.8 <1 ppm \predominantly coal (40-50%) D,PID FILLING - Grey mottled orange fine grained sandy clay with some angular gravel sized coal (5-10%) and siltstone (5-10%) 3.0 Pit discontinued at 3.6m, limit of investigation

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- PD Pocket penetrometer (kPa)
 PID Photo ionisation detector
 Standard penetration test
 PL Point load strength Is(50) MPa
 PO Shear Vane (kPa)
 Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --**EASTING:**

DIP/AZIMUTH: 90°/--

NORTHING:

PROJECT No: 39663C **DATE:** 06 Nov 07 SHEET 1 OF 1

PIT No: 92

		Description	ic		Sam	pling 8	In Situ Testing	,				
귙	Dep (m)	th	Graphic Log	Туре	Depth	ple	Results &	Water	Dynar	nic Pene (blows p	tromete er mm)	r Test
		Strata	Ð	Туі	Del	Sample	Results & Comments		5	10	15	20
	-	FILLING - Generally comprising brown fine grained gravelly clayey sand, gravel predominantly angular sandstone (20%) or with some coal chitter (10%), dry		D,PID	0.3		<1 ppm					
	- 1 - 1 	FILLING - Light grey clay, slightly fine grained sand with minor angular ironstone gravel, M <wp< td=""><td></td><td>),PID,p</td><td>1.3 O 1.5</td><td></td><td><1 ppm, 250 kPa</td><td></td><td>-1</td><td></td><td></td><td></td></wp<>),PID,p	1.3 O 1.5		<1 ppm, 250 kPa		-1			
	-2	FILLING - Light grey fine grained sand, dry		D,PID	2.8		<1 ppm		-2			
	- - - - - - - - - -	Pit discontinued at 3.2m, limit of investigation	k××						-4			

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 93 PROJECT No: 39663C

DATE: 07 Nov 07 SHEET 1 OF 1

		Description	ic		Sam	pling 8	& In Situ Testing	_	
చ	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Strata	0	7	De	Sar	Comments	_	5 10 15 20 : : : :
	- - -	FILLING - Generally comprising grey gravelly clay, gravel predominantly angular siltstone, trace rootlets, humid		D,PID	0.3		1 ppm		
	- 0.7 -	from 0.6m to 0.7m, some dark brown clayey silt FILLING - Generally comprising brown gravelly clay with some sand, gravel predominantly angular siltstone (20%), some sandstone (1-2%), humid			0.8		<1 ppm		
	- - 1	some sandstone (1-2%), humid		D,PID	1.0				-1
	-			D,PID	1.3		<1 ppm		
	2 2 	at 3.1m to 3.4m, trace gravel sized coal (1-2%)		D,PID	2.8		<1 ppm		-2
	- - - 3.7-	at 3.4m to 3.5m, trace cobble sized siltstone up to 400mm Pit discontinued at 3.7m, refusal possibly on rock							
	- 4 - 4 	The discontinued at 6.7111, relusal possibly of Flock							-4
	-								

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- PROJECT No: 39663C **DATE:** 06 Nov 07

PIT No: 95

SHEET 1 OF 1

		Description	. <u>©</u>		San	pling 8	& In Situ Testing					
귙	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamio (b	Peneti	romete er mm)	r Test
	` ,	Strata	9	Ту	Dе	San	Comments		5	10	15	20
-		FILLING - Generally comprising light brown gravelly fine grained sandy clay, gravel generally comprising angular sandstone (10%) and trace coal chitter (1-2%), dry		D,PID	0.1 0.2		<1 ppm	-				
	1			D,PID	1.3 1.5		<1 ppm		-1			
-:	3	from 2.6m to 2.7m, trace scrap metal and brick fragments		D,PID	2.5		<1 ppm		-2			
-	3.7-	with some brown staining at 3.2m to 3.7m		D,PID	3.5 3.7		<1 ppm					
-	4	Pit discontinued at 3.7m, maximum reach of backhoe							-4			
-												

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 96

PROJECT No: 39663C

DATE: 06 Nov 07 SHEET 1 OF 1

		Description	. <u>S</u>		Sam		& In Situ Testing	_	
균 Del	epth n)	of	Graphic Log	ec .	oth	Sample	Results &	Water	Dynamic Penetrometer Test (blows per mm)
'	´	Strata	Ō	Туре	Depth	San	Results & Comments	>	5 10 15 20
-		FILLING - Generally comprising light brown gravelly silty clay, gravel predominantly angular sandstone (5-10%) and coal chitter (5%), dry		D,PID	0.1 0.2		<1 ppm		
-1	0.6	FILLING - Generally comprising light brown and orange silty clay with some angular gravel, comprising sandstone (10%), coal chitter (5%), trace rootlets, dry		D,PID	0.8		2 ppm		-1
-	1.05	FILLING - Generally comprising black clayey silt with some orange silty clay inclusions, dry),PID,pp	1.3		<1 ppm, 450 kPa		
- - -					1.5				
-2	2.1 –	CLAY - (Hard), grey clay SANDSTONE - Low strength, weathered grey fine grained							- -2 -
- - -	2.3	sandstone Pit discontinued at 2.3m, refusal on sandstone	<u> </u>						
-3									-3
-									
-									
-4									-4
-									
-									

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 99

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description	. <u>o</u>		Sam	npling &	& In Situ Testing				
A D	epth (m)	of	Graphic Log	e e	Ę.	ple	Posulte &	Water	Dynamic P (blow	enetrometo vs per mm	er Test
'		Strata	ō _	Туре	Depth	Sample	Results & Comments	>	5 1		20
-	0.4	FILLING - Brown intermixed sandy silt, clay and fine to coarse grained subangulr gravel including trace coal, moist		D,PID	0.2		7.4 ppm		-		
	0.4	FILLING - Black silt, sand and fine to medium grained gravel szied coal reject, generally comprising 85% coal, 15% carbonaceous siltstone		D,PID	0.6		6.3 ppm				
-1	0.85	FILLING - Grey-brown clayey sandy silt with trace fine to medium grained subangular gravel, moist		D,PID	1.0		<1 ppm		-1		
-	1.15	CLAY - Very stiff, grey mottled orange clay with trace to some silt and sand, M> Wp		D,PID,p _l	o 1.3		<1 ppm, 350-380 kPa		-		
		from 1.6m, hard		pp	1.6		>400 kPa		-		
-2	1.9	SILTSTONE - Very low to low strength, moderately weathered, grey siltstone							-2 -		
-	2.2	Pit discontinued at 2.2m, refusal							-		
									-		
-3									-3 -		
									-		
									-		
-									-		

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 100

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description	i		Sam		& In Situ Testing	_	5 . 5
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results &	Water	Dynamic Penetrometer Test (blows per mm)
		Strata	Ō	F	Del	San	Results & Comments	-	5 10 15 20
		FILLING - Dark grey-brown clayey gravelly silt, gravel generally comprising ash, moist		D,PID	0.1		6.7 ppm		-
	0.25 - -	FILLING - Grey gravelly silt (ash), damp		D,PID	0.4		7.3 ppm		
	- - -	from 0.45m, increased gravel content							
	- 0.9 -1 -	CLAY - Very stiff grey-brown slightly silty clay with some fine grained sand, M≽ Wp	i	D,PID,pp	o 1.0		<1 ppm, 240-310 kPa		-1
		from 1.2m, hard, some fine to coarse grained subangular gravel		рр	1.2		>400 kPa		
-	- - 1.6-	from 1.4m, light grey mottled orange CLAYEY SILTSTONE - Very low to low strength,							
		moderately weathered, grey mottled orange clayey siltstone							
	-2	Pit discontinued at 1.8m, refusal							-2
-	-								
	-								
	-								
-	-								
-	-3								-3
	-								
	- -4								-4
	-								
	-								
	-								
	-								
									L i i i i .

