

Annex 31.4

Cherry Cobb Sands
Compensation Site
Contaminated Land Risk
Assessment

(Able UK Ltd)



**CHERRY COBB SANDS COMPENSATION SITE
CONTAMINATED LAND RISK ASSESSMENT**

AUGUST 2011

Able UK Ltd
Able House,
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Teesside
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Tel: 01642 806080 Fax: 01642 655655

	CHERRY COBB SANDS COMPENSATION SITE CONTAMINATED LAND RISK ASSESSMENT	AUGUST 2011
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APPROVAL & REVISION REGISTER

	NAME	SIGNATURE	DATE
Originator:	J. Dawes		16/08/2011
Checked by:	R. Cram		17/08/2011
Approved by:	R. Cram		19/09/2011

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6	Cherry Cobb Sands Excavation Depth Plan: Drawing No. 121726-2000-006 (<i>Black & Veatch</i>)
7	Remediation Contractor Consultation correspondence

1 CONTAMINATION ASSESSMENT

1.1 INVESTIGATION

1.1.1 Delta Simons undertook an intrusive site investigation across the proposed compensation site at Cherry Cobb Sands. The investigation comprised 14 N^o. trial pits (TP), 12 N^o. cone penetrometer tests (CPT) and 1 N^o. cable percussive borehole. Exploratory hole location plan is shown in Appendix 1

1.1.2 As the land is currently used as arable farmland it was agreed with the landowners/farmers that the investigation would be restricted to access tracks and field boundaries in order to minimise the disturbance to land and/or crops. Unfortunately this has resulted in a somewhat limited view of the ground conditions in some areas.

1.1.3 The desk study indicated that the historical land use for the site was arable farming, with the possibility that the North Western extremity of the site may have been part of a WWII decoy site. The desk study also highlighted the presence of an historical landfill, known as "Land West of Cherry Cob Sands Road" within the north-west fields (Environment Agency Interactive Waste Map). TP 11 to TP 13 were aimed at determining presence of landfill.

1.1.4 Logs from the trial pits (presented in Appendix 2) indicate that ground conditions encountered were generally uniform across the entire site. TP11 and TP12 encountered significant thicknesses of made ground along with visual and olfactory evidence of VOC contamination, likely diesel and/or acetone. It was not possible to determine the base of the made ground as the material was saturated and unstable. TP11 was terminated at 2.7m bgl and TP12 at 2.5m bgl.

1.2 CHEMICAL ANALYSIS

1.2.1 Samples from trial pits across the entire site were sent for analysis. The majority of the samples did not yield elevated levels of any contaminants. Samples from TP11 and TP12 however did yield elevated levels of heavy metals and organic contaminants (Table 1). Test certificates are reproduced in Appendix 3.

Table 1: Summary of Elevated Contaminates

Location	Sample No.	Depth <i>m bgl</i>	Metals (mg/kg)			TPH* >C21-C40
			Copper (Cu)	Lead (Pb)	Zinc (Zn)	
TP11	S1	0.2	1000	1000	1900	NT
	S2	0.5	NE	NE	350	NT
	S3	1.5	320	NE	540	NT
TP12	S3	1.2	360	NE	850	NT
	S4	1.9	NE	NE	450	2500

*Total Petroleum Hydrocarbon

NT = Not Tested

NE = Sample below exceedance levels.

- 1.2.2 All samples were tested for presence of asbestos. However only sample 3 (S3) from TP12 tested positive for Chrysotile asbestos. The log for TP12 states presence of asbestos sheeting. S3 is considered to have some of the visually identified cement bonded asbestos sheeting present.

1.3 CONTAMINATION SUMMARY

- 1.3.1 The recent investigation indicates that the majority of the proposed compensation site is uncontaminated based on recent soil guideline values issued by the Environment Agency. However the area of the historic landfill in the north western fields (TP11 & TP12) is substantially contaminated. Logs indicated that the landfill is capped with gravelly clay approximately 0.5m thick preventing landfill contamination leaching to crops growing above.
- 1.3.2 No leachability testing was undertaken in this investigation so it is not possible to determine whether the landfill material is leaching into groundwater.

1.4 POTENTIAL SOURCES OF CONTAMINATION

- 1.4.1 Hickling Gray Associates, land agents to two of the tenant farmers, replied to the formal consultation in early 2011. Hickling Gray state they have been made aware that "*...former creeks, were subject to extensive dumping of industrial and commercial waste from Hull in the 1950's*". However there are no records of any such dumping and the information was obtained by word of mouth from former employees.
- 1.4.2 Information obtained from the geophysical survey (Appendix 4) indicates that numerous buried channels are present beneath the site. The channels all show linkages to the river and are likely former tributaries or drainage channels. The 1947 aerial photograph (Appendix 5) clearly shows all the channels prior to infilling.
- 1.4.3 The geophysical survey states that the channels are visible on the 1855 OS map however OS maps post 1956, no longer show evidence of the channels. The disappearance of the channels from the OS maps matches the timing of the "*dumping of industrial and commercial waste*" comment received from Hickling Gray Associates.
- 1.4.4 Further support for the presence of potentially contaminated material is the magnetic responses of the channels within Field 4. The geophysical survey indicates that the channels "*appear to have been backfilled with highly magnetic material*". The results from the contaminated material encountered further north show presence of significantly elevated copper, lead and zinc.

1.5 POTENTIAL CONTAMINATION QUANTITIES & COST

Quantity

- 1.5.1 The channels identified in Field 4 cover an area of approximately 22500m². CPT 8 bisected the northern end of the channel. The readings (see log presented in Appendix 2) show 0.5m thick layer of dense sand over firm to soft clays approximately 1.5m thick. These soft clays are considered to be infill deposits shown on geophysical survey.
- 1.5.2 If the buried/infilled channel within the central field (Field 4 as shown in geophysical survey) has been used as landfill similar to that in the north of the site then approximately 33,750m³ of material is likely to require off site disposal.

2 PROVISIONAL REMEDIATION STRATEGY

2.1 GENERAL

- 2.1.1 The recent site investigation was restricted to field boundaries and access tracks due to the land still being in use. Further intrusive investigation will have to be undertaken with the central fields before a full remediation strategy can be agreed.
- 2.1.2 In order to create the compensatory habitat the land must undergo a cut/fill process to reduce it to the tidal influence zone and provide material for a new flood defence wall. Drawing 121726-2000-006, (Appendix 6) produced by Black & Veatch, shows the thickness of cut required across the site. The majority of the site requires 0.5m thick cut; however in the area where the current flood defence wall will be breached up to 1.5m thickness will need to be removed.

2.2 PROPOSAL

- 2.2.1 It is proposed that prior to commencement of works a secondary ground investigation will be undertaken with the areas not previously accessible and prove presence of contaminated land within areas identified on geophysical survey. The investigation will be undertaken after submission of the IPC application.
- 2.2.2 Information obtained from the geophysical survey will be used to position the trial pits in order to determine whether there are any further sources of contamination (buried channels).
- 2.2.3 If contaminated material is encountered during the secondary investigation a strategy will be drawn up to detail how the material and site will be remediated. Options are discussed further in Section 2.3.
- 2.2.4 If the secondary investigation does not encounter any further contaminated material it cannot be assumed that none exist. During the excavation works machine operators will stop immediately and report any encounter with suspected contaminated material to the Site Manager. Samples will be collected and sent of analysis. Results will determine whether any material requires treatment and/or removal to specialist licensed facility.

2.3 POTENTIAL REMEDIATION OPTIONS

2.3.1 Able UK has consulted with a number of suitably qualified remediation contractors about options for remediating the site, if contaminated land is encountered within the cut-fill area. Responses are presented in Appendix 7.

2.3.2 Making the reasonable assumption that, any contamination encountered is similar to that encountered in TP11 & TP12 (as suggested by Hickling Gray Associates) the material will be classified as Hazardous waste. As such the material will require some treatment on site whether it remains on site or is taken to a licensed facility.

2.3.3 Consultations with Dunton Environmental Ltd and Sanctus Ltd, two experience remediation contractors, there are two options of remediation (Appendix 7) should contaminated land be encountered:

1. Reuse / Encapsulation onsite;
2. Removal to licensed facility (landfill)

2.3.4 All options will require the contaminated material to be removed, screened to remove oversize and potentially recyclable material and stockpiled on an impermeable surface (visqueen membrane) for bioremediation. This method has been identified as the best chance to reduce the hydrocarbon content. Chemical oxidation was ruled out due to the likely saturation of the material.

Option 1

2.3.5 Bioremediation will reducing the hydrocarbon contamination making it possible for the material to be reused on site providing it is not in contact with end use and/or controlled waters.

Option 2

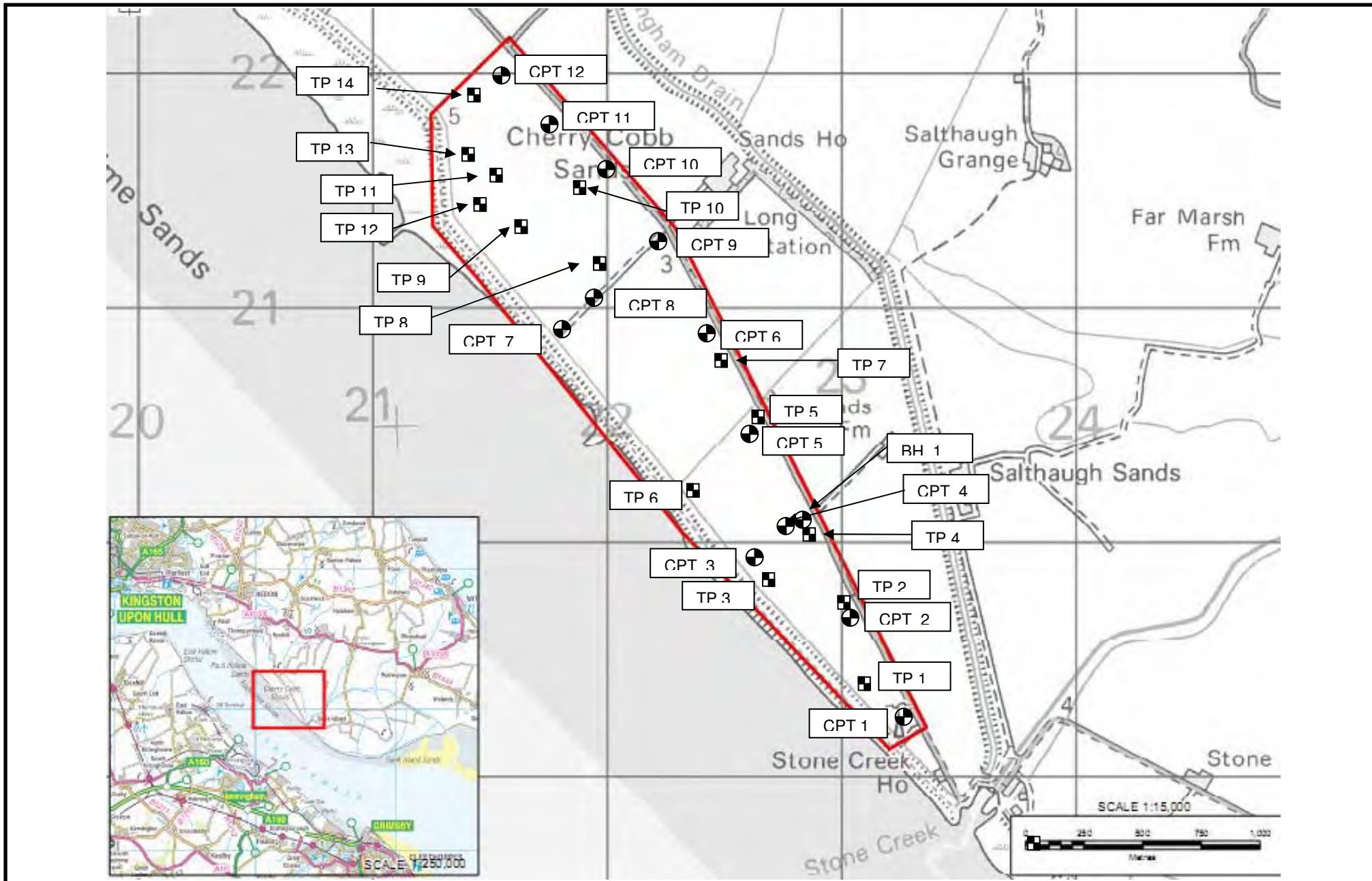
2.3.6 If the material can not be reused on site then removal to a licensed facility would have to be undertaken. However, this will be costly and there are few facilities nearby that could take the material.



