

Great Yarmouth Third River Crossing

Application for Development Consent Order

Document 6.2: Environmental Statement Volume II: Technical Appendix 16C – Annex A and B – Part 2

Planning Act 2008

**The Infrastructure Planning (Applications: Prescribed Forms and Procedure)
Regulations 2009 (as amended) (“APFP”)**

APFP regulation Number: 5(2) (a)

Planning Inspectorate Reference Number: TR010043

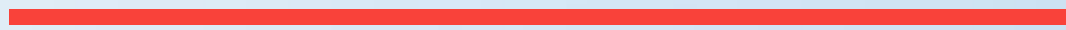
Author: Norfolk County Council

Document Reference: 6.2 – Technical Appendix 16C, Annex A and B

Version Number: 0 – Revision for Submission

Date: 30 April 2019

Appendix H



CONTAMINATED LAND TEST RESULTS

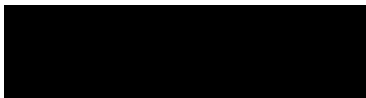
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/00986
Issue Number: 1
Date: 16 February, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt. Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 575260
Date Samples Received: 09/02/18
Date Instructions Received: 09/02/18
Date Analysis Completed: 16/02/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/00986

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00986/1	18/00986/2	18/00986/3	18/00986/4	18/00986/5	18/00986/6	18/00986/7	18/00986/8	Units	Method ref
Client Sample No	4	13	23	30	42	43	58	73		
Client Sample ID	BH1	BH1	BH1	BH1	BH1	BH1	BH1	BH1		
Depth to Top	0.50	3.00	6.95	8.95	11.50	12.50	19.50	29.00		
Depth To Bottom										
Date Sampled	06-Dec-17	06-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	11-Dec-17	11-Dec-17		
Sample Type	Soil - B	Soil - D	Soil - D	Soil - D	Soil - B	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	4AE	5A	6A	6	5	5	5	5		
% Stones >10mm _A	19.9	2.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
pH BRE _D	8.36	8.70	7.46	-	-	7.95	7.96	7.75	pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	3.52	<1.00	1.52	-	-	<1.00	33.5	85.5	mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	91	138	3570	-	-	78	25	321	mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	2.3	4.6	<0.4	-	-	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	33	115	977	-	-	101	55	172	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.03	0.03	0.37	-	-	0.04	<0.02	0.07	% w/w	A-T-028s
Sulphur BRE (total) _D	0.02	0.02	2.00	-	-	0.10	0.02	0.34	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	2	3	240	-	-	7	4	27	mg/l	A-T-SOLMET5
Organic matter _D ^{M#}	-	-	-	61.5	0.4	-	-	-	% w/w	A-T-032 OM

Envirolab Job Number: 18/00986

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00986/9	18/00986/10	18/00986/11	18/00986/12	18/00986/13	18/00986/14	18/00986/15		Units	Method ref
Client Sample No	2	17	26	35	49	55	69			
Client Sample ID	BH2	BH2	BH2	BH2	BH2	BH2	BH2			
Depth to Top	0.50	5.00	9.00	11.50	17.90	21.90	29.00			
Depth To Bottom										
Date Sampled	06-Dec-17	06-Dec-17	07-Dec-17	09-Dec-17	08-Dec-17	11-Dec-17	11-Dec-17			
Sample Type	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D	Soil - D	Soil - B			
Sample Matrix Code	5A	5	6	4	5	5	5A			
% Stones >10mm _A	2.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w		
pH BRE _D	8.31	7.70	7.04	-	8.23	8.29	7.80	pH	A-T-031s	
Ammonium NH ₄ BRE (water sol 2:1) _D	3.66	1.29	2.64	-	<1.00	<1.00	<1.00	mg/l	A-T-033s	
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	71	2090	2970	-	188	151	618	mg/l	A-T-026s	
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	2.5	<0.4	<0.4	-	<0.4	<0.4	<0.4	mg/l	A-T-026s	
Sulphate BRE (water sol 2:1) _D ^{M#}	11	710	479	-	68	<10	258	mg/l	A-T-026s	
Sulphate BRE (acid sol) _D ^{M#}	<0.02	0.33	0.40	-	0.04	<0.02	0.09	% w/w	A-T-028s	
Sulphur BRE (total) _D	<0.01	1.87	3.59	-	0.11	0.04	0.42	% w/w	A-T-024s	
Magnesium BRE (water sol 2:1) _D	<1	164	78	-	7	5	38	mg/l	A-T-SOLMETS	
Organic matter _D ^{M#}	-	-	46.8	2.2	-	-	-	% w/w	A-T-032 OM	

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/01147
Issue Number: 1
Date: 22 February, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 581480
Date Samples Received: 15/02/18
Date Instructions Received: 15/02/18
Date Analysis Completed: 22/02/18