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 101

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

П	J	Description	ပ		Sam	npling 8	& In Situ Testing	l .	
귒	Depth (m)	of	Graphic	Φ				Water	Dynamic Penetrometer Test (blows per mm)
	(111)	Strata	رق	Туре	Depth	Sample	Results & Comments	>	5 10 15 20
		FILLING - Grey-brown clayey silt with some sand and fine to coarse grained gravel including trace ash, moist		D,PID	0.1	0)	<1 ppm		
	0.25	SILT - Grey silt with some clay and trace cobbles to 100mm, humid							
-	0.5	CLAY - Very stiff to hard, light grey mottled orange clay with trace to some sand and silt in upper 100mm, M ≤ Wp from 0.6m, M>Wp		D,PID,p	o 0.6		<1 ppm, 360->400 kPa		
-	-1								-1
	1.3	from 1.2m, light grey with some silt and fine grained sand	\mathbb{Z}						
	1.4	SILTSTONE - Very low to low strength, moderately weathered, light grey siltstone with some ironstaining							
		Pit discontinued at 1.4m, refusal							<u> </u>
	-2								-2
	-3								-3
	-4								-4
Ц									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- Initials:

CHECKED



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 102

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

П		Description	ji.		Sam		& In Situ Testing	ڀ	Domania Danstromata Tari
귒	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	,	Strata	Ō	Ту	De	San	Comments		5 10 15 20
	0.2	CLAY - Hard, grey mottled orange clay, M <wp< td=""><td>ľ</td><td>,PID,p</td><td>0.1</td><td></td><td><1 ppm, >400 kPa</td><td></td><td>-</td></wp<>	ľ	,PID,p	0.1		<1 ppm, >400 kPa		-
	0.2	SILTY CLAY - Firm to stiff, light grey mottled orange silty clay with some fine grained sand, gravel and cobbles to 200mm, M>>Wp	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
		from 0.6m, stiff to very stiff, M>Wp),PID,p	0.7		<1 ppm, 180-250 kPa		
-	-1			D,pp	1.4		80-140 kPa		-1
-	1.6-	SILTSTONE - Very low strength, highly weathered, grey and orange siltstone							
									-
-	-2 2.0-	Pit discontinued at 2.0m, refusal							
-	-3								-3
-									
-	-4								-4

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 103

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	Description	je T		Sam		& In Situ Testing		Dunamia Ban	netrometer Test
전 Depth (m)	OI .	Graphic	Туре	Depth	Sample	Results & Comments	Water	(blows	per mm)
	Strata FILLING - Dark grey-brown clayey silt with trace fine to coarse grained subangular gravel and PVC and concrete inclusion, moist		D,PID		Sa	<1 ppm		5 10	15 20
0.3	SILT - Grey silt with some subangular gravel and cobbles to 200mm, moist from 0.4m, humid		D,PID	0.5		<1 ppm			
0.6	SILTSTONE - Very low strength, highly weathered, grey mottled orange siltstone								
3.0	Pit discontinued at 0.8m, refusal								
-1								-1	
								-	
-2								-2	
-3								-3	
-									
-4								-4	
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 104

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	\ 4I-	Description	Jic R		Sam		& In Situ Testing	_ <u>_</u> _	Dyn	amic Pene	tromoto	r Toet
ͳ	epth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		(blows p	er mm)	
H		FILLING - Dark grey-brown gravelly silt with some clay, gravel generally comprising ash and coal (20-40%), moist		D,PID	0.1	Š			5	10	15	20
	0.15	FILLING - Grey silty sandy fine to coarse grained gravel					7.2 ppm		[
	0.4	(ash), damp		D,PID	0.3		7.1 ppm					
		SANDY SILT - Brown sandy silt with some fine to coarse grained subangular gravel and cobbles to 150mm, damp		D,PID	0.5		<1 ppm		-			
	0.8	SILTSTONE - Extremely low to very low strength, light grey mottled orange siltstone								:		
-1		grey mottled drange suistone		l I					-1			
	1.2	Pit discontinued at 1.2m, refusal	. — .								- :	
		rituiscommueu at 1.2m, retusai										
									-	:		
										:		
-2									-2			
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RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 105

PROJECT No: 39663C **DATE:** 30 Oct 07 SHEET 1 OF 1

Γ	T		Description	Ö		Sam	ıpling 8	& In Situ Testing					
ā	Ę	Depth (m)	n of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic (blo	Penetrom ows per m	eter Test im)	
			Circle	O A	Ту	De	San	Comments			10 15	20	
	-		FILLING - Grey-brown clayey silt with some fine to coarse grained subangular gravel, moist		D,PID	0.2		<1 ppm		-			
		0	FILLING - Loose, clayey fine to coarse grained subangular gravel, cobbles and boulders to 400mm, with some glass, porcelain, brick and metal inclusions at 0.7m, timber post		D,PID	0.6		<1 ppm					
		I								-1			
			from 1.5m, numerous timber posts										
	Ţ,	2 2	Pit discontinued at 2.0m							- :		:	
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RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 106 PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description	ē		Sampling & In Situ Testing				
귙	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Strata	0		Ğ	Sar	Comments		5 10 15 20 : : : :
	-	FILLING - Dark grey-brown clayey gravelly silt with some sand and trace porcelain fragments, gravel generally comprising ash and coal, moist		D,PID	0.1		7.0 ppm		
	0.25	CLAYEY SILTY SAND - Grey clayey silty fine to medium grained sand, moist	1111	D,PID	0.3		<1 ppm		
	- 0.45	CLAY - Very stiff, orange-brown clay with some silt, M>Wp		D,PID,p _l	o 0.6		<1 ppm, 290-360 kPa		
	- - -1	from 0.5m, very stiff to hard, light grey mottled orange-red, $M\!<\!Wp$		pp	0.9		380->400 kPa		-1 -
	-			pp	1.5		>400 kPa		
	- -2 - 2.2-								-2
	-	SILTY CLAYSTONE - Extremely low strength, extremely weathered, light grey mottled orange-red silty claystone							
	- 2.7 -	Pit discontinued at 2.7m, refusal	<u> </u>						
	- 3 								-3
	- - -								
	- - -4 -								-4
	-								
	- - -								
Ш									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 107 PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description	ë		Sam		& In Situ Testing	_	
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Strata	Ō	T	Del	San	Comments	-	5 10 15 20
		FILLING - Intermixed sandy silt, clay, gravel, cobbles and boulders to 400mm with brick, plastic, metal and glass inclusions, moist		D,PID	0.2		<1 ppm		
		from 0.5m, including gravel content, saturated		D,PID	0.7		<1 ppm		
	-1	from 1.2m, large timber beam in eastern edge of pit							-1
	1.8	Pit discontinued at 1.8m, pit walls collapsing	_IX_X_						
	-2								-2
	-3								-3
-	-4								-4

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: Perched groundwater observed at 0.5m

REMARKS: Within possible pothole on former well ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 108

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	Description	ပ္		Sam	npling &	& In Situ Testing		
Depth (m)	of	Graphic Log	ā				Water	Dynamic Penetrometer Test (blows per mm)
(111)	Strata	ا ق	Type	Depth	Sample	Results & Comments	>	5 10 15 20
-	FILLING - Dark grey-black silty sandy fine to coarse grained gravel sized coal reject, generally comprising 65% coal, 35% carbonaceous siltstone, damp		D,PID	0.2	- 0,7	8.1 ppm		
- 0.3	FILLING - Intermixed silt, clay, gravel and cobbles to 200mm (possible natural), humid							
- 0.6	SILT - Grey silt, humid		D,PID	0.7		<1 ppm		
-1 - 1.1	SILTSTONE - Very low to low strength. moderately							-1
1.25	SILTSTONE - Very low to low strength, moderately weathered, grey and orange siltstone with some ironstaining Pit discontinued at 1.25m, refusal	· — ·						
-								
-2								-2
-								
-								
-								
-3								-3
-								
-								
-								
-4								-4
-								
-								
							1	1 : : : :

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 109

PROJECT No: 39663C **DATE:** 30 Oct 07

SHEET 1 OF 1

П			Description	O		Sam	npling &	& In Situ Testing				
귒	Dep (m)	oth	of	Graphic Log	e e				Water	Dynamic Pe (blows	netromete per mm)	r Test
	(***)		Strata	Ğ_	Туре	Depth	Sample	Results & Comments	>	5 10	15	20
			FILLING - Dark grey silt with some clay, fine to coarse grained subangular gravel, cobbles and boulders to 450mm (siltstone), moist		D,PID	0.1		<1 ppm		-		
	0	0.45	at 0.4m, brick fragments							-	:	
	-1	1.0	CLAYEY SILT - Grey clayey silt with some fine ot medium grained sand, moist to wet		D	0.6						
		1.0	SILTY CLAY - Firm to stiff, grey mottled orange silty clay with some fine grained sand, M>>Wp		D,pp	1.2		80-120 kPa				
			from 1.6m, increased sand		pp	1.8		150-180 kPa				
	-2									-2		
	-3		Pit discontinued at 2.2m, limit of investigation									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 110

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

П		Description	Ş		Sam		& In Situ Testing	_	Domentic Desertion 1 T 1
	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Strata	Ö	Т	De	Sar	Comments		5 10 15 20
-		FILLING - Grey-brown clayey silt with some silty clay clumps and trace fine grained sand, damp to moist		D,PID	0.3		<1 ppm		
	0.85			D,PID	0.7		<1 ppm		
	1	FILLING - Stiff to very stiff, dark grey silty clay with some fine grained sand, M>Wp		pp	1.0		140-220 kPa		-1
-	1.05	CLAYEY SANDY SILT - Grey clayey sandy silt, moist to wet (likely fill to 1.3m)		D,PID	1.1		<1 ppm		
	1.85	from 1.6m, wet to saturated, some organics							
-2		SILTY CLAY - Very stiff, grey mottled orange-brown silty clay, M>Wp		pp	2.0		190-280 kPa		-2 -2
	2.2	Pit discontinued at 2.2m, limit of investigation	_[/ /						
-									
- 3	3								-3
-									
-4	1								-4
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 111