**CHERRY COBB SANDS COMPENSATION SITE
CONTAMINATED LAND RISK ASSESSMENT**

**AUGUST
2011**

APPENDIX 1
EXPLORATORY HOLE LOCATION PLAN
(Delta Simons)





**CHERRY COBB SANDS COMPENSATION SITE
CONTAMINATED LAND RISK ASSESSMENT**

**AUGUST
2011**

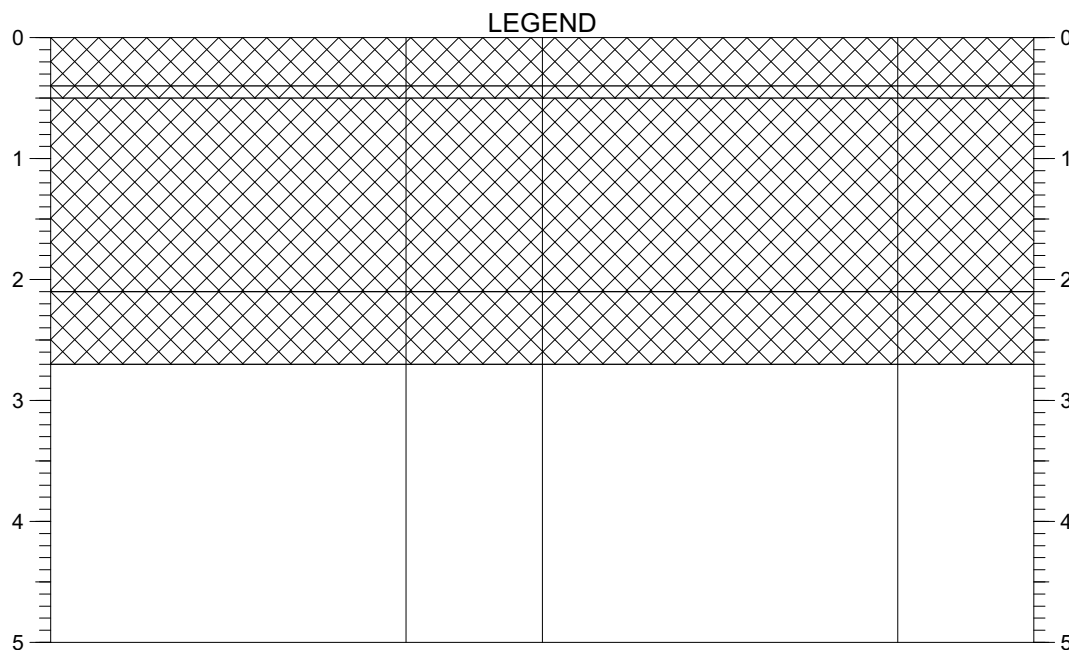
**APPENDIX 2
EXPLORATORY HOLE LOGS
(TP11-TP13 AND CPT8)**

(Delta Simons)

Delta Simons Environmental Consultants Ltd
The Lawn, Union Road,
Lincoln LN1 3BL
Tel: 08700 400 012
Fax: 01522 882 567
Email: info@deltasimons.com



Project:	Cherry Cobb Sands	Project No: 10-2041.01	TP 11
	TRIAL PIT LOG	Date Started: 04-02-2011	Page 1 of 1

**STRATA****SAMPLES & TESTS**

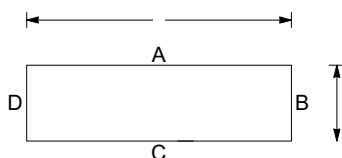
Depth	No	DESCRIPTION	Depth	No	PID	HSV	PP
0.00		MADE GROUND: comprising dark brown sandy gravelly clayey topsoil with occasional fine to medium pottery and glass fragments.	0.20	DS1			
0.40		MADE GROUND: comprising brown fine to medium sandy gravel fill. Gravel is fine to medium angular and subangular concrete and brick fragments.	0.50	DS1			
0.50			1.10	DS2			
		MADE GROUND: comprising grey and black clayey fine to coarse sand and fine to coarse subrounded to angular gravel with glass bottles, glass fragments, whole and half house bricks, asbestos sheet fragments, possible asbestos wool, timber and metals fragments. Very strong VOC and hydrocarbon odour noted.	1.50	DS3			
2.10			2.20-2.50	BB1			
		Possible MADE GROUND: very soft slightly gravelly fibrous peat with occasional red brick, glass and pottery fragments.	2.20	DS4			

Shoring/Support:

Stability: Unstable, flooded and collapsing during excavation below 1.50m.

REMARKS:

Trial-pit terminated at 2.70m due to UXO and cross-contamination risk

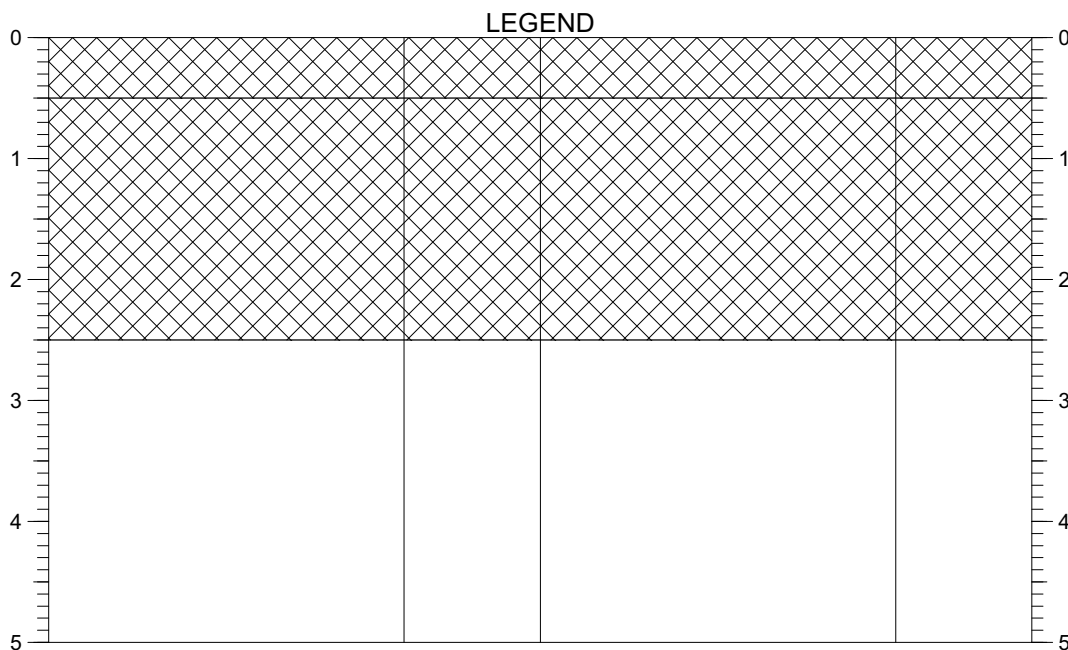


Plant Used: 3CX	Coordinates / Level (AOD):	Logged By: KDM	Checked By:	Approved By:
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Delta Simons Environmental Consultants Ltd
 The Lawn, Union Road,
 Lincoln LN1 3BL
 Tel: 08700 400 012
 Fax: 01522 882 567
 Email: info@deltasimons.com



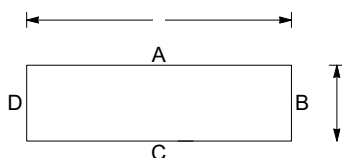
Project:	Cherry Cobb Sands	Project No: 10-2041.01	TP 12
	TRIAL PIT LOG	Date Started: 04-02-2011	Page 1 of 1

**STRATA****SAMPLES & TESTS**

Depth	No	DESCRIPTION	Depth	No	PID	HSV	PP
0.00		MADE GROUND: comprising dark brown sandy gravelly clayey topsoil with occasional fine to medium pottery and glass fragments.	0.30	DS1			
0.50		MADE GROUND: comprising grey and black fine to coarse sand and fine to coarse subrounded to angular gravel with glass bottles, glass fragments, whole and half house bricks, asbestos sheet fragments, possible asbestos wool, timber and metals fragments and sheets. Very strong VOC and hydrocarbon odour noted.	0.50-1.00	BB1			
		From 1.10m: becoming clayey and wet	0.50	DS2			
		From 1.90m: becoming locally purple and blue	1.20	DS3			
			1.90	DS4			

Shoring/Support:

Stability: Unstable, flooded and collapsing during excavation below 1.50m.

**REMARKS:**

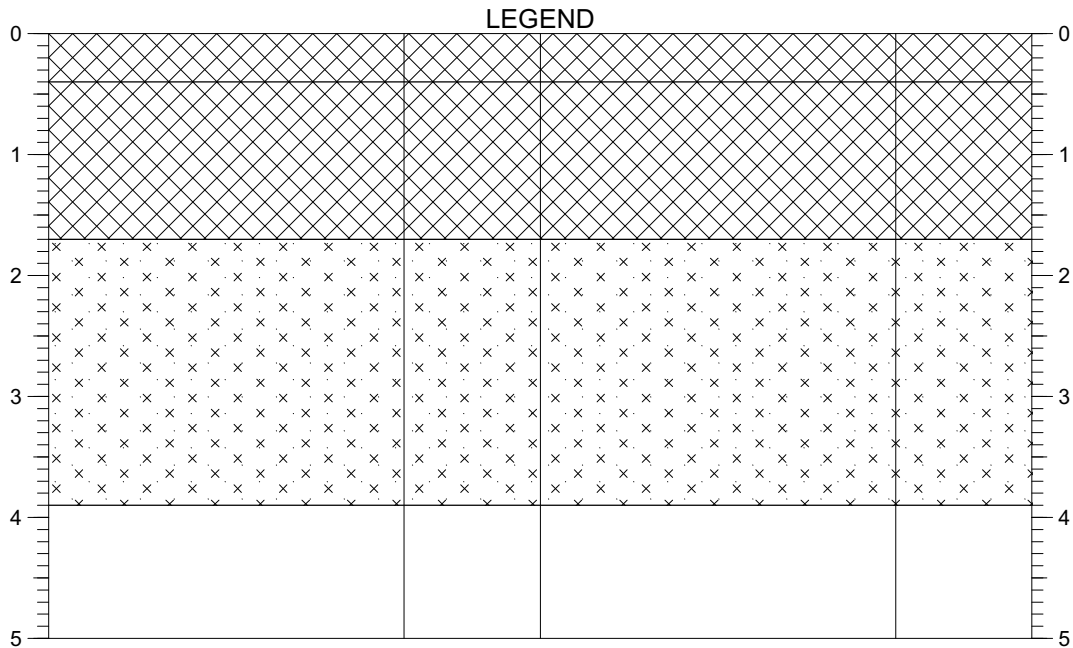
Trial-pit terminated at 2.50m due to UXO and cross-contamination risk

Plant Used: 3CX	Coordinates / Level (AOD):	Logged By: KDM	Checked By:	Approved By:
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Delta Simons Environmental Consultants Ltd
 The Lawn, Union Road,
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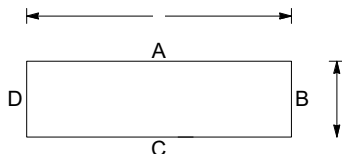


Project:	Cherry Cobb Sands	Project No: 10-2041.01	TP 13
	TRIAL PIT LOG	Date Started: 04-02-2011	Page 1 of 1



STRATA			SAMPLES & TESTS				
Depth	No	DESCRIPTION	Depth	No	PID	HSV	PP
0.00		MADE GROUND: comprising brown sandy clayey reworked topsoil with frequent rootlets. Sand is fine to medium.	0.00	DS1			
0.40		Possible MADE GROUND: comprising light brown very clayey very silty sand with some pockets of soft to firm light brown silty clay (possible historically reclaimed estuarine alluvium).	0.50			44	
			0.50	1		46	
			0.50	2		49	
			0.50	3		68	
			1.00			64	
			1.00	1		60	
			1.00	2			
1.70		Grey sandy SILT. Sand is fine to medium.	1.00	3			
			1.00-1.50	BB1			
			1.00	DS2			
			2.00-2.50	BB2			
			2.00	DS3			
			3.00-3.50	BB3			
			3.00	DS4			
			4.00	DS4			

Shoring/Support:
 Stability: Unstable below 3.0m, pit collapsed on completion.