Prepared by:



Gill Walker
Laboratory Manager

Approved by:



Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/01147

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01147/1	18/01147/2	18/01147/3	18/01147/4					Units	Method ref
Client Sample No	13	19	28	37						
Client Sample ID	BH2	BH1	BH1	BH2						
Depth to Top	4.00	5.00	8.00	12.50						
Depth To Bottom	4.45	6.00	8.50	13.00						
Date Sampled	06-Dec-17	07-Dec-17	08-Dec-17	08-Dec-17						
Sample Type	Soil - D	Soil - B	Soil - B	Soil - B						
Sample Matrix Code	5	3	6E	6						
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1						
pH BRE _D	-	-	-	7.44					pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	-	-	-	8.42					mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	-	-	-	237					mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	-	-	-	<0.4					mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	93					mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	0.07					% w/w	A-T-028s
Sulphur BRE (total) _D	-	-	-	0.28					% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	-	-	7					mg/l	A-T-SOLMETS
Organic matter _D ^{M#}	0.4	2.4	9.8	-					% w/w	A-T-032 OM

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TPH analysis of water by method A-T-007:

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E = contains roots/twigs.

Key:

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Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

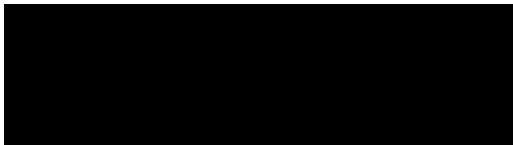
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 17/08296
Issue Number: 1
Date: 14 December, 2017

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

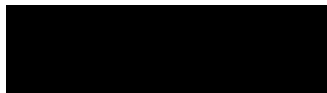
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 573823
Date Samples Received: 30/11/17
Date Instructions Received: 06/12/17
Date Analysis Completed: 14/12/17

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Iain Haslock
Analytical Consultant

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/1	17/08296/2	17/08296/3	17/08296/4	17/08296/5	17/08296/6	17/08296/7	17/08296/8	Units	Method ref		
Client Sample No	1	2	5	4	5	9	7	9				
Client Sample ID	BH7	BH4	BH4	BH7	BH7	BH6	BH7	BH4				
Depth to Top	0.20	0.30	0.50	0.80	1.00	1.20	1.40	1.60				
Depth To Bottom	0.45	0.50			1.20	1.65	1.80	2.00				
Date Sampled	30-Nov-17	30-Nov-17	28-Nov-17	28-Nov-17	30-Nov-17	23-Nov-17	29-Nov-17	30-Nov-17				
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - ES	Soil - B	Soil - D	Soil - B	Soil - B				
Sample Matrix Code	4A	1A	1A	4A	6A	5A	6	1A				
% Stones >10mm _A	40.7	18.4	16.6	17.1	<0.1	13.2	29.3	31.7			% w/w	A-T-044
pH _D	-	-	8.66	8.58	-	-	-	-	pH	A-T-031s		
pH BRE _D	8.84	8.57	-	-	8.35	-	-	9.04	pH	A-T-031s		
Ammoniacal nitrogen _D	-	-	0.7	0.7	-	-	-	-	mg/kg	A-T-033s		
Ammonium NH4 BRE (water sol 2:1) _D	<1.00	1.00	-	-	8.48	-	-	<1.00	mg/l	A-T-033s		
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	24	<7	-	-	31	-	-	12	mg/l	A-T-026s		
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	<0.4	2.2	-	-	<0.4	-	-	<0.4	mg/l	A-T-026s		
Sulphate (water sol 2:1) _D ^{M#}	-	-	<0.01	0.02	-	-	-	-	g/l	A-T-026s		
Sulphate BRE (water sol 2:1) _D ^{M#}	81	<10	-	-	31	-	-	18	mg/l	A-T-026s		
Sulphate (acid soluble) _D ^{M#}	-	-	<200	1200	-	-	-	-	mg/kg	A-T-028s		
Sulphate BRE (acid sol) _D ^{M#}	0.07	<0.02	-	-	0.05	-	-	<0.02	% w/w	A-T-028s		
Sulphur BRE (total) _D	0.04	<0.01	-	-	0.04	-	-	<0.01	% w/w	A-T-024s		
Magnesium BRE (water sol 2:1) _D	1	2	-	-	6	-	-	1	mg/l	A-T-SOLMETS		
Cyanide (total) _A ^{M#}	-	-	<1	<1	-	-	-	-	mg/kg	A-T-042sTCN		
Phenols - Total by HPLC _A	-	-	<0.2	<0.2	-	-	-	-	mg/kg	A-T-050s		
Sulphide _A	-	-	<15	<15	-	-	-	-	mg/kg	A-T-S2-s		
Sulphur (elemental) _D ^{M#}	-	-	<5	170	-	-	-	-	mg/kg	A-T-029s		
Organic matter _D ^{M#}	-	-	0.3	4.9	-	2.3	2.5	-	% w/w	A-T-032 OM		
Arsenic _D ^{M#}	-	-	3	3	-	-	-	-	mg/kg	A-T-024s		
Boron (water soluble) _D ^{M#}	-	-	<1.0	<1.0	-	-	-	-	mg/kg	A-T-027s		
Cadmium _D ^{M#}	-	-	<0.5	<0.5	-	-	-	-	mg/kg	A-T-024s		
Copper _D ^{M#}	-	-	5	40	-	-	-	-	mg/kg	A-T-024s		
Chromium _D ^{M#}	-	-	7	7	-	-	-	-	mg/kg	A-T-024s		
Chromium (hexavalent) _D	-	-	<1	<1	-	-	-	-	mg/kg	A-T-040s		
Lead _D ^{M#}	-	-	13	104	-	-	-	-	mg/kg	A-T-024s		
Mercury _D	-	-	<0.17	<0.17	-	-	-	-	mg/kg	A-T-024s		
Nickel _D ^{M#}	-	-	6	8	-	-	-	-	mg/kg	A-T-024s		
Selenium _D ^{M#}	-	-	<1	<1	-	-	-	-	mg/kg	A-T-024s		
Zinc _D ^{M#}	-	-	24	81	-	-	-	-	mg/kg	A-T-024s		