PROJECT No: 39663C **DATE:** 30 Oct 07

SHEET 1 OF 1

	D#-	Description	je r		Sam		& In Situ Testing	<u></u>	Dynamic Penetrometer Test
귙	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
\perp		Strata		E.	ă	Sa	Comments		5 10 15 20
	- 0.1	TOPSOIL - Brown clayey silt, moist	<i>Y</i> //						
	-	CLAY - Stiff to very stiff, orange-brown clay, M>Wp),PID,p	o 0.15		<1 ppm, 180-210 kPa		-
	- - 0.65-	from 0.5m, hard, M <wp< td=""><td></td><td>D,pp</td><td>0.5</td><td></td><td>>400 kPa</td><td></td><td></td></wp<>		D,pp	0.5		>400 kPa		
	- 0.65	CLAYSTONE - Extremely low strength, extremely weathered, grey mottled orange claystone, fractured							
	-1	from 1m, very low strength, highly weathered							-1
	-	from 1.5m, very low to low strength		D	1.5				
	-2 2.0	Pit discontinued at 2.0m, limit of investigation		1					2
									-3
									-4

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 112

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description	ē		San	npling &	& In Situ Testing	L	
귒	Depth (m)	of	Graphic Log	e	Ę	<u>pe</u>	Regulte &	Water	Dynamic Penetrometer Test (blows per mm)
	(111)	Strata	ō	Туре	Depth	Sample	Results & Comments	>	5 10 15 20
-	0.15	coal and carbonaceous slitstone with trace glass and porcelain fragments, damp CLAYEY SILT - Grey-brown clayey silt with trace to some		D,PID		0)	<1 ppm		
-	0.5	∫ fine grained sand, humid √from 0.25m, light grey-brown /		4					
-		CLAY - Hard, light grey mottled orange silt and fine grained sand, M <wp< td=""><td></td><td>, P,PID,p</td><td>p 0.6</td><td></td><td><1 ppm, >400 kPa</td><td></td><td></td></wp<>		, P,PID,p	p 0.6		<1 ppm, >400 kPa		
	1 1.0	SILTSTONE - Extremely low strength, extremely weathered, light grey mottled orange siltstone, sandy and orange clayey in parts		1					-1
		from 1.5m, extremely low to very low strength							
-	2								-2
		from 2.2m, extremely low strength clayey sandstone							
-		from 2.5m, some fine to medium grained subangular gravel		† - - - -					
-		from 0.0m years boy store the							
ŀ	3 3.0	from 2.9m, very low strength Pit discontinued at 3.0m, limit of investigation							3 : : : :
		Tik discontinued at e.em, illinit of investigation							
-	4								-4
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 113 PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	Donth	Description	hic L				& In Situ Testing	_ h	Dynamic Pene	trometer Test
嵒	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows p	er mm)
		Strata Strata		 	۵	Sa	Comments		5 10 : :	15 20
-	0.4	FILLING - Grey-brown clayey silt with some clay clumps and trace fine to coarse grained subangular gravel, moist		D,PID	0.2		<1 ppm			
	0.4	FILLING - Dark grey-black clay, silt, sand and fine to medium grained gravel sized coal reject, generally comprising 40% clay and silt, 30% coal, 30% carbonaceous siltstone, moist		D,PID	0.5		<1 ppm			
	0.85	FILLING - Brown clayey silt, gravelly in parts, including trace coal, moist		D,PID	0.7		<1 ppm			
	1 1.1	CLAYEY SILT - Grey-brown clayey silt, damp from 1m, humid		D,PID	1.0		<1 ppm		-1	
-		SILTY CLAY - Hard, grey mottled orange silty clay, M <wp< td=""><td></td><td>D,pp</td><td>1.3</td><td></td><td>>400 kPa</td><td></td><td></td><td></td></wp<>		D,pp	1.3		>400 kPa			
-										
-2	2								-2	
-	2.4	CLAYSTONE - Extremely low strength, extremely weathered, grev claystone with some very low strength red								
	2.6	sandy siltstone in parts Pit discontinued at 2.6m								
-3	3								-3	
-										
-4	4								-4	
-										

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 114

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description	. <u>o</u>		Sam	npling &	& In Situ Testing		
귒	Depth (m)	of	Graphic Log) e	oth	eldu	Results &	Water	Dynamic Penetrometer Test (blows per mm)
	(***)	Strata	ō	Туре	Depth	Sample	Results & Comments	>	5 10 15 20
-	0.25	CLAY - Stiff, grey mottled orange clay with some silt and rootlets, M>Wp		D,PID,p	o 0.2		<1 ppm, 150-180 kPa		
-	0.23	SILTY CLAY - Firm to stiff, grey silty clay, M>Wp		D,PID,p _l	o 0.4		<1 ppm, 90-100 kPa		
		from 0.5m, stiff to very stiff grey mottled orange with trace fine to medium grained subangular gravel including coal, silt content decreasing		pp	0.6		170-220 kPa		
	1			D,pp	1.0		220-280 kPa		-1
-		from 1.5m, very stiff		pp	1.5		270-300 kPa		
				pp	1.8		320-380 kPa		
-	2 2.0	CLAYEY SILTSTONE - Extremely low to very low strength, highly weathered, light grey mottled orange clayey siltstone with some ironstaining / cementing						<u>_</u>	-2
-		Pit discontinued at 2.2m, refusal							
-	3								-3
-									
-	4								-4
-									
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: Seepage observed at 2m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 115

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

П			Description	. <u>o</u>		Sam	npling &	& In Situ Testing				
씸	Depti (m)	n	of	Graphic Log)e	oth	əldı	Results &	Water	Dynamic Per (blows	netromete per mm)	r Test
	()		Strata	Ö	Туре	Depth	Sample	Results & Comments	>	5 10	15	20
П	0.	05	TOPSOIL - Brown clayey silt, moist	MC								
			GRAVELLY SILT - Light grey gravelly silt, humid		D,PID	0.2		<1 ppm				
				and t	l					<u> </u>		
		اء		693								
	. ().5	SILTSTONE - Very low strength, highly weathered grey and orange siltstone									
	-		and drange silistone		<u> </u>						:	:
	-				<u> </u>					<u> </u>		:
		0.9	SILTY CLAY - Very stiff to hard, grey mottled orange silty	1//		10		200 > 400 kDe				
	-1 -		clay, M∢Wp		pp	1.0		360->400 kPa		[]		
	- 1	.2	SILTSTONE - Very low strength, highly weathered grey	144						- ! !		
	-		mottled orange siltstone		1					· ! !		
	-			· — · ·								
				. — .								
	-			· — · ·						<u> </u>	:	
	- 1	.8	Pit discontinued at 1.8m, refusal	L							:	-
	- -2									-2		
										<u> </u>	:	:
	-											
										} !		
										<u> </u>		
	-3									-3		:
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										† ! !		:
ш								l .	1			

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 117 PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	5 "	Description	.je _		Sam		& In Situ Testing		Dunamia Danatramatar Taat
귙	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
Н		Strata CLAV Stiff gray mottled grappe clay with some silt and	1//	-	Ŏ	Sa	Comments		5 10 15 20 : : : :
		CLAY - Stiff, grey mottled orange clay with some silt and organics, M>Wp		,PID,p	0.1		<1 ppm, 120-170 kPa		
-	0.3	SILTY CLAY - Firm to stiff, dark grey silty clay, some organics, M>Wp		D,PID,p _l	0.4		<1 ppm, 80-130 kPa		
	0.7	CLAY - Firm, grey mottled orange clay, M>Wp						ϫ	
	- 1 - 1 -			D,pp	1.0		70-90 kPa		-1
-		from 1.5m, firm to stiff		D,pp	1.5		90-120 kPa		
-	-2 -								-2
-		from 2.3m, firm, silty, grading into clayey silt		D,pp	2.5		60-90 kPa		
		from 2.8m, trace shell flecks							
	-3 3.0 ·	Pit discontinued at 3.0m, limit of investigation	1/ /						3
-									
-	- - -4								-4
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: Seepage at 0.7m

REMARKS:

LOGGED: Collins

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 118

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	Depth	Description	Graphic Log				& In Situ Testing	ř	Dynamic Penetrometer Test
귛	(m)	of Strata	Grap Lo	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
+	0.04	TOPSOIL - Brown clayey silt, moist	T/A/X			Š			5 10 15 20 : : : :
-		CLAY - Hard, grey mottled orange-red clay, M< <wp< td=""><td></td><td>),PID,p</td><td>0.2 0.3</td><td></td><td><1 ppm, <400 kPa</td><td></td><td></td></wp<>),PID,p	0.2 0.3		<1 ppm, <400 kPa		
-		from 0.5m, M < Wp		B),PID,p	0.5 p 0.7		<1 ppm, >400 kPa		
-	-1	from 1.3m, grading into claystone		pp	1.2		>400 kPa		-1
-	1.8	CLAYSTONE - Extremely low strength, extremely weathered, light grey claystone with some ironstaining							-2
-		from 2.2m, extremely low to very low strength							
-	2.5	Pit discontinued at 2.5m, limit of investigation							
-	-3								-3
-									
-									
-	-4								-4
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --**EASTING:**

NORTHING:

DATE: 30 Oct 07 SHEET 1 OF 1

PROJECT No: 39663C

PIT No: 119

DIP/AZIMUTH: 90°/--

	_		Description	ازر _		Sam		& In Situ Testing	_	Dyman	nic Pene	tramata	r Toot
씸	De _l	pth n)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynan	(blows p	er mm)	rrest
H			Strata CLAYEY SILT - Dark grey clayey silt with some rootlets,	12/2/2	É	ă	Sa	Comments	-	5	10	15	20
	- - -		from 0.5m, grey mottled orange		D,PID	0.1		<1 ppm		-			
	- - -1 -	0.9	CLAY - Firm to stiff, grey mottled orange clay with some silt and fine grained sand, M>Wp		D,pp	1.0		90-140 kPa		-1			
	- - -		from 1.5m, stiff		D,pp	1.5		160-180 kPa		- :			
	- - 2 - -		from 2m, very stiff to hard		D,pp	2.0		370->400 kPa		-2			
	- - -				D,pp	2.5		>400 kPa		-			
	- -3	2.0								-		i	
	- 3 - - -	3.0	Pit discontinued at 3.0m, limit of investigation							-			
	- - - 4 -									-4			
	- - -												
												_:	:

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 120

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	Darette	Description	ji r				& In Situ Testing	<u></u>	Dynamic Penetrometer Test
R	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
		Strata	0	Ę.	۵	Sa	Comments		5 10 15 20 : : : :
	0.05	TOPSOIL - Grey-brown clayey silt, moist SANDY CLAY / GRAVEL AND COBBLES - Grey mottled orange sandy clay, fine to coarse grained subangular gravel and cobbles to 200mm, damp		D,PID	0.1		<1 ppm		
	- 0.5 - -	SILTSTONE - Extremely low strength, extremely weathered, light grey mottled orange siltstone		D,PID	0.6		<1 ppm		
	- 1 - 1	from 1m, claystone and siltstone							-1
	-	from 1.4m, very low strength							
	- 1.5	Pit discontinued at 1.5m, refusal	<u> </u>						
	-2								-2
	-3								-3
	-								
	-4								-4
	-								

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 121

PROJECT No: 39663C **DATE:** 30 Oct 07

SHEET 1 OF 1

	Darath	Description	Sampling & In Situ Testing				·=					Dynamic Penetrometer Test (blows per mm)		
ద	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Wate	(I	blows per	mm) 15 20			
	-	SILT - Grey-brown silt with some clay, fine grained sand and trace fine to medium grained subangular gravel, moist		D,PID	0.1	0)	<1 ppm		-					
	-	from 0.25m, light grey-brown, humid							-					
	-			D,PID	0.5		<1 ppm		-					
	0.65	CLAY - Hard, grey clay with some silt and fine to coarse grained sand, sand content increasing, M <wp< td=""><td></td><td>pp</td><td>0.7</td><td></td><td>>400 kPa</td><td></td><td> - - -</td><td></td><td></td></wp<>		pp	0.7		>400 kPa		- - -					
	- 0.8	grained sand, sand content increasing, M <wp -="" claystone="" claystone<="" grey="" low="" moderately="" sandy="" strength,="" td="" very="" weathered=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></wp>												
	-1	weathered grey sandy claystone							-1					
	1.2	Pit discontinued at 1.2m, refusal												
	-													
	-2								-2					
	-								-					
	-								-					
	-								-					
	-								ļ.					
	-3								-3					
	-													
	-								-					
	-								-					
	-4								-4					
	-													
	-													
									-					
L	-													

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- Initials:

CHECKED



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 123

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

П		Description	ပ္		Sam	npling &	& In Situ Testing	l .	
귒	Depth (m)	of	Graphic Log	ě	хth	<u>p</u> e	Reculte &	Water	Dynamic Penetrometer Test (blows per mm)
	(11)	Strata	_ ල _	Туре	Depth	Sample	Results & Comments	>	5 10 15 20
H		CLAY - Very stiff grey clay with some orange mottling, some silt and rootlets, M> Wp	1	D,PID,p	0.1 0.2		<1 ppm, 280-320 kPa		
-	0.35	CLAYEY SILT/SILTY CLAY - Very stiff, dark grey clayey silt / silty caly, moist / M>Wp	//// [[///]	D,PID,p			<1 ppm, 200-280 kPa		
-	1 1.0-	SILTY CLAY - Very stiff, grey mottled orange-brown silty		D	0.9		D		-1
-		clay, M>Wp		pp	1.1		270-340 kPa		
-		from 1.7m, reduced silt content		D	1.5				
-	2	from 2.1m, stiff to very stiff, light grey mottled orange		D,pp pp	2.0 2.1 2.3		230-280 kPa 180-220 kPa 240-290 kPa		-2
-	2.45 -	SILTY SAND - Grey mottled orange silty clayey fine to medium grained sand, saturated with soem clay and trace fine to medium grained subangular and subrounded gravel (including extremely weathered coal / carbonaceous siltstone)		D	2.5		2-10 250 Ni u	<u>_</u>	
-	3 3.0-	Pit discontinued at 3.0m, limit of investigation							3
-									
-									
-	4								-4
-									
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: Free groundwater observed at 2.45

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 124

PROJECT No: 39663C **DATE:** 30 Oct 07

SHEET 1 OF 1

		Description	i		Sam		& In Situ Testing	_	
R	Depth (m)	of	Graphic Log	эс	oth	Sample	Results &	Water	Dynamic Penetrometer Test (blows per mm)
	(***)	Strata	Ō	Туре	Depth	San	Results & Comments	>	5 10 15 20
	0.05	FILLING - Brown silty sand, moist	\times	D,PID	0.1		<1 nom		
		FILLING - Orange-brown sandy fine to coarse grained subangular gravel and cobbles with some clay, (ripped sandstone), damp		טיארט.	0.1		<1 ppm		
	0.45-	FILLING - Stiff to hard, grey mottled orange and brown silty sandy clay with some fine to coarse grained subangular gravel including trace coal, M Wp		D,PID,pp	0.6		<1 ppm, 120->400 kPa		-1
	- 1.1 - - -	CLAYEY SILT - Dark grey-brown clayey silt, moist		D,PID	1.2		<1 ppm		
	- 1.5 - - -	SILTY CLAY - Stiff, dark grey mottled orange-red silty clay, M>Wp		D,pp	1.7		140-190 kPa		
	- - 2 - 2.1 - -	CLAY - Very stiff to hard grey clay with some orange mottling, M>Wp		pp	2.3		340->400 kPa		-2
	- - - -3 3.0- -	Pit discontinued at 3.0m, limit of investigation							3
	-								
	- 4 - -								-4
	-								

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 125

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

П		Description	<u>.</u> 2		Sam	npling &	& In Situ Testing	Ι.				
귒	Depth (m)	of	Graphic	ğ e	ţ	ble	Regulte &	Water	Dynamic (blo	Penetro	meter mm)	Test
	(111)	Strata	ى ق _	Type	Depth	Sample	Results & Comments	>			5	20
-		SANDY SILT - Grey-brown sandy silt with trace fine to coarse grained subangular gravel, damp from 0.15m, light grey-brown, increased sand content, humid		D,PID	0.1		<1 ppm		-			
-	0.6	SANDY CLAY - Very stiff to hard, grey mottled orange sandy clay with some fine to coarse grained subangular gravel, M Wp		D,PID,p	0.5 p 0.8		<1 ppm, 290->400 kPa					
	1	from 1.2m, increasing gravel content, some cobbles to 200mm							-1			
-	2			pp	2.0		>400 kPa		-2			
-		from 2.5m, very stiff, no gravel, trace silt, M>Wp		pp	2.5		270-340 kPa					
-	3 3.0	from 2.85m, grading into claystone / siltstone							-			
-		Pit discontinued at 3.0m, limit of investigation										
-	4								-4			
-												

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DATE: 30 Oct 07 **DIP/AZIMUTH:** 90°/--SHEET 1 OF 1

PIT No: 126

PROJECT No: 39663C

		41-	Description	hic	Sampling & In Situ Testing				<u></u>	Dynamic Penetrometer Test
집	(n	pth n)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20
	-		CLAY - Very stiff to hard, grey clay with some orange mottling and trace silt, M < Wp	1//),PID,p _l		S	<1 ppm, 360->400 kPa		10 13 20
	-		from 0.4m, stiff to very stiff, M>Wp),PID,p	0.5		<1 ppm, 180-250 kPa		
	- 1 - -	1.4	CLAY - Stiff to very stiff, light grey mottled orange clay, M>Wp),PID,pl	o 1.2		<1 ppm, 160-200 kPa		-1
	-		·),PID,p _l	1.7		<1 ppm, 190-300 kPa		
	-2		from 2.2m, stiff, trace ironstained shells		D,pp	2.4		150-190 kPa		-2
	-3	3.0-	Pit discontinued at 3.0m, limit of investigation							3
	-4-									-4