REMARKS:

Plant Used: 3CX	Coordinates / Level (AOD):	Logged By: KDM	Checked By:	Approved By:
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CHERRY COBB SANDS
Delta-Simons Project No. 10-2041.01



Photograph 1 – Trial Pit 11



Photograph 2 – Trial Pit 11 Spoil

CHERRY COBB SANDS
Delta-Simons Project No. 10-2041.01



Photograph 1 – Trial Pit 12



Photograph 2 – Trial Pit 12 Spoil

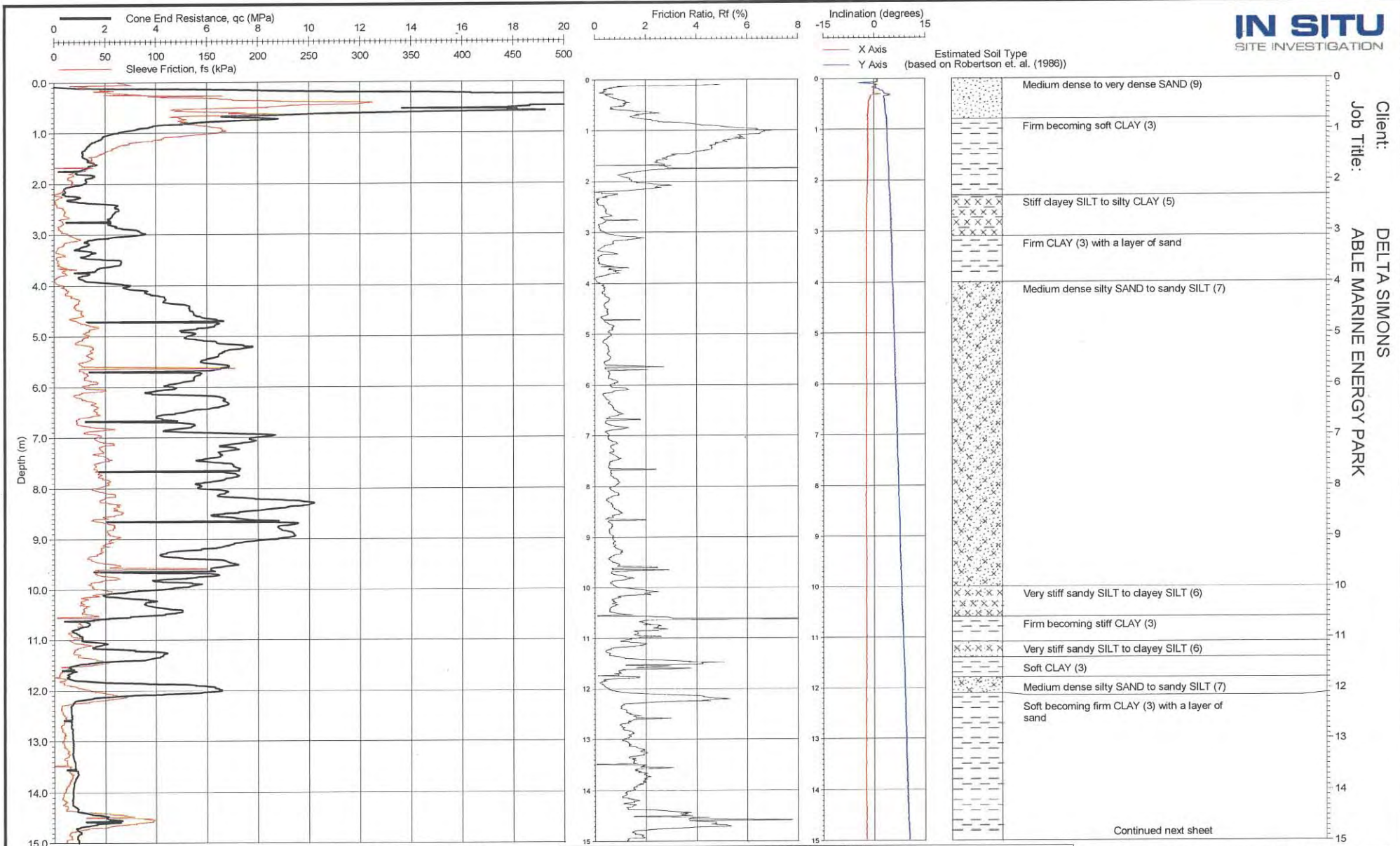
CHERRY COBB SANDS
Delta-Simons Project No. 10-2041.01



Photograph 1 – Trial Pit 13



Photograph 2 – Trial Pit 13 Spoil



Client: DELTA SIMONS
Job Title: ABLE MARINE ENERGY PARK

Continued next sheet

Location: HUMBERSIDE
Coordinates: -
Ground Level: -
Cone & Rig Used: S15CFIIP.D42 - CPT 04
Remarks: Test refused on total pressure.

Date of Test: 04/02/2011
Date of Plot: 14/02/2011
File Name: 1110107 - CPT 08
Checked By: *[Signature]*

PCPT Zero Values

Tip Zero Pre: 0.2281 mV	Tip Zero Post: 0.2278 mV	Tip Zero Difference: -2.8000 %
Sleeve Zero Pre: 0.2945 mV	Sleeve Zero Post: 0.2944 mV	Sleeve Zero Difference: 0.0409 %
Pore Pressure Zero Pre: 0.3208 mV	Pore Pressure Zero Post: 0.3179 mV	Pore Pressure Difference: 0.9028 %
X Inclinator Zero Pre: 1.2221 mV	X Inclinator Zero Post: 1.2269 mV	X Inclinator Difference: -0.3894 %
Y Inclinator Zero Pre: 1.2357 mV	Y Inclinator Zero Post: 1.2359 mV	Y Inclinator Difference: -0.0162 %

PIEZO CONE PENETRATION TEST

CPT 08
insitusi.com



Client: DELTA SIMONS
Job Title: ABLE MARINE ENERGY PARK

Location: HUMBERSIDE
Coordinates: -
Ground Level: -
Cone & Rig Used: S15CFIIP.D42 - CPT 04
Remarks: Test refused on total pressure.

Date of Test: 04/02/2011
Date of Plot: 14/02/2011
File Name: 1110107 - CPT 08
Checked By: *[Signature]*

PCPT Zero Values

Tip Zero Pre: 0.2281 mV	Tip Zero Post: 0.2278 mV	Tip Zero Difference: -2.8000 %
Sleeve Zero Pre: 0.2945 mV	Sleeve Zero Post: 0.2944 mV	Sleeve Zero Difference: 0.0409 %
Pore Pressure Zero Pre: 0.3208 mV	Pore Pressure Zero Post: 0.3179 mV	Pore Pressure Difference: 0.9028 %
X Inclinator Zero Pre: 1.2221 mV	X Inclinator Zero Post: 1.2269 mV	X Inclinator Difference: -0.3894 %
Y Inclinator Zero Pre: 1.2357 mV	Y Inclinator Zero Post: 1.2359 mV	Y Inclinator Difference: -0.0162 %

PIEZO CONE PENETRATION TEST
CPT 08
insitusi.com
Form: CPT0001



**CHERRY COBB SANDS COMPENSATION SITE
CONTAMINATED LAND RISK ASSESSMENT**

**AUGUST
2011**

**APPENDIX 3
CHEMICAL ANALYSIS TEST CERTIFICATES**

(Delta Simons)

Delta Simons
The Lawn
Union Road
Lincoln
LN1 3BL

FAO Kevin McGee
02 March 2011

Dear Kevin McGee

Test Report Number **116311**
Your Project Reference **Cherry Cobb Sands**

Please find enclosed the results of analysis for the samples received 25 February 2011.

If you require any further assistance, please do not hesitate to contact the Customer Services team.

Yours sincerely



Authorised Signatory

- Darrell Hall Director
- Phil Hellier Director
- Keith Jones Technical Manager
- John Crawford Quality Manager
- Malcolm Avis Director



2183



Test Report 116311 Cover Sheet

Delta Simons
The Lawn
Union Road
Lincoln
LN1 3BL

FAO Kevin McGee

LABORATORY TEST REPORT

Results of analysis of 1 sample
received 25 February 2011

Cherry Cobb Sands



Report Date
02 March 2011

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Sampling Date

Depth

Matrix

					116311
					AF79131
					TP12
					S3
					24/02/2011
					1.2m
					ASBESTOS
SOP↓	Determinand↓	CAS No↓	Units↓	*	
2185	Actinolite	77536664		U	Not detected
	Amosite	12172735		U	Not detected
	Anthophyllite	77536675		U	Not detected
	Chrysotile	12001295		U	Detected
	Crocidolite	12001284		U	Not detected
	Tremolite	77536686		U	Not detected
	Material			N	cement

All tests undertaken between 28/02/2011 and 28/02/2011

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page.

Column page 1

Report page 1 of 1

LIMS sample ID range AF79131 to AF79131

Delta Simons
The Lawn
Union Road
Lincoln
LN1 3BL

FAO Kevin McGee
02 March 2011

Dear Kevin McGee

Test Report Number **122567**
Your Project Reference **Cherry Cobb Sands**

Please find enclosed the results of analysis for the samples received 22 February 2011.

All soil samples will be retained for a period of one month and all water samples will be retained for 7 days following the date of the test report. Should you require an extended retention period then please detail your requirements in an email to customerservices@chemtest.co.uk. Please be aware that charges may be applicable for extended sample storage.

If you require any further assistance, please do not hesitate to contact the Customer Services team.

Yours sincerely



Authorised Signatory

Darrell Hall Director
 Phil Hellier Director
 Keith Jones Technical Manager
 John Crawford Quality Manager
 Malcolm Avis Director



Notes to accompany report:

- The sign < means 'less than'
- Tests marked 'U' hold UKAS accreditation
- Tests marked 'M' hold MCertS (and UKAS) accreditation
- Tests marked 'N' do not currently hold UKAS accreditation
- Tests marked 'S' were subcontracted to an approved laboratory
- n/e means 'not evaluated'
- i/s means 'insufficient sample'
- u/s means 'unsuitable sample'
- Comments or interpretations are outside of the scope of UKAS accreditation
- The results relate only to the items tested
- Stones represent the quantity of material removed prior to analysis
- All results are expressed on a dry weight basis
- The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, phenols
- For all other tests the samples were dried at < 37°C prior to analysis
- Uncertainties of measurement for the determinands tested are available upon request
- Soil descriptions, including colour and texture, are beyond the scope of MCertS accreditation
- None of the test results included in this report have been recovery corrected

Test Report 122567 Cover Sheet

Delta Simons
The Lawn
Union Road
Lincoln
LN1 3BL

LABORATORY TEST REPORT



Report Date
02 March 2011

Results of analysis of 14 samples
received 22 February 2011

FAO Kevin McGee

Cherry Cobb Sands

					122567							
Login Batch No					AF77705	AF77706	AF77707	AF77708	AF77709	AF77710	AF77711	AF77712
Chemtest LIMS ID					TP2	TP3	TP6	TP8	TP11	TP11	TP11	TP12
Sample ID					S1	S2	S1	S2	S1	S2	S3	S3
Sample No					16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
Sampling Date					0m - 0.3m	1m	0m - 0.3m	1m	0.2m	0.5m	1.5m	1.2m
Depth					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Matrix												
SOP↓	Determinand↓	CAS No↓	Units↓	*								
2300	Cyanide (total)	57125	mg kg ⁻¹	M	0.90	0.90	< 0.5	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
	Thiocyanate	302045	mg kg ⁻¹	M	<5.0	<5.0	< 5.0	<5.0	< 5.0	< 5.0	< 5.0	< 5.0
2625	Total Organic Carbon		%	M	2.2	1.1	2.5	1.1	4.5	4.9	23	6.8
2120	Boron (hot water soluble)	7440428	mg kg ⁻¹	M	1.2	1.2	1.8	1.7	1.4	0.9	0.8	1.1
2490	Chromium (hexavalent)	18540299	mg kg ⁻¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2450	Arsenic	7440382	mg kg ⁻¹	M	17	13	15	12	28	23	19	20
	Cadmium	7440439	mg kg ⁻¹	M	0.23	0.11	0.24	0.11	1.9	0.40	1.3	1.4
	Chromium	7440473	mg kg ⁻¹	M	32	21	25	17	44	36	41	46
	Copper	7440508	mg kg ⁻¹	M	17	12	15	9.0	1000	140	320	360
	Mercury	7439976	mg kg ⁻¹	M	1.3	0.81	1.6	0.40	11	1.00	2.6	3.9
	Nickel	7440020	mg kg ⁻¹	M	31	23	25	19	89	35	47	50
	Lead	7439921	mg kg ⁻¹	M	62	34	49	31	1000	230	290	270
	Selenium	7782492	mg kg ⁻¹	M	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Zinc	7440666	mg kg ⁻¹	M	91	51	76	45	1900	350	540	850
2670	TPH >C6-C10		mg kg ⁻¹	N	< 1	< 1	< 1	< 1				
	TPH >C10-C21		mg kg ⁻¹	N	3.6	3.9	3.6	< 1				
	TPH >C21-C40		mg kg ⁻¹	N	3.6	4.7	3.8	4.8				
	Total Petroleum Hydrocarbons		mg kg ⁻¹	M	< 10	< 10	< 10	< 10				
2675	TPH aliphatic >C5-C6		mg kg ⁻¹	N					< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C6-C8		mg kg ⁻¹	N					< 0.1	< 0.1	< 0.1	< 0.1
	TPH aliphatic >C8-C10		mg kg ⁻¹	N					< 0.1	< 0.1	73	< 0.1
	TPH aliphatic >C10-C12		mg kg ⁻¹	N					< 0.1	< 0.1	580	< 0.1
	TPH aliphatic >C12-C16		mg kg ⁻¹	N					< 0.1	< 0.1	440	< 0.1
	TPH aliphatic >C16-C21		mg kg ⁻¹	N					< 0.1	< 0.1	860	< 0.1
	TPH aliphatic >C21-C35		mg kg ⁻¹	N					< 0.1	< 0.1	5200	< 0.1
	TPH aliphatic >C35-C44		mg kg ⁻¹	N					< 0.1	< 0.1	12	< 0.1
	TPH aromatic >C5-C7		mg kg ⁻¹	N					< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C7-C8		mg kg ⁻¹	N					< 0.1	< 0.1	< 0.1	< 0.1
	TPH aromatic >C8-C10		mg kg ⁻¹	N					< 0.1	< 0.1	170	< 0.1

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

Column page 1

Report page 1 of 8

Report sample ID range AF77705 to AF77721

Delta Simons
The Lawn
Union Road
Lincoln
LN1 3BL

LABORATORY TEST REPORT



Report Date
02 March 2011

Results of analysis of 14 samples
received 22 February 2011

FAO Kevin McGee

Cherry Cobb Sands

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Sampling Date

Depth

Matrix

SOP↓ Determinand↓

CAS No↓

Units↓

					122567					
					AF77713	AF77714	AF77715	AF77716	AF77717	AF77721
					TP12	TP14	TP1	TP7	TP13	TP12
					S4	S1	S1	S1	S1	B1
					16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
					1.9m	0.3m	0.3m	0.3m	0.3m	0.5m
					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2300	Cyanide (total)	57125	mg kg ⁻¹	M	< 0.5	< 0.5				
	Thiocyanate	302045	mg kg ⁻¹	M	< 5.0	< 5.0				
2625	Total Organic Carbon		%	M	9.5	2.2				
2120	Boron (hot water soluble)	7440428	mg kg ⁻¹	M	4.0	0.9				
2490	Chromium (hexavalent)	18540299	mg kg ⁻¹	N	<0.5	<0.5				
2450	Arsenic	7440382	mg kg ⁻¹	M	18	22				
	Cadmium	7440439	mg kg ⁻¹	M	0.71	0.35				
	Chromium	7440473	mg kg ⁻¹	M	26	40				
	Copper	7440508	mg kg ⁻¹	M	200	28				
	Mercury	7439976	mg kg ⁻¹	M	5.5	0.74				
	Nickel	7440020	mg kg ⁻¹	M	32	40				
	Lead	7439921	mg kg ⁻¹	M	310	81				
	Selenium	7782492	mg kg ⁻¹	M	<0.20	<0.20				
	Zinc	7440666	mg kg ⁻¹	M	430	120				
2670	TPH >C6-C10		mg kg ⁻¹	N	< 1	< 1				
	TPH >C10-C21		mg kg ⁻¹	N	310	4.9				
	TPH >C21-C40		mg kg ⁻¹	N	2500	17				
	Total Petroleum Hydrocarbons		mg kg ⁻¹	M	2800	22				
2675	TPH aliphatic >C5-C6		mg kg ⁻¹	N						< 0.1
	TPH aliphatic >C6-C8		mg kg ⁻¹	N						< 0.1
	TPH aliphatic >C8-C10		mg kg ⁻¹	N						< 0.1
	TPH aliphatic >C10-C12		mg kg ⁻¹	N						< 0.1
	TPH aliphatic >C12-C16		mg kg ⁻¹	N						< 0.1
	TPH aliphatic >C16-C21		mg kg ⁻¹	N						< 0.1
	TPH aliphatic >C21-C35		mg kg ⁻¹	N						< 0.1
	TPH aliphatic >C35-C44		mg kg ⁻¹	N						< 0.1
	TPH aromatic >C5-C7		mg kg ⁻¹	N						< 0.1
	TPH aromatic >C7-C8		mg kg ⁻¹	N						< 0.1
	TPH aromatic >C8-C10		mg kg ⁻¹	N						< 0.1

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

Column page 2

Report page 1 of 8

This report should be interpreted in conjunction with the notes on the accompanying cover page

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Results of analysis of 14 samples
received 22 February 2011

Cherry Cobb Sands

FAO Kevin McGee

				122567								
				AF77705	AF77706	AF77707	AF77708	AF77709	AF77710	AF77711	AF77712	
				TP2	TP3	TP6	TP8	TP11	TP11	TP11	TP12	
				S1	S2	S1	S2	S1	S2	S3	S3	
				16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	
				0m - 0.3m	1m	0m - 0.3m	1m	0.2m	0.5m	1.5m	1.2m	
				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
2675	TPH aromatic >C10-C12		mg kg ⁻¹	N					< 0.1	< 0.1	140	< 0.1
	TPH aromatic >C12-C16		mg kg ⁻¹	N					0.55	0.63	430	< 0.1
	TPH aromatic >C16-C21		mg kg ⁻¹	N					1.8	1.2	560	< 0.1
	TPH aromatic >C21-C35		mg kg ⁻¹	N					11	3.6	1700	< 0.1
	TPH aromatic >C35-C44		mg kg ⁻¹	N					< 0.1	< 0.1	3.2	< 0.1
	Total Petroleum Hydrocarbons		mg kg ⁻¹	N					13	6	10000	< 2
2700	Naphthalene	91203	mg kg ⁻¹	M	0.2	< 0.1	0.8	< 0.1	1.4	0.2		< 0.1
	Acenaphthylene	208968	mg kg ⁻¹	M	< 0.1	< 0.1	0.28	< 0.1	0.16	0.11		< 0.1
	Acenaphthene	83329	mg kg ⁻¹	M	0.11	< 0.1	0.43	< 0.1	0.32	0.22		< 0.1
	Fluorene	86737	mg kg ⁻¹	M	< 0.1	< 0.1	0.16	< 0.1	0.14	0.12		< 0.1
	Phenanthrene	85018	mg kg ⁻¹	M	0.2	0.2	0.57	< 0.1	0.68	1.4		< 0.1
	Anthracene	120127	mg kg ⁻¹	M	< 0.1	< 0.1	0.16	< 0.1	0.24	0.39		< 0.1
	Fluoranthene	206440	mg kg ⁻¹	M	0.22	0.17	0.79	< 0.1	1.1	2.6		< 0.1
	Pyrene	129000	mg kg ⁻¹	M	0.39	0.33	0.7	< 0.1	1.1	2.2		< 0.1
	Benzo[a]anthracene	56553	mg kg ⁻¹	M	0.25	< 0.1	0.36	< 0.1	0.56	1.4		< 0.1
	Chrysene	218019	mg kg ⁻¹	M	0.19	< 0.1	0.37	< 0.1	0.65	1.7		< 0.1
	Benzo[b]fluoranthene	205992	mg kg ⁻¹	M	0.11	< 0.1	0.27	< 0.1	0.59	1.5		< 0.1
	Benzo[k]fluoranthene	207089	mg kg ⁻¹	M	< 0.1	< 0.1	0.11	< 0.1	0.25	0.4		< 0.1
	Benzo[a]pyrene	50328	mg kg ⁻¹	M	< 0.1	< 0.1	0.21	< 0.1	0.4	1		< 0.1
	Dibenzo[a,h]anthracene	53703	mg kg ⁻¹	M	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.16		< 0.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg ⁻¹	M	< 0.1	< 0.1	0.26	< 0.1	0.54	0.96		< 0.1
	Benzo[g,h,i]perylene	191242	mg kg ⁻¹	M	< 0.1	< 0.1	0.42	< 0.1	0.46	1		< 0.1
	Total (of 16) PAHs		mg kg ⁻¹	M	< 2	< 2	5.9	< 2	8.7	15		< 2
2760	Methyl tert-butyl ether	1634044	µg kg ⁻¹	N					<1.0	<1.0	<1.0	<1.0
	Dichlorodifluoromethane	75718	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	Chloromethane	74873	µg kg ⁻¹	M					<1.0	<1.0	<1.0	<1.0
	Vinyl chloride	75014	µg kg ⁻¹	M					<1.0	<1.0	<1.0	<1.0
	Bromomethane	74839	µg kg ⁻¹	U					<20	<20	<20	<20
	Chloroethane	75003	µg kg ⁻¹	U					<2.0	<2.0	<2.0	<2.0
	Trichlorofluoromethane	75694	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

Column page 1

Report page 2 of 8

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Results of analysis of 14 samples
received 22 February 2011

FAO Kevin McGee

Cherry Cobb Sands

		122567					
		AF77713	AF77714	AF77715	AF77716	AF77717	AF77721
		TP12	TP14	TP1	TP7	TP13	TP12
		S4	S1	S1	S1	S1	B1
		16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
		1.9m	0.3m	0.3m	0.3m	0.3m	0.5m
		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2675	TPH aromatic >C10-C12						< 0.1
	TPH aromatic >C12-C16						0.46
	TPH aromatic >C16-C21						1.4
	TPH aromatic >C21-C35						3.0
	TPH aromatic >C35-C44						< 0.1
	Total Petroleum Hydrocarbons						5
2700	Naphthalene	91203	mg kg ⁻¹	M	0.26	0.16	
	Acenaphthylene	208968	mg kg ⁻¹	M	< 0.1	< 0.1	
	Acenaphthene	83329	mg kg ⁻¹	M	0.22	0.1	
	Fluorene	86737	mg kg ⁻¹	M	< 0.1	< 0.1	
	Phenanthrene	85018	mg kg ⁻¹	M	0.78	0.14	
	Anthracene	120127	mg kg ⁻¹	M	0.17	< 0.1	
	Fluoranthene	206440	mg kg ⁻¹	M	1.8	0.12	
	Pyrene	129000	mg kg ⁻¹	M	1.6	0.11	
	Benzo[a]anthracene	56553	mg kg ⁻¹	M	< 0.1	< 0.1	
	Chrysene	218019	mg kg ⁻¹	M	1.2	< 0.1	
	Benzo[b]fluoranthene	205992	mg kg ⁻¹	M	0.9	< 0.1	
	Benzo[k]fluoranthene	207089	mg kg ⁻¹	M	0.77	< 0.1	
	Benzo[a]pyrene	50328	mg kg ⁻¹	M	< 0.1	< 0.1	
	Dibenzo[a,h]anthracene	53703	mg kg ⁻¹	M	< 0.1	< 0.1	
	Indeno[1,2,3-cd]pyrene	193395	mg kg ⁻¹	M	0.28	< 0.1	
	Benzo[g,h,i]perylene	191242	mg kg ⁻¹	M	0.24	< 0.1	
	Total (of 16) PAHs		mg kg ⁻¹	M	8.2	< 2	
2760	Methyl tert-butyl ether	1634044	µg kg ⁻¹	N			<1.0
	Dichlorodifluoromethane	75718	µg kg ⁻¹	U			<1.0
	Chloromethane	74873	µg kg ⁻¹	M			<1.0
	Vinyl chloride	75014	µg kg ⁻¹	M			<1.0
	Bromomethane	74839	µg kg ⁻¹	U			<20
	Chloroethane	75003	µg kg ⁻¹	U			<2.0
	Trichlorofluoromethane	75694	µg kg ⁻¹	U			<1.0

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

Column page 2

Report page 2 of 8

This report should be interpreted in conjunction with the notes on the accompanying cover page