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DATE: 30 Oct 07

PIT No: 127

DIP/AZIMUTH: 90°/--

PROJECT No: 39663C SHEET 1 OF 1

		Description	je		Sam		& In Situ Testing	_	B. comic Boundary and Total
ద	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
Н		Strata	0	Ε,	۵	Saı	Comments		5 10 15 20 : : : :
-		CLAY - Stiff, grey-brown clay with some silt and fine to medium grained subangular gravel, M>Wp	į),PID,pp	o 0.1		<1 ppm, 140-180 kPa		
-	0.4 -	CLAY - Very stiff to hard, light grey mottled orange clay, M ≪Wp	i),PID,pp	0.5		290->400 kPa		
	·1 1.2-	CLAYSTONE - Extremely low strength, extremely weathered, light grey claystone	===						-1
		weatriered, light grey daystone							-
-	1.5	Pit discontinued at 1.5m							
-	-2								-2
-									
-	·3								-3
-									
	· 4								-4 -

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 128

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

П		Description	.e Sampling & In Situ Testing						,					
귒	Depth	Description of	Graphic Log	۵				Water	Dyn	amic P	enetro	meter	Test	
	(m)	Strata	رق	Туре	Depth	Sample	Results & Comments	>	5			5	20	
H		FILLING - Hard, dark grey-brown silty clay, M <wp< td=""><td></td><td>D,PID,p</td><td></td><td>3,</td><td><1 ppm, >400 kPa</td><td></td><td></td><td></td><td></td><td>:</td><td>:</td></wp<>		D,PID,p		3,	<1 ppm, >400 kPa					:	:	
	.			J,FID,P	5 0.1		1 ppm, 2400 kPa							
	0.25	FILLING - Hard, grey and orange-brown clay, M ≤ Wp		-I D,PID,p _l V	0.3		<1 ppm, >400 kPa		-					
	0.4	CLAY - Stiff to very stiff, grey-dark grey slightly silty clay, M≽Wp												
		from 0.6m, M>>Wp		J D,PID,p _l	0.6		<1 ppm, 180-220 kPa		-					
		nom o.om, w>>vvp							-				:	
	0.85	CLAY - Stiff, grey mottled orange clay with some silt,	1//	1								:	:	
	-1	M>>Wp		1 D,PID,p _l	o 1.0		<1 ppm, 150-180 kPa		-1				:	
				1					} :					
				1										
]										
		from 1.5m, very stiff		pp	1.5		200-260 kPa		-					
	.	nom nom, roly can		1				▼	:	:			:	
	.	from 1.7m, some sand, stiff		pp	1.8		140-180 kPa	-						
] ''					}				:	
	-2 2.0	SANDY CLAYEY SILT - Grey mottled orange sandy	H:X] _					-2					
	•	clayey silt and abundant shell flecks, saturated		D	2.1									
	.			1					. :					
				1					}					
	2.5	Pit discontinued at 2.5m, limit of investigation	<u> </u>											
									ŀ				:	
	-3								-3				:	
									-					
									} :					
									. :					
									-					
	.								· :					
	-4								4			:	:	
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									}				:	
									[]			:	:	
Ш												:		

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: Free groundwater observed at 1.7m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING: PROJECT No: 39663C **DATE:** 19 Dec 07 SHEET 1 OF 1

PIT No: 129

DIP/AZIMUTH: 90°/--

		Description	ē	Sampling & In Situ Testing				L	Dynamic Penetrometer Test			
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)			
		Strata	0	F	De	Sar	Comments		5 10 15 20 : : : :			
-	0.05	organic matter, M>>Wp SILTY CLAY/CLAYEY SILT - Stiff to very stiff, grey/dark		D, pp	0.1		170-210kPa					
-		grey silty clay/clayey silt with some rootlets, very moist, M>>Wp		/					-			
		from 0.3m to 0.5m, trace sandstone cobbles to 150mm										
		from 0.4m, grey mottled orange/brown silty clay		D, pp	0.5		150-230kPa	>				
			1 //// 1 //// 1 //// 1 ////									
-	0.85 - 1	CLAY - Very stiff grey clay with some orange/brown mottling and trace silt and rootlets, M>Wp		D, pp	1.0		260-320kPa		-1			
				D, pp	1.5		260-350kPa					
-	1.6	SILTY CLAYEY SAND - Light grey mottled orange silty clayey sand, saturated						<u></u>	-2			
-	2.2	SILTSTONE - Extremely low to very low strength, highly	(-/-/-/-/-/-/-/-/									
		weathered grey and orange/brown clayey siltstone		- - - - -								
				† - - -								
				<u> </u>								
				1								
	-3 3.0	Pit discontinued at 3.0m- limit of investigation	-						3			

RIG: CASE 450mm bucket

LOGGED: Collins

WATER OBSERVATIONS: Seepage water observed at 0.4m, Free groundwater observed at 1.6m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 130

SHEET 1 OF 1

PROJECT No: 39663C **DATE:** 19 Dec 07

		Description	. <u>o</u>	Sampling & In Situ Testing					Dynamic Penetrometer Test			
귐	Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows	per mm)		
	-	FILLING - Grey/brown clayey sand and fine to coarse sub angular gravel including coal with trace silt and coal and sandstone cobbles, moist		D/PID	0.1	Š	<1ppm		5 10	15	20	
	0.35	FILLING - Dark grey/black fine to coarse grey sand and gravel sized coal reject, generally comprising 60% coal, 40% carbonaceous siltstone, moist to wet from 0.6m, saturated		D/PID	0.5		<1ppm	Ā				
	- 0.9- -1 -	SILTY SANDY CLAY - Stiff grey mottled orange/brown silty sandy clay, M>>Wp		D, pp, PID	1.0		130-190kPa, <1ppm		-1			
	-2 - 2.5	from 2.0m, very stiff clay with some silt		D, pp	2.0		210-260kPa		-2			
	-	Pit discontinued at 2.5m- due to pit wall collapsing										
	-3								-3		:	

RIG: CASE 450mm bucket

WATER OBSERVATIONS: Free groundwater observed at 0.6m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 131

PROJECT No: 39663C **DATE:** 06 Nov 07 SHEET 1 OF 1

		Description	je	Sampling & In Situ Testing					Dynamic Penetrometer Test				
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blow	s per mm)	riest		
		Strata	O			Sar			5 10	15	20		
	- 0.1 -	FILLING - Generally comprising brown silty sand with some angular gravel, sandstone (5%) and coal chitter (5%), abundant rootlets, dry	/ / / / / /	D,PID	0.0 0.05 0.2		<1 ppm		-				
		CLAYEY SAND - (Medium dense), grey fine grained clayey sand, trace rootlets, dry	(//././. 	,D,PID	0.3								
	0.45	SANDSTONE - Low strength, extremely weathered, grey and orange fine grained sandstone	, !						-				
		Pit discontinued at 0.45m, refusal on sandstone											
	-												
	-1								-1				
	-												
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RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PiD Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED
Initials:
Date:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 132

PROJECT No: 39663C **DATE:** 06 Nov 07 SHEET 1 OF 1

		Description	.jc _		Sam		& In Situ Testing		Durania Danataanataa Taat
R	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
Ш		Strata	0		_0.0	Sar	<1 ppm	_	5 10 15 20 : : : :
	0.15	FILLING - Generally comprising brown clayey silt with some fine grained sand and angular gravel		D,PID	0.1				}
	.	CLAYEY SAND - (Medium dense), light brown fine grained clayey sand	////	D,PID	0.2		<1 ppm		
		SANDSTONE - Low strength, extremely weathered, light			0.0				-
	0.55	yellow fine grained sandstone Pit discontinued at 0.55m, refusal on sandstone	. · . · · · · .						
		i i discontinued at 0.35m, relusar on sandstone							
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RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- Initials:

CHECKED



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 133

PROJECT No: 39663C **DATE:** 06 Nov 07 SHEET 1 OF 1

		Description	<u>i</u>		Sam	pling 8	& In Situ Testing		_			
묍	Depth (m)	of	Graphic Log	e e	g	ple	Results &	Water	Dynan	nic Penet (blows pe	rometei er mm)	r Test
	()	Oli did	Ö	Туре	Depth	Sample	Results & Comments	>	5	10	15	20
	0.0	55 FILLING - Generally comprising brown clayey silt with trace angular gravel, abundant rootlets, damp	$\overset{\checkmark}{\times}\overset{\checkmark}{\times}$	D,PID	0.0 0.05		<1 ppm					
			$\times\!\!\times\!\!\!\times$		0.2		<1 ppm				i	
	-	FILLING - Generally comprising brown mottled orange-brown silty clay, trace angular gravel and rootlets,	XX	D,PID	0.3				}			
	0.4	dry dry	$\searrow \searrow$						}			
	-	SILTY CLAY - (Hard), light brown mottled orange silty clay, trace rootlets, dry	///[D,PID,p	0.5		<1 ppm, 450 kPa		<u> </u>			
	0.6		77		0.6					<u>:</u>	÷	-:
	_	Tit discontinued at 0.00m, refusal on sandstone										
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RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 134

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

Don	Description	hic				& In Situ Testing		Dynamic Pene	etrometer Test
군 Dept	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows p	per mm)
	FILLING - Grey-brown clayey silt with some fine grained sand, moist from 0.1m, light grey-brown, some cobbles SILTY SANDSTONE - Very low to low strength, moderately weathered, orange silty sandstone		D,PID		S	<1 ppm			
-1 -1 -3 -3 -3 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4	Pit discontinued at 0.65m, refusal							-1 -1 -2 -3 -3 -4	
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed REMARKS: Some coal chitter / ash in western edge of pit