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Report Date
02 March 2011

Results of analysis of 14 samples
received 22 February 2011

FAO Kevin McGee

Cherry Cobb Sands

					122567							
					AF77705	AF77706	AF77707	AF77708	AF77709	AF77710	AF77711	AF77712
					TP2	TP3	TP6	TP8	TP11	TP11	TP11	TP12
					S1	S2	S1	S2	S1	S2	S3	S3
					16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
					0m - 0.3m	1m	0m - 0.3m	1m	0.2m	0.5m	1.5m	1.2m
					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2760	1,1-Dichloroethene	75354	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	Dichloromethane	75092	µg kg ⁻¹	N					ne	ne	ne	ne
	trans-1,2-Dichloroethene	156605	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	1,1-Dichloroethane	75343	µg kg ⁻¹	M					<1.0	<1.0	<1.0	<1.0
	cis-1,2-Dichloroethene	156592	µg kg ⁻¹	M					<1.0	<1.0	<1.0	<1.0
	Bromochloromethane	74975	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	Trichloromethane	67663	µg kg ⁻¹	M					<1.0	<1.0	<1.0	<1.0
	1,1,1-Trichloroethane	71556	µg kg ⁻¹	M					<1.0	<1.0	<1.0	<1.0
	Tetrachloromethane	56235	µg kg ⁻¹	M					<1.0	<1.0	<1.0	<1.0
	1,1-Dichloropropene	563586	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	Benzene	71432	µg kg ⁻¹	M					<1.0	<1.0	140	<1.0
	1,2-Dichloroethane	107062	µg kg ⁻¹	U					<2.0	<2.0	<2.0	<2.0
	Trichloroethene	79016	µg kg ⁻¹	U					<1.0	<1.0	2.9	<1.0
	1,2-Dichloropropane	78875	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	Dibromomethane	74953	µg kg ⁻¹	U					<10	<10	<10	<10
	Bromodichloromethane	75274	µg kg ⁻¹	U					<5.0	<5.0	<5.0	<5.0
	cis-1,3-Dichloropropene	10061015	µg kg ⁻¹	N					<10	<10	<10	<10
	Toluene	108883	µg kg ⁻¹	M					<1.0	<1.0	200	<1.0
	trans-1,3-Dichloropropene	10061026	µg kg ⁻¹	N					<10	<10	<10	<10
	1,1,2-Trichloroethane	79005	µg kg ⁻¹	U					<10	<10	<10	<10
	Tetrachloroethene	127184	µg kg ⁻¹	M					<1.0	<1.0	1.1	<1.0
	1,3-Dichloropropane	142289	µg kg ⁻¹	U					<2.0	<2.0	<2.0	<2.0
	Dibromochloromethane	124481	µg kg ⁻¹	U					<10	<10	<10	<10
	1,2-Dibromoethane	106934	µg kg ⁻¹	U					<5.0	<5.0	<5.0	<5.0
	Chlorobenzene	108907	µg kg ⁻¹	M					<1.0	<1.0	<1.0	<1.0
	1,1,1,2-Tetrachloroethane	630206	µg kg ⁻¹	M					<2.0	<2.0	<2.0	<2.0
	Ethylbenzene	100414	µg kg ⁻¹	M					<1.0	<1.0	370	<1.0
	m- & p-Xylene	1330207	µg kg ⁻¹	U					<1.0	<1.0	580	<1.0
	o-Xylene	95476	µg kg ⁻¹	U					<1.0	<1.0	1400	<1.0
	Styrene	100425	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

Column page 1

Report page 3 of 8

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Results of analysis of 14 samples
received 22 February 2011

FAO Kevin McGee

Cherry Cobb Sands

122567					
AF77713	AF77714	AF77715	AF77716	AF77717	AF77721
TP12	TP14	TP1	TP7	TP13	TP12
S4	S1	S1	S1	S1	B1
16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
1.9m	0.3m	0.3m	0.3m	0.3m	0.5m
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2760	1,1-Dichloroethene	75354	µg kg ⁻¹	U	<1.0
	Dichloromethane	75092	µg kg ⁻¹	N	ne
	trans-1,2-Dichloroethene	156605	µg kg ⁻¹	U	<1.0
	1,1-Dichloroethane	75343	µg kg ⁻¹	M	<1.0
	cis-1,2-Dichloroethene	156592	µg kg ⁻¹	M	<1.0
	Bromochloromethane	74975	µg kg ⁻¹	U	<1.0
	Trichloromethane	67663	µg kg ⁻¹	M	<1.0
	1,1,1-Trichloroethane	71556	µg kg ⁻¹	M	<1.0
	Tetrachloromethane	56235	µg kg ⁻¹	M	<1.0
	1,1-Dichloropropene	563586	µg kg ⁻¹	U	<1.0
	Benzene	71432	µg kg ⁻¹	M	<1.0
	1,2-Dichloroethane	107062	µg kg ⁻¹	U	<2.0
	Trichloroethene	79016	µg kg ⁻¹	U	<1.0
	1,2-Dichloropropane	78875	µg kg ⁻¹	U	<1.0
	Dibromomethane	74953	µg kg ⁻¹	U	<10
	Bromodichloromethane	75274	µg kg ⁻¹	U	<5.0
	cis-1,3-Dichloropropene	10061015	µg kg ⁻¹	N	<10
	Toluene	108883	µg kg ⁻¹	M	<1.0
	trans-1,3-Dichloropropene	10061026	µg kg ⁻¹	N	<10
	1,1,2-Trichloroethane	79005	µg kg ⁻¹	U	<10
	Tetrachloroethene	127184	µg kg ⁻¹	M	<1.0
	1,3-Dichloropropane	142289	µg kg ⁻¹	U	<2.0
	Dibromochloromethane	124481	µg kg ⁻¹	U	<10
	1,2-Dibromoethane	106934	µg kg ⁻¹	U	<5.0
	Chlorobenzene	108907	µg kg ⁻¹	M	<1.0
	1,1,1,2-Tetrachloroethane	630206	µg kg ⁻¹	M	<2.0
	Ethylbenzene	100414	µg kg ⁻¹	M	<1.0
	m- & p-Xylene	1330207	µg kg ⁻¹	U	<1.0
	o-Xylene	95476	µg kg ⁻¹	U	<1.0
	Styrene	100425	µg kg ⁻¹	U	<1.0

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

Column page 2

Report page 3 of 8

This report should be interpreted in conjunction with the notes on the accompanying cover page

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Report Date
02 March 2011

Results of analysis of 14 samples
received 22 February 2011

Cherry Cobb Sands

FAO Kevin McGee

					122567							
					AF77705	AF77706	AF77707	AF77708	AF77709	AF77710	AF77711	AF77712
					TP2	TP3	TP6	TP8	TP11	TP11	TP11	TP12
					S1	S2	S1	S2	S1	S2	S3	S3
					16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
					0m - 0.3m	1m	0m - 0.3m	1m	0.2m	0.5m	1.5m	1.2m
					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2760	Tribromomethane	75252	µg kg ⁻¹	U					<10	<10	<10	<10
	Isopropylbenzene	98828	µg kg ⁻¹	U					<1.0	<1.0	3.2	<1.0
	Bromobenzene	108861	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	1,2,3-Trichloropropane	96184	µg kg ⁻¹	N					<50	<50	<50	<50
	n-Propylbenzene	103651	µg kg ⁻¹	U					<1.0	<1.0	16	<1.0
	2-Chlorotoluene	95498	µg kg ⁻¹	M					<1.0	<1.0	<1.0	<1.0
	1,2,4-Trimethylbenzene	95636	µg kg ⁻¹	U					<1.0	<1.0	61	<1.0
	4-Chlorotoluene	106434	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	tert-Butylbenzene	98066	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	1,3,5-Trimethylbenzene	108678	µg kg ⁻¹	U					<1.0	<1.0	19	<1.0
	sec-Butylbenzene	135988	µg kg ⁻¹	U					<1.0	<1.0	13	<1.0
	1,3-Dichlorobenzene	541731	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	4-Isopropyltoluene	99876	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	1,4-Dichlorobenzene	106467	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	n-Butylbenzene	104518	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	1,2-Dichlorobenzene	95501	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	1,2-Dibromo-3-chloropropane	96128	µg kg ⁻¹	U					<50	<50	<50	<50
	1,2,4-Trichlorobenzene	120821	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	Hexachlorobutadiene	87683	µg kg ⁻¹	U					<1.0	<1.0	<1.0	<1.0
	1,2,3-Trichlorobenzene	87616	µg kg ⁻¹	U					<2.0	<2.0	<2.0	<2.0
2790	Acenaphthene	83329	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Acenaphthylene	208968	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Anthracene	120127	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Azobenzene	103333	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Benzo[a]anthracene	56553	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Benzo[a]pyrene	50328	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Benzo[b]fluoranthene	205992	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Benzo[g,h,i]perylene	191242	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Benzo[k]fluoranthene	207089	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	bis(2-Chloroethoxy)methane	111911	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

Column page 1

Report page 4 of 8

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Results of analysis of 14 samples
received 22 February 2011

FAO Kevin McGee

Cherry Cobb Sands

122567					
AF77713	AF77714	AF77715	AF77716	AF77717	AF77721
TP12	TP14	TP1	TP7	TP13	TP12
S4	S1	S1	S1	S1	B1
16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
1.9m	0.3m	0.3m	0.3m	0.3m	0.5m
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2760	Tribromomethane	75252	µg kg ⁻¹	U	<10
	Isopropylbenzene	98828	µg kg ⁻¹	U	<1.0
	Bromobenzene	108861	µg kg ⁻¹	U	<1.0
	1,2,3-Trichloropropane	96184	µg kg ⁻¹	N	<50
	n-Propylbenzene	103651	µg kg ⁻¹	U	<1.0
	2-Chlorotoluene	95498	µg kg ⁻¹	M	<1.0
	1,2,4-Trimethylbenzene	95636	µg kg ⁻¹	U	<1.0
	4-Chlorotoluene	106434	µg kg ⁻¹	U	<1.0
	tert-Butylbenzene	98066	µg kg ⁻¹	U	<1.0
	1,3,5-Trimethylbenzene	108678	µg kg ⁻¹	U	<1.0
	sec-Butylbenzene	135988	µg kg ⁻¹	U	<1.0
	1,3-Dichlorobenzene	541731	µg kg ⁻¹	U	<1.0
	4-Isopropyltoluene	99876	µg kg ⁻¹	U	<1.0
	1,4-Dichlorobenzene	106467	µg kg ⁻¹	U	<1.0
	n-Butylbenzene	104518	µg kg ⁻¹	U	<1.0
	1,2-Dichlorobenzene	95501	µg kg ⁻¹	U	<1.0
	1,2-Dibromo-3-chloropropane	96128	µg kg ⁻¹	U	<50
	1,2,4-Trichlorobenzene	120821	µg kg ⁻¹	U	<1.0
	Hexachlorobutadiene	87683	µg kg ⁻¹	U	<1.0
	1,2,3-Trichlorobenzene	87616	µg kg ⁻¹	U	<2.0
2790	Acenaphthene	83329	mg kg ⁻¹	N	<0.50
	Acenaphthylene	208968	mg kg ⁻¹	N	<0.50
	Anthracene	120127	mg kg ⁻¹	N	<0.50
	Azobenzene	103333	mg kg ⁻¹	N	<0.50
	Benzo[a]anthracene	56553	mg kg ⁻¹	N	<0.50
	Benzo[a]pyrene	50328	mg kg ⁻¹	N	<0.50
	Benzo[b]fluoranthene	205992	mg kg ⁻¹	N	<0.50
	Benzo[g,h,i]perylene	191242	mg kg ⁻¹	N	<0.50
	Benzo[k]fluoranthene	207089	mg kg ⁻¹	N	<0.50
	bis(2-Chloroethoxy)methane	111911	mg kg ⁻¹	N	<0.50

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

Column page 2

Report page 4 of 8

This report should be interpreted in conjunction with the notes on the accompanying cover page