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 135

PROJECT No: 39663C **DATE:** 06 Nov 07 SHEET 1 OF 1

		Description	jic		Sam		& In Situ Testing	۰	D D t.	
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results &	Water	Dynamic Penetro (blows per	meter rest mm)
		Strata				San	Results & Comments	_	5 10	15 20
	.	TOPSOIL - Dark brown sandy silt with trace gravel and abundant rootlets CLAYEY SAND - (Dense), brown fine grained clayey sand with some low to medium strength weathered sandstone		D,PID D,PID	0.0 0.05 0.1 0.2		<1 ppm <1 ppm			
	0.45	SANDSTONE - Light grey and yellow, low strength, extremely weathered, fine grained sandstone							-	
	. 0.45	extremely weathered, fine grained sandstone Pit discontinued at 0.45m, refusal on sandstone							- ! !	
		Tit discontinued at 0.45m, reidsal on sandstone								
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RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING: PROJECT No: 39663C **DATE:** 06 Nov 07 SHEET 1 OF 1

PIT No: 136

DIP/AZIMUTH: 90°/--

		Description	je		Sam		& In Situ Testing		D	D t	t	
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic (blo	Penetro ows per	mm))SI
	0.05	Strata TOPSOIL - Dark brown sandy silt with trace gravel and		⊢ D,PID	- 0.0	Sa	<1 ppm		5	10 1	15 20	
	0.00	abundant rootlets	Y) X (////	5,. 15	0.1							
		CLAYEY SAND - (Dense), brown clayey fine grained sand, trace sandstone (ironstone) fragments ranging up to		D,PID	0.3		<1 ppm		-			
	0.5	100mm	7././. //./	0,110	0.4							
	0.55	SANDSTONE - Light grey and yellow, low strength, extremely weathered sandstone	[,',','						-	:		
		Pit discontinued at 0.55m, refusal on sandstone										
									-			
	-1								-1			
									-			
									-			
									-			
	-2								-2			
									-			
									-			
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	-3								-3			
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	-4								-4			
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RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 137

PROJECT No: 39663C

DATE: 06 Nov 07 SHEET 1 OF 1

		Description	je		Sam		& In Situ Testing		Durantia Danataanataa Taat
귙	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
-		Strata Strata		Ĺ.	Ď	Sa	Comments		5 10 15 20 : : : :
	-	FILLING - Generally comprising brown silty clay, some gravel, comprising coal (1-2%) and sandstone (5%), abundant rootlets, dry		D,PID	0.2		<1 ppm		
	- 0.3	FILLING - Generally comprising orange-red fine grained clayey sand, trace gravel sized coal (1-2%), trace rootlets, dry		D,PID	0.3 0.4 0.5		<1 ppm		
	0.55	SANDSTONE - Low strength, extremely weathered, light grey and orange sandstone		D,PID	0.7		<1 ppm		
	- 0.8	Pit discontinued at 0.8m, refusal on sandstone		,	-0.8				
	- 1 - 1 								-1
	-2								-2
	-3								-3
	-4								-4

RIG: Backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED
Initials:
Deter



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 138

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

]	Description	je _		San		& In Situ Testing		Durantia Danatramatan Tant
귐	Depth (m)	of Strate	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
Н		Strata FILLING - Grey-brown clayey silt, damp		,		Ss			5 10 15 20 : : : :
-		from 0.4m, grey, moist		D,PID	0.1		<1 ppm <1 ppm		
-	-1 1.2- 1.35-	FILLING - Grey mottled orange clay with some sand and trace fine to coarse grained subangular gravel, M> Wp CLAY - Stiff to very stiff, grey clay with some orange mottling, M> Wp	1//),PID,p _l			<1 ppm, 200-250 kPa <1 ppm, 180-220 kPa		-1
-	-2 -2 - 2.2-	CLAYSTONE - Extremely low strength, extremely weathered, light grey mottled orange claystone grading into very low strength siltstone							-2
-	2.6-	into very low strength siltstone Pit discontinued at 2.6m, limit of investigation							
-	-3								-3
-	- 4								-4
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING:

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 140

PROJECT No: 39663C **DATE:** 30 Oct 07 SHEET 1 OF 1

	Donth	Description	hic				& In Situ Testing		Dynan	nic Pene	tromete	r Test
씸	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		(blows p	er mm)	
-	0.3	FILLING - Grey-brown clayey silt with trace fine to medium grained gravel including ash, moist (possible disturbed natural) from 0.2m, clay content increasing CLAY - Very stiff, grey mottled orange clay, M > Wp		D,PID	0.1	Š	<1 ppm			10	15	20
		from 0.7m, hard, M≪Wp		pp	0.7		>400 kPa		-			
- - -	0.85	CLAYSTONE - Extremely low strength, extremely weathered, light grey mottled orange claystone from 1.1m, very low strength							-1			
	1.5	Pit discontinued at 1.5m, refusal	<u> </u>						-			
-	·2								-2			
-	·3								-3			
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-	· 4								-4			
-									-			
									-			

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 141

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

			Description	į		Sam		& In Situ Testing			
귙	De (r	epth m)	of	Graphic Log) e	oth	Sample	Results &	Water	Dynamic Pene (blows p	trometer Test per mm)
	,	,	Strata	Ō	Туре	Depth	Sam	Results & Comments	>	5 10	15 20
	-	0.3	FILLING - Grey-brown clayey silt with trace fine to coarse grained gravel including coal and ash and minor glass and porcelain inclusions, moist (possible disturbed natural)		D,PID	0.1		<1 ppm			
	-		CLAY - Very stiff, grey clay with some orange mottling and trace fine to coarse grained subangular gravel and cobbles to 200mm, M>Wp	į),PID,p	p 0.5		<1 ppm, 260-300 kPa			
	-	0.8	CLAYSTONE - Extremely low strength, extremely	====							
	- 1 -		weathered, grey mottled orange claystone with some ironstaining / cementing							-1	
		1.5	from 1.3m, very low strength								
	-	1.5	Pit discontinued at 1.5m, refusal								
	-										
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RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 142

PROJECT No: 39663C **DATE:** 30 Oct 07

SHEET 1 OF 1

П		Description	U		San	npling 8	& In Situ Testing		
씸	Depth (m)	of	Graphic Log	o o		<u>e</u>	Dogulto 9	Water	Dynamic Penetrometer Test (blows per mm)
	(m)	Strata	5	Туре	Depth	Sample	Results & Comments	>	5 10 15 20
-	0.2	FILLING - Grey-brown intermixed sandy silt and fine to coarse grained gravel sized coal reject, generally comprising 40% sandy silt, 40% coal, 20% carbonaceous siltstone, damp		D,PID	0.1	0)	<1 ppm		
	0.45	FILLING - Dark grey silty sandy fine to coarse grained gravel sized coal reject, generally comprising 50% coal, 50% carbonaceous siltstone		D,PID D,PID,p _l	0.3		<1 ppm <1 ppm, 300-380 kPa		
-		CLAY - Very stiff, grey and orange-brown clay, M>Wp					, , , , , , , , , , , , , , , , , , ,		
-	-1	from 0.9m, hard, grey mottled orange, M ≼ Wp		D,PID,pp	o 1.0		<1 ppm, >400 kPa		-1
	1.4	CLAYSTONE - Extremely low strength, extremely weathered, grey mottled orange claystone							
- - - -	-2			D	2.0				-2
-		from 2.7m, very low strength grading into siltstone							
	3 3.0	Pit discontinued at 3.0m, limit of investigation							-4
-									

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 143

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

		Description	. <u></u>		San	npling 8	& In Situ Testing		
귐	Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
	-	FILLING - Grey-brown clayey sand, fine to coarse grained subangular gravel and cobbles to 100mm including trace coal, moist		D,PID	0.1	0,	<1 ppm		
	0.25	FILLING - Dark grey-black clayey fine to coarse grained gravel and cobble sized coal reject, generally comprising 50% coal, 35% clay, 15% carbonaceous siltstone, moist		D,PID	0.4		<1 ppm		
	- 0.7 - 0.9	FILLING - Grey-brown silt with some clay and sand and brick and metal inclusions, moist		D,PID	0.8		<1 ppm		
	- 1 - 1	FILLING - Hard intermixed grey and orange-brown silty sandy clay with some fine to coarse gravel, M≯ Wp		D,PID,pp	1.1		<1 ppm, >400 kPa		-1
	1.35 - - -	SILTY SANDY CLAY - Stiff to very stiff, grey-brown silty sandy clay with some fine to medium grained subrounded gravel, M>Wp		D,PID,pp	1.5		<1 ppm, 190-230 kPa		
	- - -2 2.0 -	PEBBLY CLAYSTONE - Extremely low strength, extremely weathered, grey mottled pebbly claystone, sand							-2
	- 2.2 - 2.4	and gravel content increasing with depth CONGLOMERATE - Very low to low strength, moderately		D	2.3				
	-3	Pit discontinued at 2.4m, refusal							-3