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Report Date
02 March 2011

Results of analysis of 14 samples
received 22 February 2011

FAO Kevin McGee

Cherry Cobb Sands

					122567							
					AF77705	AF77706	AF77707	AF77708	AF77709	AF77710	AF77711	AF77712
					TP2	TP3	TP6	TP8	TP11	TP11	TP11	TP12
					S1	S2	S1	S2	S1	S2	S3	S3
					16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
					0m - 0.3m	1m	0m - 0.3m	1m	0.2m	0.5m	1.5m	1.2m
					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2790	bis(2-Chloroethyl)ether	111444	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	bis(2-Chloroisopropyl)ether	108601	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	bis(2-Ethylhexyl)phthalate	117817	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Butylbenzylphthalate	85687	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Carbazole	86748	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Chrysene	218019	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Di-n-butylphthalate	84742	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Di-n-octylphthalate	117840	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Dibenzo[a,h]anthracene	53703	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Dibenzofuran	132649	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Diethylphthalate	84662	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Dimethylphthalate	131113	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Fluoranthene	206440	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Fluorene	86737	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Hexachlorobenzene	118741	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Hexachlorobutadiene	87683	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Hexachlorocyclopentadiene	77474	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Hexachloroethane	67721	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Indeno[1,2,3-cd]pyrene	193395	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Isophorone	78591	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	N-Nitrosodi-n-propylamine	621647	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	N-Nitrosodimethylamine	62759	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Naphthalene	91203	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Nitrobenzene	98953	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Pentachlorophenol	87865	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Phenanthrene	85018	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Phenol	108952	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	Pyrene	129000	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	1,2-Dichlorobenzene	95501	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	1,2,4-Trichlorobenzene	120821	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

Column page 1

Report page 5 of 8

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Results of analysis of 14 samples
received 22 February 2011

Cherry Cobb Sands

FAO Kevin McGee

122567					
AF77713	AF77714	AF77715	AF77716	AF77717	AF77721
TP12	TP14	TP1	TP7	TP13	TP12
S4	S1	S1	S1	S1	B1
16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
1.9m	0.3m	0.3m	0.3m	0.3m	0.5m
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2790	bis(2-Chloroethyl)ether	111444	mg kg ⁻¹	N	<0.50
	bis(2-Chloroisopropyl)ether	108601	mg kg ⁻¹	N	<0.50
	bis(2-Ethylhexyl)phthalate	117817	mg kg ⁻¹	N	<0.50
	Butylbenzylphthalate	85687	mg kg ⁻¹	N	<0.50
	Carbazole	86748	mg kg ⁻¹	N	<0.50
	Chrysene	218019	mg kg ⁻¹	N	<0.50
	Di-n-butylphthalate	84742	mg kg ⁻¹	N	<0.50
	Di-n-octylphthalate	117840	mg kg ⁻¹	N	<0.50
	Dibenzo[a,h]anthracene	53703	mg kg ⁻¹	N	<0.50
	Dibenzofuran	132649	mg kg ⁻¹	N	<0.50
	Diethylphthalate	84662	mg kg ⁻¹	N	<0.50
	Dimethylphthalate	131113	mg kg ⁻¹	N	<0.50
	Fluoranthene	206440	mg kg ⁻¹	N	<0.50
	Fluorene	86737	mg kg ⁻¹	N	<0.50
	Hexachlorobenzene	118741	mg kg ⁻¹	N	<0.50
	Hexachlorobutadiene	87683	mg kg ⁻¹	N	<0.50
	Hexachlorocyclopentadiene	77474	mg kg ⁻¹	N	<0.50
	Hexachloroethane	67721	mg kg ⁻¹	N	<0.50
	Indeno[1,2,3-cd]pyrene	193395	mg kg ⁻¹	N	<0.50
	Isophorone	78591	mg kg ⁻¹	N	<0.50
	N-Nitrosodi-n-propylamine	621647	mg kg ⁻¹	N	<0.50
	N-Nitrosodimethylamine	62759	mg kg ⁻¹	N	<0.50
	Naphthalene	91203	mg kg ⁻¹	N	<0.50
	Nitrobenzene	98953	mg kg ⁻¹	N	<0.50
	Pentachlorophenol	87865	mg kg ⁻¹	N	<0.50
	Phenanthrene	85018	mg kg ⁻¹	N	<0.50
	Phenol	108952	mg kg ⁻¹	N	<0.50
	Pyrene	129000	mg kg ⁻¹	N	<0.50
	1,2-Dichlorobenzene	95501	mg kg ⁻¹	N	<0.50
	1,2,4-Trichlorobenzene	120821	mg kg ⁻¹	N	<0.50

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

Column page 2

Report page 5 of 8

This report should be interpreted in conjunction with the notes on the accompanying cover page

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Report Date
02 March 2011

Results of analysis of 14 samples
received 22 February 2011

Cherry Cobb Sands

FAO Kevin McGee

					122567							
					AF77705	AF77706	AF77707	AF77708	AF77709	AF77710	AF77711	AF77712
					TP2	TP3	TP6	TP8	TP11	TP11	TP11	TP12
					S1	S2	S1	S2	S1	S2	S3	S3
					16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
					0m - 0.3m	1m	0m - 0.3m	1m	0.2m	0.5m	1.5m	1.2m
					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2790	1,3-Dichlorobenzene	541731	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	1,4-Dichlorobenzene	106467	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2-Chloronaphthalene	91587	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2-Chlorophenol	95578	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2-Methyl-4,6-dinitrophenol	534521	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2-Methylnaphthalene	91576	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2-Methylphenol	95487	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2-Nitroaniline	88744	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2-Nitrophenol	88755	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2,4-Dichlorophenol	120832	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2,4-Dimethylphenol	105679	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2,4-Dinitrotoluene	121142	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2,4,5-Trichlorophenol	95954	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2,4,6-Trichlorophenol	88062	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	2,6-Dinitrotoluene	606202	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	3-Nitroaniline	99092	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	4-Bromophenylphenylether	101553	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	4-Chloro-3-methylphenol	59507	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	4-Chloroaniline	106478	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	4-Chlorophenylphenylether	7005724	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	4-Methylphenol	106445	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
	4-Nitroaniline	100016	mg kg ⁻¹	N					<0.50	<0.50	<0.50	<0.50
2800	Naphthalene	91203	mg kg ⁻¹	M							0.5	
	Acenaphthylene	208968	mg kg ⁻¹	N							0.6	
	Acenaphthene	83329	mg kg ⁻¹	M							0.8	
	Fluorene	86737	mg kg ⁻¹	M							<0.1	
	Phenanthrene	85018	mg kg ⁻¹	M							1.8	
	Anthracene	120127	mg kg ⁻¹	M							0.1	
	Fluoranthene	206440	mg kg ⁻¹	M							1.5	
	Pyrene	129000	mg kg ⁻¹	M							1.6	

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

Column page 1

Report page 6 of 8

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Results of analysis of 14 samples
received 22 February 2011

Cherry Cobb Sands

FAO Kevin McGee

122567					
AF77713	AF77714	AF77715	AF77716	AF77717	AF77721
TP12	TP14	TP1	TP7	TP13	TP12
S4	S1	S1	S1	S1	B1
16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
1.9m	0.3m	0.3m	0.3m	0.3m	0.5m
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2790	1,3-Dichlorobenzene	541731	mg kg ⁻¹	N	<0.50
	1,4-Dichlorobenzene	106467	mg kg ⁻¹	N	<0.50
	2-Chloronaphthalene	91587	mg kg ⁻¹	N	<0.50
	2-Chlorophenol	95578	mg kg ⁻¹	N	<0.50
	2-Methyl-4,6-dinitrophenol	534521	mg kg ⁻¹	N	<0.50
	2-Methylnaphthalene	91576	mg kg ⁻¹	N	<0.50
	2-Methylphenol	95487	mg kg ⁻¹	N	<0.50
	2-Nitroaniline	88744	mg kg ⁻¹	N	<0.50
	2-Nitrophenol	88755	mg kg ⁻¹	N	<0.50
	2,4-Dichlorophenol	120832	mg kg ⁻¹	N	<0.50
	2,4-Dimethylphenol	105679	mg kg ⁻¹	N	<0.50
	2,4-Dinitrotoluene	121142	mg kg ⁻¹	N	<0.50
	2,4,5-Trichlorophenol	95954	mg kg ⁻¹	N	<0.50
	2,4,6-Trichlorophenol	88062	mg kg ⁻¹	N	<0.50
	2,6-Dinitrotoluene	606202	mg kg ⁻¹	N	<0.50
	3-Nitroaniline	99092	mg kg ⁻¹	N	<0.50
	4-Bromophenylphenylether	101553	mg kg ⁻¹	N	<0.50
	4-Chloro-3-methylphenol	59507	mg kg ⁻¹	N	<0.50
	4-Chloroaniline	106478	mg kg ⁻¹	N	<0.50
	4-Chlorophenylphenylether	7005724	mg kg ⁻¹	N	<0.50
	4-Methylphenol	106445	mg kg ⁻¹	N	<0.50
	4-Nitroaniline	100016	mg kg ⁻¹	N	<0.50
2800	Naphthalene	91203	mg kg ⁻¹	M	
	Acenaphthylene	208968	mg kg ⁻¹	N	
	Acenaphthene	83329	mg kg ⁻¹	M	
	Fluorene	86737	mg kg ⁻¹	M	
	Phenanthrene	85018	mg kg ⁻¹	M	
	Anthracene	120127	mg kg ⁻¹	M	
	Fluoranthene	206440	mg kg ⁻¹	M	
	Pyrene	129000	mg kg ⁻¹	M	

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

Column page 2

Report page 6 of 8

This report should be interpreted in conjunction with the notes on the accompanying cover page

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Results of analysis of 14 samples
received 22 February 2011

FAO Kevin McGee

Cherry Cobb Sands

					122567							
					AF77705	AF77706	AF77707	AF77708	AF77709	AF77710	AF77711	AF77712
					TP2	TP3	TP6	TP8	TP11	TP11	TP11	TP12
					S1	S2	S1	S2	S1	S2	S3	S3
					16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
					0m - 0.3m	1m	0m - 0.3m	1m	0.2m	0.5m	1.5m	1.2m
					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2800	Benzo[a]anthracene	56553	mg kg ⁻¹	M							0.9	
	Chrysene	218019	mg kg ⁻¹	M							<0.1	
	Benzo[b]fluoranthene	205992	mg kg ⁻¹	M							<0.1	
	Benzo[k]fluoranthene	207089	mg kg ⁻¹	N							0.1	
	Benzo[a]pyrene	50328	mg kg ⁻¹	M							<0.1	
	Dibenzo[a,h]anthracene	53703	mg kg ⁻¹	N							<0.1	
	Indeno[1,2,3-cd]pyrene	193395	mg kg ⁻¹	M							<0.1	
	Benzo[g,h,i]perylene	191242	mg kg ⁻¹	M							<0.1	
	Total (of 16) PAHs		mg kg ⁻¹	N							8	
2820	Azinphos methyl	86500	mg kg ⁻¹	N								
	Coumaphos	56724	mg kg ⁻¹	N								
	Demeton (O+S)	8065483	mg kg ⁻¹	N								
	Disulfoton	298044	mg kg ⁻¹	N								
	Fensulfothion	115902	mg kg ⁻¹	N								
	Fenthion	55389	mg kg ⁻¹	N								
	Phorate	298022	mg kg ⁻¹	N								
	Prothiophos	34643464	mg kg ⁻¹	N								
	Sulprofos	35400432	mg kg ⁻¹	N								
	Trichloronate	327980	mg kg ⁻¹	N								
2840	alpha-HCH	319846	mg kg ⁻¹	N								
	gamma-HCH	58899	mg kg ⁻¹	N								
	beta-HCH	319857	mg kg ⁻¹	N								
	Heptachlor	76448	mg kg ⁻¹	N								
	delta-HCH	319868	mg kg ⁻¹	N								
	Aldrin	309002	mg kg ⁻¹	N								
	Heptachlor epoxide	1024573	mg kg ⁻¹	N								
	gamma-Chlordane	5103742	mg kg ⁻¹	N								
	alpha-Chlordane	5103719	mg kg ⁻¹	N								
	Endosulfan I	959988	mg kg ⁻¹	N								
	4,4'-DDE	72559	mg kg ⁻¹	N								

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page

Column page 1

Report page 7 of 8

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Results of analysis of 14 samples
received 22 February 2011