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

PROJECT No: 39663C **DATE:** 30 Oct 07

PIT No: 144

DIP/AZIMUTH: 90°/--SHEET 1 OF 1

	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			& In Situ Testing		Dynamic Penetrometer Test		
R				Туре	Depth	Sample	Results & Comments	Water	(blows per mm)		
-		SILT - Grey silt with trace clay and fine grained sand, moist		D,PID	0.05	S	<1 ppm		5 10 15 20		
	0.3	CLAY - Very stiff grey clay, M>Wp		D,PID,p _l	o 0.4		<1 ppm, 290-320 kPa				
		from 0.7m, hard, M≪Wp		рр	0.7		>400 kPa				
	0.9 -	SILTSTONE / CLAYSTONE - Extremely low strength, grey mottled orange siltstone / claystone with some medium strength boulders to 450mm from 1.1m, low strength	·	4					-1		
	1.4	Pit discontinued at 1.4m, refusal	1	+							
	-2								-2		
	-3								-3		
	-4								-4		

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 145

PROJECT No: 39663C

DATE: 30 Oct 07 SHEET 1 OF 1

	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Durania Danatan mata Tant			
R				Type	Depth	Sample	Results &	Water	Dynamic Penetrometer Test (blows per mm)		
				Ϋ́		San	Results & Comments		5 10	15	20
		FILLING - Brown sandy silt with some gravel (crushed slag) in upper 100mm, moist		D,PID	0.1		<1 ppm		-		
	0.25	SILTY CLAYEY SAND - Grey-brown silty clayey fine to coarse grained sand with some fine to medium grained gravel, moist	////	D,PID	0.3		<1 ppm		-		
		SANDSTONE - Very low strength, highly weathered, grey mottled orange sandstone, clayey and pebbly in parts, some ironstaining / cementing									
	0.8	Pit discontinued at 0.8m, refusal	ļ.·.··.							:	
	-1								-1		
									-		
	-2								-2		
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	-3								-3		
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									}		
											<u>:</u>

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

Localised area of slag gravel at surface adjacent to power pole **REMARKS:**

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal & Allied Pty Ltd

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 146

SHEET 1 OF 1

PROJECT No: 39663C **DATE:** 30 Oct 07

		Description	ပ္		San	npling 8	& In Situ Testing					
占	Depth (m)	of	Graphic	ρ <u>ψ</u>	£	e B	Populto 9	Water	Dynamic (blo	Penetro	meter mm)	Test
	(111)	Strata	9	Type	Depth	Sample	Results & Comments	>				20
		SILT - Grey silt with some fine grained sand and trace fine to coarse grained subangular gravel, humid		D,PIC		0)	<1 ppm		-			
	- 0.4	CLAYEY SILT - Grey mottled orange clayey silt with some fine to coarse grained gravel and cobbles to 200mm, damp	///	D,PIC	0.5		<1 ppm		-			
	- 0.7 -	SILTSTONE - Very low strength, highly weathered, grey mottled orange siltstone							-			
	ļ	from 0.9m, low to medium strength	l	1					<u> </u>			
	-1 1.0	Pit discontinued at 1.0m, refusal							-2			
	-4								-4			
									-		:	

RIG: JCB 3CX Backhoe, 600mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 147

PROJECT No: 39663C

DATE:	19	Dec	07
SHEET	1	OF	1

	Depth	Description	hic				& In Situ Testing	e	Dvnam	nic Pene	etromete	er Test
귚	(m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	2511011	(blows p	per mm)	
		Strata	U	F	å	Sar	Comments		5	10	15	20
	-	SANDY CLAYEY SILT - Grey sandy clayey silt with trace fine/medium sub rounded gravel, mottled		D/PID	0.1		<1ppm	-				
-		from 0.2m, light grey, brown, increased sand and gravel content						-				
-	-			D/PID	0.4		<1ppm	-				
-		from 0.75m, clayey gravelly fine/medium grained sand with some silt, very moist						-				
-	-1			, D	1.0			-	-1			
	- 1.5 ₁	SANDY CLAY/CLAYEY SANDY GRAVEL - Interbedded stiff to very stiff grey sandy clay (M>>Wp), and clayey sandy fine/coarse sub angular and sub rounded gravel, moist		D, pp	1.8		170-230kPa	_				
-	-2)	1.0		170 250M a	-	-2			
-				pp	2.5		190-250kPa					
-	- - - 2.9											
	-3 3.0	SANDSTONE/CONGLOMERATE - Very low to low strength highly weathered grey and orange \sandstone/conglomerate		_					3			

RIG: CASE 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: Collins

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING:

PIT No: 148

NORTHING: DIP/AZIMUTH: 90°/-- PROJECT No: 39663C **DATE:** 19 Dec 07 SHEET 1 OF 1

		Description	Sampling & In Situ Testing		L				
2	Depth (m)	of of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
L		Strata	υ υ	Ļ	De	Sar	Comments		5 10 15 20 : : : :
	0.1	TOPSOIL - Grey clayey silt with trace sand and fine/medium grained sub rounded gravel, damp	8	D/PID	0.1		<1ppm		
		CLAYEY SAND - Light grey mottled orange clayey fine/medium grained sand with some fine/medium grained sub rounded gravel		D/PID	0.5		<1ppm		
	-	from 0.7m, extremely low strength, extremely weathered sandstone (soil like properties)							
	-1 1	from 0.9m, very low strength highly weathered							
	-2	Pit discontinued at 1.0m- refusal							-2

RIG: CASE 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Car suspension spring at surface ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

DIP/AZIMUTH: 90°/--

EASTING: NORTHING:

PROJECT No: 39663C

DATE: 19 Dec 07 SHEET 1 OF 1

PIT No: 149

	Description	je		San		& In Situ Testing	<u>ا</u>	D	io Don-	tromot	
Depth (m)	of	Graphic Log) e	oth	Sample	Results &	Water	Dynam (ic Pene blows p	tromete er mm)	eries
(,	Strata	Ō	Туре	Depth	Sam	Results & Comments	>	5	10	15	20
	FILLING - Grey/brown clayey silty sand with some fine/medium grained gravel and numerous inclusions brick, plastic, glass, sheet metal and fibro, moist at 0.05m		D/PID	0.1		<1ppm					
0.2	SILT - Hard grey silt with trace fine/medium grained gravel, fine grained sand and clay, humid							-			
	from 0.35m clay count increasing		D/PID	0.4		<1ppm		-			
0.55	SANDSTONE - Extremely low strength extremely weathered light grained mottled or sandstone (clayey sand like properties)							-			
	from 0.7m, very low strength highly weathered							-			
·1 1.0-	Pit discontinued at 1.0m- refusal							-1			
	Pit discontinued at 1.011-Telusal							-			
								-			
								-			
2								-2			
								-			
								-			

RIG: CASE 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- 3

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: Collins



-3

CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

DIP/AZIMUTH: 90°/--

EASTING: NORTHING:

PROJECT No: 39663C **DATE:** 19 Dec 07

SHEET 1 OF 1

PIT No: 150

		Description	ي	<u> </u>		San	npling &	& In Situ Testing	Τ.				
묍	Depth (m)	of Strata	Graphi	Log	Type	Depth	Sample	Results & Comments	Water		ows per	r mm)	
		SANDY SILT - Grey/dark grey sandy silt with trace clay and fine/medium grained sub rounded gravel, very moist			D/PID		Ö	<1ppm		5	10	15	20
	0.25	SILTY SAND/CLAY - Grey mottled orange silty sand/clay M>>Wp/wet	-1-		D, pp, PID	0.4		90-190kPa, <1ppm	>	-			
					pp	0.75		190-280kPa		-			
	- 1 									-1			
	· 1.6	CLAYEY SAND/CLAYEY SANDY GRAVEL - Interbedded stiff to very stiff grey clayey sand (M>>Wp) and clayey sandy fine/coarse sub angular and sub rounded gravel, moist		0.0000						-			
	-2 2.0· - 2.1·	SANDSTONE/CONGLOMERATE - Light strength moderately weathered grey and orange \sandstone/congromerate	/·/.						<u>_</u>	-2			
		\sandstone/congromerate Pit discontinued at 2.1m- refusal	/							-			
										-			
	-3									-3			

RIG: CASE 450mm bucket

LOGGED: Collins

WATER OBSERVATIONS: Seepage at 0.45m, free groundwater observed at 1.9m

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 151

PROJECT No: 39663C

DATE: 19 Dec 07 SHEET 1 OF 1

		Description	ie		San	npling &	& In Situ Testing	L	
చ	Depth (m)	of	Graphic	Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
Ш		Strata	9	Þ	eQ	San	Comments		5 10 15 20
-		SILT - Light brown silt with trace clay, humid to damp		D/PID	0.1		<1ppm		
	0.3	from 0.2m, including clay content							
	0.45	CLAY - Light grey mottled orange clay, silty in parts, M $\stackrel{<}{\circ}$ Wp		pp	0.4		270-400kPa		+
	0.10	SILTSTONE - Very low strength highly weathered light grey mottled orange siltstone, clayey in parts							
				†					
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	-2 2.0	Pit discontinued at 2.0m							2
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									-
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	-3								-3
	-3								-3

RIG: CASE 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: Collins

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 152

PROJECT No: 39663C **DATE:** 19 Dec 07 SHEET 1 OF 1

		Description	ie		Sam		& In Situ Testing	L	_			
귙	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynan	blows p	etromete ber mm)	er Test
		Strata TOPSOIL - Very stiff grey silty clay M>Wp	TWX	F	Ď	Sa	Comments		5 :	10	15 :	20
	-	101 001L - very sun grey sing day ivi>vvp		D, pp, PID	0.1		300-330kPa, <1ppm		- :	:	į	:
	-		KK	' "								
	- 0.3		W								:	
	0.3	CLAY - Very stiff light grey clay, M>Wp										
	-			D				•				
	-			D, pp, PID	0.5		250-320kPa, <1ppm		-			
	-								-			
	- 0.7	CLAYSTONE - Low to medium strength grey claystone							-		:	:
	- 0.8	Pit discontinued at 0.8m- refusal								-		
	-	i it dissortanded at com- relusal							-			
	-1								-1			
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RIG: CASE 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Brick, concrete, tile, glass and fibro at surface ☐ Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

Auger sample
Disturbed sample
Bulk sample
Tube sample (x mm dia.)
Water sample
Core drilling

pp Pocket penetrometer (kPa)
pp Pocket penetrometer (kPa)
PID Photo ionisation detector
S Standard penetration test
PL Point load strength (s(50) MPa
V Shear Vane (kPa)
D Water seep
Water level

CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

DIP/AZIMUTH: 90°/--

EASTING: NORTHING: PROJECT No: 39663C **DATE:** 19 Dec 07

SHEET 1 OF 1

PIT No: 153

			ווט	- IAZ	IVIOI	H : 90 /		SITE	EII	Oi	1
	Description	i <u>o</u>		Sam	ıpling 8	& In Situ Testing					
Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynar 5	nic Pene (blows p	tromete er mm)	er Tes) 20
	FILLING - Hard grey clay and fine/coarse grey sub angular gravel, humid (possible natural)		D/PID	0.1	0)	<1ppm					
0.4	GRAVELLY SILT - Hard grained fine/coarse grey gravelly silt, humid CONGLOMERATE - Very low strength grey or orange conglomerate							-			
0.75	Pit discontinued at 0.75m- refusal								:		
-1 -1	Tit discontinued at 0.75m Telusar							-1 -1			
- - - -								-			

RIG: CASE 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Fibro at surface adjacent to pit sheet ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING: PROJECT No: 39663C **DATE:** 20 Dec 07 SHEET 1 OF 1

PIT No: 154

DIP/AZIMUTH: 90°/--

		Description	i		Sam		& In Situ Testing	L	
귐	Depth (m)	of Strata	Graphic	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
-		GRAVELLY SILT - Dark grey/brown fine/coarse grained sub angular and sub rounded gravelly silt with some clay and sand, moist		D/PID	0.1	Š	<1ppm		5 10 15 20
-	0.25	CLAY - Grey mottled orange clay with some silt, M <wp< td=""><td></td><td>pp</td><td>0.3</td><td></td><td>320-400kPa</td><td></td><td></td></wp<>		pp	0.3		320-400kPa		
-	0.45	SILT - Light grey brown silt with some clay and fine/medium grained sand, humid		D/PID	0.5		<1ppm		-
-	0.75-	SANDY SILTY CLAY - Hard grey mottled sandy silty clay, M <wp< td=""><td></td><td>pp</td><td>0.8</td><td></td><td>>400kPa</td><td></td><td>-1</td></wp<>		pp	0.8		>400kPa		-1
-									
-									
-	- 2								-2
-		from 2.2m, grading into extremely low strength sandy claystone with some fine/medium sub rounded gravel							
-	2.5 - 2.6 -	SILTSTONE/SANDSTONE - Very low to low strength moderately weathered grey and orange siltstone/sandstone							
		Pit discontinued at 2.6m- refusal							
	-3								-3

RIG: CASE 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Some general fly tipping at surface (plastic & metal) ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 155

PROJECT No: 39663C

DATE: 20 Dec 07 SHEET 1 OF 1

		Description	ie		Sam		& In Situ Testing	L	
묍	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Strata	0	T	De	Sar	Comments		5 10 15 20 : : : :
	-	TOPSOIL: Dark grey clayey silt, moist grading into silty clay at 0.3m		D/PID	0.1		<1ppm		-
	- 0.4	CLAY: Very stiff grey clay, M>Wp		D, PID,	0.5		<1ppm, 330-380kPa		
	- 1 - - - 1.4-	From 1.0m, grey/brown							-1
	-	CLAYSTONE: Extremely low to light strength highly weathered light grey claystone							
	- 1.8	COAL: Extremely low strength extremely weathered black coal (clayey silt properties)							
	-2 2.0- -	CLAYSTONE: Light strength moderately weathered grey mottled orange claystone							-2
	- 2.3 - - -	Pit discontinued at 2.3m- refusal	<u> </u>						
	-3								-3

RIG: CASE 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED	
Initials:	
Date:	



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

DIP/AZIMUTH: 90°/--

EASTING: NORTHING:

PIT No: 156 PROJECT No: 39663C

DATE: 20 Dec 07 SHEET 1 OF 1

	Depth (m)	Description			San	Sampling & In Situ Testing			Dynamia Danatramatar Test			
씸		of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)			
Н		Strata TOPSOIL: Grey/brown sandy silt with some clay, damp	1 VX	-	۵	Sa	Comments		5 10 15 20			
	-	To cone. Groy storm carrey one man controlling, during		D/PID	0.1		<1kPa					
,	0.25	SAND: Light grey/brown slightly silty and clayey fine/medium grained sand with trace to some fine/medium grained sub angular gravel, damp		D/PID	0.5		<1kPa					
	- - 0.85 -	SANDSTONE: Extremely low strength to very low strength										
	- 1	SANDSTONE: Extremely low strength to very low strength extremely weathered light grained mottled orange sandstone with trace fine/medium grained sub rounded gravel							-1			
	1.2	Pit discontinued at 1.2m	<u> [</u>									
	-2								-2			
	-3								-3			

RIG: CASE 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi

SURFACE LEVEL: --

EASTING:

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 157

PROJECT No: 39663C **DATE:** 20 Dec 07 SHEET 1 OF 1

	Donth	Description of	hic		Sampling & In Situ Testing				Dynamic Penetrometer Test			
씸	Depth (m)		Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynan	(blows p	er mm)	. 1001
Ш		Strata	L	Ę.	۵	Sa	Comments		5	10	15 :	20
-	0.05	TOPSOIL: Grey/brown silty fine/medium grained sand, damp SANDY SILT/SILTY SAND: Light grey sandy silt/silty fine/medium grained sand, humid		D/PID	0.1		<1ppm					
	0.45	SANDSTONE: Extremely low strength extremely weathered light grained mottled orange sandstone (hard silty sand like properties clayey in parts)		D/PID	0.5		<1ppm		-1			
-	-2	Pit discontinued at 1.6m- refusal							-2			

RIG: CASE 450mm bucket WATER OBSERVATIONS: No free groundwater observed

REMARKS: Some concrete, brick and terrace rubble at surface ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Coal and Allied

PROJECT: Preliminary Geo-Contamination Assessment

LOCATION: Minmi SURFACE LEVEL: --

EASTING: NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 158

PROJECT No: 39663C **DATE:** 20 Dec 07 SHEET 1 OF 1

	Depth (m)	Description	hic				& In Situ Testing		Dynamic Penetrometer Test			
씸		of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		(blows per mm)		
Н		CLAYEY SILT: Dark grey/brown clayey silt, moist grading to very stiff to hard grey/brown silty clay at 0.3m, M>Wp	1/1/			Š			5	10	15	20
	•	to very stiff to hard grey/brown silty clay at 0.3m, M>Wp		D/PID	0.1		<1ppm					
				pp	0.3		320-740kPA					
									-			
				D/PID	0.5		<1ppm		-			
				рр	0.6		200-270kPa		-			
	. 0	0.9										
	-1	CLAY: Hard light grey clay M>Wp		pp	1.0		>400kPa		-1			
-									}			
	1.2	25 CARRONACEOUS SILTSTONE, Extremely love to visit										
		CARBONACEOUS SILTSTONE: Extremely low to very low strength highly weathered dark grey/brown carbonaceous siltstone with some coal		-								
	·	Carbonaceous sinsione with some coal										
		From 1.6m, including coal content, occassional light grey							-			
		clay bands							-	:		
				1						:		
	-2								-2			
				1					-			
			· — ·	1					-			
									}			
1				-					-			
			·	1					-	:		
	2	CLAYSTONE: Very low to low strength moderately weathered grey/brown claystone		1					<u> </u>			
	-3 3	8.0 weathered grey/brown claystone							-3			
		Pit discontinued at 3.1m- refusal							-			:
									-			
									-			
	•											
	-								-	:		

RIG: CASE 580 Super LE

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