Cherry Cobb Sands

FAO Kevin McGee

122567					
AF77713	AF77714	AF77715	AF77716	AF77717	AF77721
TP12	TP14	TP1	TP7	TP13	TP12
S4	S1	S1	S1	S1	B1
16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
1.9m	0.3m	0.3m	0.3m	0.3m	0.5m
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2800	Benzo[a]anthracene	56553	mg kg ⁻¹	M	
	Chrysene	218019	mg kg ⁻¹	M	
	Benzo[b]fluoranthene	205992	mg kg ⁻¹	M	
	Benzo[k]fluoranthene	207089	mg kg ⁻¹	N	
	Benzo[a]pyrene	50328	mg kg ⁻¹	M	
	Dibenzo[a,h]anthracene	53703	mg kg ⁻¹	N	
	Indeno[1,2,3-cd]pyrene	193395	mg kg ⁻¹	M	
	Benzo[g,h,i]perylene	191242	mg kg ⁻¹	M	
	Total (of 16) PAHs		mg kg ⁻¹	N	
2820	Azinphos methyl	86500	mg kg ⁻¹	N	<0.20
	Coumaphos	56724	mg kg ⁻¹	N	<0.20
	Demeton (O+S)	8065483	mg kg ⁻¹	N	<0.20
	Disulfoton	298044	mg kg ⁻¹	N	<0.20
	Fensulfothion	115902	mg kg ⁻¹	N	<0.20
	Fenthion	55389	mg kg ⁻¹	N	<0.20
	Phorate	298022	mg kg ⁻¹	N	<0.20
	Prothiophos	34643464	mg kg ⁻¹	N	<0.20
	Sulprofos	35400432	mg kg ⁻¹	N	<0.20
	Trichloronate	327980	mg kg ⁻¹	N	<0.20
2840	alpha-HCH	319846	mg kg ⁻¹	N	<0.20
	gamma-HCH	58899	mg kg ⁻¹	N	<0.20
	beta-HCH	319857	mg kg ⁻¹	N	<0.20
	Heptachlor	76448	mg kg ⁻¹	N	<0.20
	delta-HCH	319868	mg kg ⁻¹	N	<0.20
	Aldrin	309002	mg kg ⁻¹	N	<0.20
	Heptachlor epoxide	1024573	mg kg ⁻¹	N	<0.20
	gamma-Chlordane	5103742	mg kg ⁻¹	N	<0.20
	alpha-Chlordane	5103719	mg kg ⁻¹	N	<0.20
	Endosulfan I	959988	mg kg ⁻¹	N	<0.20
	4,4'-DDE	72559	mg kg ⁻¹	N	<0.20

All tests undertaken between 23-Feb-2011 and 2-Mar-2011

Column page 2

Report page 7 of 8

This report should be interpreted in conjunction with the notes on the accompanying cover page

Report sample ID range AF77705 to AF77721

LABORATORY TEST REPORT

Report Date
02 March 2011

Results of analysis of 14 samples
received 22 February 2011

Cherry Cobb Sands

FAO Kevin McGee

				122567							
				AF77705	AF77706	AF77707	AF77708	AF77709	AF77710	AF77711	AF77712
				TP2	TP3	TP6	TP8	TP11	TP11	TP11	TP12
				S1	S2	S1	S2	S1	S2	S3	S3
				16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
				0m - 0.3m	1m	0m - 0.3m	1m	0.2m	0.5m	1.5m	1.2m
				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2840	Dieldrin	60571	mg kg ⁻¹	N							
	Endrin	72208	mg kg ⁻¹	N							
	4,4'-DDD	72548	mg kg ⁻¹	N							
	Endosulfan II	33213659	mg kg ⁻¹	N							
	4,4'-DDT	50293	mg kg ⁻¹	N							
	Endrin aldehyde	7421934	mg kg ⁻¹	N							
	Endosulfan sulfate	1031078	mg kg ⁻¹	N							
	Methoxychlor	72435	mg kg ⁻¹	N							
	Endrin ketone	53494705	mg kg ⁻¹	N							
	Hexachlorobutadiene	87683	mg kg ⁻¹	N							
2920	Phenols (total)		mg kg ⁻¹	N	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	2.7
2010	pH			M	8.3	8.4	8.0	8.4	8.0	8.4	8.4
2030	Moisture		%	n/a	19.8	22.1	18.5	24.6	19.4	28.7	46.5
	Stones content (>50mm)		%	n/a	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2140	Soil colour			n/a	brown	brown	brown	brown	brown	brown	brown
	Soil texture			n/a	sand	sand	sand	clay	sand	clay	sand
	Other material			n/a	stones	stones	stones	stones	stones	stones	stones
2186	Asbestos Containing Material			U					not found	not found	not found
2610	Loss on ignition		%	N	5.93	3.03	4.52	3.03	7	10.4	28.5

LABORATORY TEST REPORT

Results of analysis of 14 samples
received 22 February 2011

Cherry Cobb Sands

FAO Kevin McGee

				122567					
				AF77713	AF77714	AF77715	AF77716	AF77717	AF77721
				TP12	TP14	TP1	TP7	TP13	TP12
				S4	S1	S1	S1	S1	B1
				16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011	16/2/2011
				1.9m	0.3m	0.3m	0.3m	0.3m	0.5m
				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
2840	Dieldrin	60571	mg kg ⁻¹	N			<0.20	<0.20	<0.20
	Endrin	72208	mg kg ⁻¹	N			<0.20	<0.20	<0.20
	4,4'-DDD	72548	mg kg ⁻¹	N			<0.20	<0.20	<0.20
	Endosulfan II	33213659	mg kg ⁻¹	N			<0.20	<0.20	<0.20
	4,4'-DDT	50293	mg kg ⁻¹	N			<0.20	<0.20	<0.20
	Endrin aldehyde	7421934	mg kg ⁻¹	N			<0.20	<0.20	<0.20
	Endosulfan sulfate	1031078	mg kg ⁻¹	N			<0.20	<0.20	<0.20
	Methoxychlor	72435	mg kg ⁻¹	N			<0.20	<0.20	<0.20
	Endrin ketone	53494705	mg kg ⁻¹	N			<0.20	<0.20	<0.20
	Hexachlorobutadiene	87683	mg kg ⁻¹	N			<0.20	<0.20	<0.20
2920	Phenols (total)		mg kg ⁻¹	N	0.3	<0.3			
2010	pH			M	7.7	8.3			
2030	Moisture		%	n/a	68	21.9	21.7	22.3	21.2
	Stones content (>50mm)		%	n/a	<0.02	<0.02	<0.02	<0.02	<0.02
2140	Soil colour			n/a	blue	brown	brown	brown	brown
	Soil texture			n/a	sand	sand	sand	sand	sand
	Other material			n/a	stones	stones	stones	stones	stones
2186	Asbestos Containing Material			U					not found
2610	Loss on ignition		%	N	20.5	6.56			



**CHERRY COBB SANDS COMPENSATION SITE
CONTAMINATED LAND RISK ASSESSMENT**

**AUGUST
2011**

APPENDIX 4

**ARCHAEOLOGICAL EVALUATION REPORT:
GEOPHYSICAL SURVEY OF LAND AT CHERRY COBB
SANDS, EAST YORKSHIRE**

(Allen Archaeology Ltd)

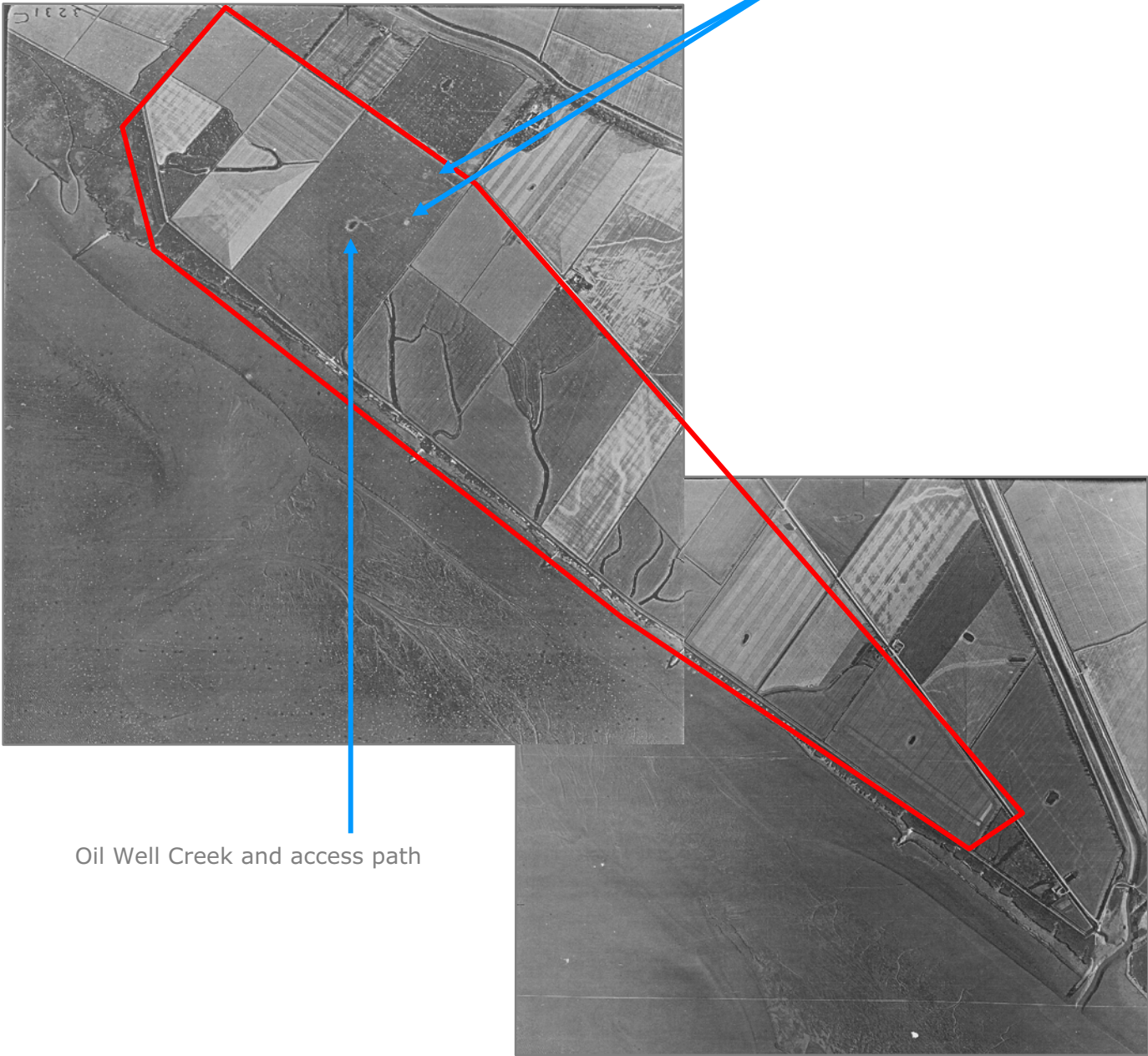
Report is presented in AMEP Environmental Statement Volume 2 Annex 40.2



**CHERRY COBB SANDS COMPENSATION SITE
CONTAMINATED LAND RISK ASSESSMENT**

**AUGUST
2011**

APPENDIX 5
1947 AERIAL PHOTOGRAPH OF CHERRY COBB SANDS
(Delta Simons)



Possible bomb craters

Oil Well Creek and access path

— Approximate site boundary

Report Reference:
3433TA

Client: Delta Simons
Project: Able Marine Energy Park site, Hull



Source: English Heritage National Monuments Record



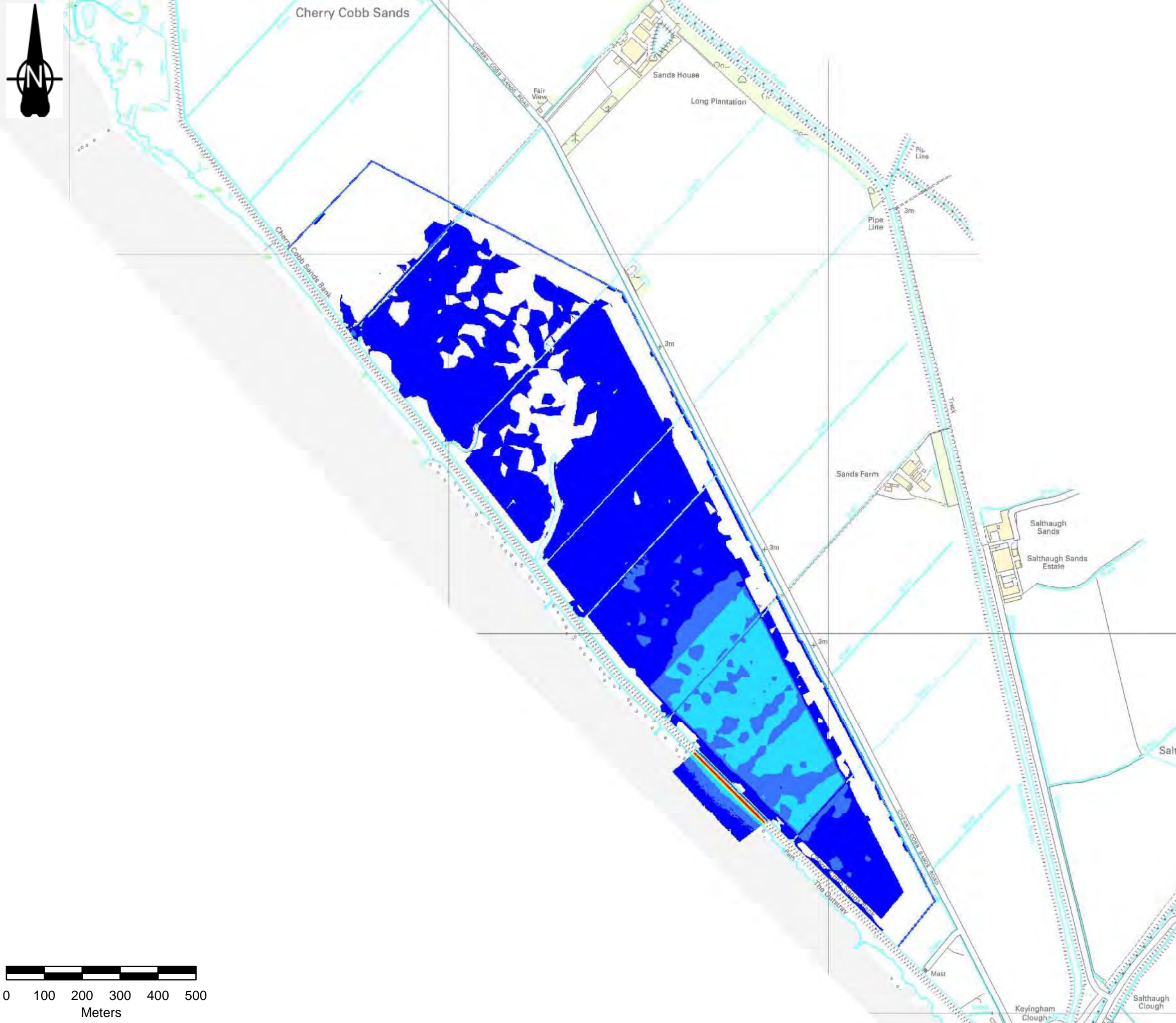
**CHERRY COBB SANDS COMPENSATION SITE
CONTAMINATED LAND RISK ASSESSMENT**

**AUGUST
2011**

APPENDIX 6

CHERRY COBB SANDS EXCAVATION DEPTH PLAN: DRAWING NO. 121726-2000-006

(Black & Veatch)



KEY

Legend:

Excavation Depth (m)

- 0.0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 2.5
- 2.5 - 3.0
- 3.0 - 3.5
- 3.5 - 3.8



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A	06/05/2011	Preliminary Issue	SJH	LVI	DK
Rev	Date	Comments	Drw	Chk	App



Project:	CHERRY COBB SANDS COMPENSATION SITE
Client:	ABLE UK Ltd
Title:	EXCAVATION DEPTH

PRELIMINARY

Scale:	1:10,000 @A3	Drawn:	SJH	Checked:	LVI	Approved:	DK	
Date:	09/05/2011	Date:	09/05/2011	Date:	09/05/2011			
Drawing No.:	121726-2000-006	Revision:	A					



**CHERRY COBB SANDS COMPENSATION SITE
CONTAMINATED LAND RISK ASSESSMENT**

**AUGUST
2011**

**APPENDIX 7
REMEDIATION CONTRACTOR CONSULTATION
CORRESPONDENCE**

Jenn Dawes

From: Chris Adams [cadams@sanctusltd.co.uk]
Sent: 09 August 2011 12:09
To: jmonk@ableuk.com
Cc: rcram@ableuk.com; jdawes@ableuk.com; Shaun Tolfree
Subject: RE: AHP:MEP Cherry Cobb Sands Historic Landfill Remediation
Attachments: image9e2300.jpg@feeab904.e9784785; 1305 - Able UK.pdf; AVG Certification.txt

Importance: High

Follow Up Flag: Follow up
Flag Status: Completed

Good afternoon Jonathan,

Thank you for your recent enquiry. We have made the following conclusions and recommendations for your site based on the Delta Simons Site Investigation report. The report states that a Phase I Desk Study of the site was undertaken, but this was not made available to us.

We understand that the proposed end use of the site is an 'Environmental Compensation Scheme'. Based on previous experience, we would anticipate that this would be a man-made ecological habitat for the translocation of wildlife, which would offset development elsewhere in the locality.

The Delta Simons site investigation comprised 14 No Trial Pits and 1 No Borehole. The majority of trial pits indicate topsoil overlying what has been interpreted as 'reclaimed estuarine alluvium', to a depth of approximately 1.60-1.90m below ground level (bgl). This overlies natural sand, silt and clay deposits. Based upon the proposed end use, in the absence of the provision of site specific end-use criteria, Sanctus has compared the chemical analysis of the trial pit samples against a 'Residential with Gardens' end use criteria, which is highly stringent and would mean that materials left in situ would pose the least threat to proposed site end users (in this case, wildlife). The samples for TP2, TP3, TP6 and TP8 were subject to suitable chemical analysis and would be suitable to stay on site in their current state. TP11 and TP12 are discussed below. The remaining trial pits were not subject to sufficient chemical analysis in order to classify the ground conditions.

Two trial pits (TP11 and TP12) towards the northwest of the site have indicated an infill of made ground. As indicated in your email, this appears to be an infilled creek. We have checked records with the Environment Agency which confirms this. Our checks with the EA indicated that the landfill was approximately 'U' shaped, which would further compound the evidence of a filled creek, as it appears to be an 'oxbow lake' feature, left isolated as a result of migrating tidal waterbodies.

There are no records or dates of the filling, or of the materials used, other than those recorded during the site investigation. The materials comprised gravel, glass, brick, wood, 'asbestos sheet fragments' and 'possible asbestos wool'. Based on the two trial pits, there does not appear to be domestic, household waste at the site. We also understand that the trial pits were terminated by Capita Simons at 2.50m bgl and 2.70m bgl respectively, due to the threat of UXO indicated by the magnetometer. This has meant that there is no confirmed depth to the infilled material. Chemical analysis has been undertaken on a number of samples from TP11 and TP12, and Sanctus has classified the materials as 'Hazardous' based on hydrocarbon concentrations, and the confirmed presence of asbestos. Due to the nature of the materials found in these trial pits, we would expect similar materials (and hence a similar classification of materials) across the rest of the infilled areas.

In order for Sanctus to be able to provide an accurate cost for the remediation of the material, the volume of landfill material would be required to be known. This is especially important, if, as stated in your email, other infilled creeks with similar material are expected to be found on site. We often operate on an 'all risk lump sum' basis which is attractive to developers, but there is currently not enough data to characterise the problems expected to be found on site.

Sanctus would recommend that further site investigation would need to be undertaken, as the number of trial pits is insufficient to give a representative spatial coverage of a 100ha site. We would be happy to undertake this for you.

We would need to delineate the volume of infill material in and around this area, so we are confident in being able to provide an accurate price for the remediation of the material. Sanctus would recommend an additional site investigation, with the majority of works focussing on the two trial pits TP11 and TP12. This is vital due to the potential 'U' shape of the infill area, as it cannot be accurately quantified at present.

A geophysical survey of the site would be recommended; this would provide an accurate, visual representation of the differing ground conditions across the site. In our experience, this would prove highly successful due to the differing

nature of the alluvium deposits and the highly variable made ground. From an additional safety viewpoint, the geophysical survey could also be used as a screen for unexploded ordnance (UXO) in the area.

Once the geophysical survey had been undertaken, a targeted intrusive site investigation could be undertaken. Trial pits would be required to determine the depth of infill material around TP11 and TP12. Trial trenches would be utilised to determine the precise lateral extent of the infill material. This would enable the volumes of material that require to be treated or disposed of, to be calculated. Large volumes of chemical analysis (and the associated costs) would not be considered necessary as the material which is required to be removed or treated is visually different from the reclaimed estuarine deposits covering the remainder of the site, and could be delineated visually. Only when the material changes, would chemical analysis be required in great detail.

Additional trial pits would be used to cover the central area of the site, which appears very sparsely covered, targeting depressions, hollows, raised ground and discoloured areas, all which may indicate the presence of filled material beneath the surface. Occasional chemical analysis could be utilised to characterise the site and support other data compiled by Delta Simons, and to confirm the classification of the estuarine alluvium deposits as 'inert' and suitable to stay on site in their current state.

With regards to dealing with the infill material, there are a number of options. As stated above, the materials from TP11 and TP12 have been classified as Hazardous in their current state. This is based mainly upon hydrocarbon content, and the presence of asbestos. (The chemical analysis in the report has confirmed the 'asbestos sheet fragments' as cement bonded chrysotile asbestos, which is not notifiable to the HSE).

Based on this classification, the materials would not be suitable to stay on site in their current form without treatment. Waste Acceptance Criteria (WAC) analysis has been undertaken, although the materials are so highly contaminated, they would also require treatment prior to disposal offsite if this was to be considered. In many circumstances, Sanctus would utilise Chemical Oxidation to treat the soils and reduce the hydrocarbon concentration. However, this technique would not be suitable as it would increase the moisture content of materials that appear to be very wet already, hence reducing their suitability for re-use. Sanctus have undertaken a brief 'remediation options appraisal' and would recommend that treatment by Bio-remediation would reduce the concentration of hydrocarbons and enable the waste classification to be reduced from 'Hazardous' to 'Non-Hazardous', and enable either disposal off-site at a suitably licensed facility, or re-use on site, at a depth which would not pose a threat to the end site user or controlled waters (providing geotechnical characteristics are acceptable). Bio-remediation is an 'on-site, ex-situ' technique that has been successfully utilised by Sanctus over the past seven years, on sites ranging in value from a few thousand pounds to multi-million pound remediation schemes. In addition to this, Sanctus are committed to the same Best Practicable Environmental Option (BPEO) as Able UK and would recommend screening the material to remove recyclable materials and reduce the contaminated volume, and a handpicking exercise to remove the asbestos. This is something we have undertaken with great success on projects in the past.

I hope you find this summary useful. We would like the opportunity to quote for a site investigation, and once this is complete, we would be able to offer you an all-risk lump sum option for the remediation works.

I have also included a brief letter detailing an introduction to our company and our services and capabilities; if you require any further information or believe that we can assist you in this development or any other schemes that you are involved with, please do not hesitate to contact us.

Regards,

Chris Adams
Environmental Engineer



SANCTUS LTD
Sanctus House
The Waterfront
Stonehouse Park

Jenn Dawes

From: Jonathan Monk [jmonk@ableuk.com]
Sent: 15 August 2011 07:59
To: jdawes@ableuk.com; rram@ableuk.com
Subject: FW: MEP Cherry Cobb Sands Historic Landfill Remediation
Attachments: image001.jpg; image002.png

Kind regards

JONATHAN MONK
AHP Marine Energy Park

From: Paul Challinor [mailto:Paul.Challinor@duntonenvironmental.co.uk]
Sent: 12 August 2011 16:47
To: jmonk@ableuk.com
Cc: Neil Roe
Subject: AHP:MEP Cherry Cobb Sands Historic Landfill Remediation

Our Ref: DTR 11138

Dear Jonathon,

Looking through the information provided I've worked out some provisional rates for treatment.

Remediation Option

Excavate, Dry out, Screen and Treat Contaminated soils to be reused on site [REDACTED]. This is assuming all 33,750m³ of material will need treatment of some sort. This would depend on target levels for the contaminates on site.

Assumptions

- 33,750m³ of material will need excavation and treatment
- Target levels for the soils would need to be agreed
- Final destination and use of the material would need to be agreed
- Some waters would need treatment
- No Asbestos containing materials have been taken into account for this tender

Additional Options

- Treat material to provide an engineered fill for the rear of the new retaining wall [REDACTED] m³ (after treatment the material may be of suitable quality to be used as engineered back fill without this option depending on your requirements)
- Remove off site to licensed landfill @ additional [REDACTED] (depending on location of landfills and timing of works)

Please contact me to discuss so we can run through the methodology and refine our tender proposal for you.

Kind Regards,

Paul Challinor
Technical Manager



Unit 1, Tamebridge Industrial Estate
Aldridge Road
Perry Barr
B42 2TX
England

Mob:0777 2926240; Tel: 0121 356 4360; Fax: 0121 356 1274

Web: www.duntonenvironmental.co.uk
Email: paul.challinor@duntonenvironmental.co.uk

Company Registration Number 5839536



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