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/1	17/08296/2	17/08296/3	17/08296/4	17/08296/5	17/08296/6	17/08296/7	17/08296/8	Units	Method ref		
Client Sample No	1	2	5	4	5	9	7	9				
Client Sample ID	BH7	BH4	BH4	BH7	BH7	BH6	BH7	BH4				
Depth to Top	0.20	0.30	0.50	0.80	1.00	1.20	1.40	1.60				
Depth To Bottom	0.45	0.50			1.20	1.65	1.80	2.00				
Date Sampled	30-Nov-17	30-Nov-17	28-Nov-17	28-Nov-17	30-Nov-17	23-Nov-17	29-Nov-17	30-Nov-17				
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - ES	Soil - B	Soil - D	Soil - B	Soil - B				
Sample Matrix Code	4A	1A	1A	4A	6A	5A	6	1A				
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	-	-	NAD	NAD	-	-	-	-		A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	-	-	N/A	N/A	-	-	-	-				

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/1	17/08296/2	17/08296/3	17/08296/4	17/08296/5	17/08296/6	17/08296/7	17/08296/8	Units	Method ref
Client Sample No	1	2	5	4	5	9	7	9		
Client Sample ID	BH7	BH4	BH4	BH7	BH7	BH6	BH7	BH4		
Depth to Top	0.20	0.30	0.50	0.80	1.00	1.20	1.40	1.60		
Depth To Bottom	0.45	0.50			1.20	1.65	1.80	2.00		
Date Sampled	30-Nov-17	30-Nov-17	28-Nov-17	28-Nov-17	30-Nov-17	23-Nov-17	29-Nov-17	30-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - ES	Soil - B	Soil - D	Soil - B	Soil - B		
Sample Matrix Code	4A	1A	1A	4A	6A	5A	6	1A		
PAH 16										
Acenaphthene _A ^{M#}	-	-	<0.01	134	-	-	-	-	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	-	-	<0.01	11.9	-	-	-	-	mg/kg	A-T-019s
Anthracene _A ^{M#}	-	-	<0.02	354	-	-	-	-	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	-	<0.04	867	-	-	-	-	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	-	0.04	510	-	-	-	-	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	-	<0.05	615	-	-	-	-	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	-	<0.05	250	-	-	-	-	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	-	<0.07	282	-	-	-	-	mg/kg	A-T-019s
Chrysene _A ^{M#}	-	-	<0.06	1040	-	-	-	-	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	-	<0.04	81.4	-	-	-	-	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	-	-	<0.08	1510	-	-	-	-	mg/kg	A-T-019s
Fluorene _A ^{M#}	-	-	<0.01	136	-	-	-	-	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	-	0.04	307	-	-	-	-	mg/kg	A-T-019s
Naphthalene _A ^{M#}	-	-	<0.03	171	-	-	-	-	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	-	-	<0.03	2110	-	-	-	-	mg/kg	A-T-019s
Pyrene _A ^{M#}	-	-	<0.07	1400	-	-	-	-	mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	-	-	0.13	9790	-	-	-	-	mg/kg	A-T-019s

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/1	17/08296/2	17/08296/3	17/08296/4	17/08296/5	17/08296/6	17/08296/7	17/08296/8	Units	Method ref
Client Sample No	1	2	5	4	5	9	7	9		
Client Sample ID	BH7	BH4	BH4	BH7	BH7	BH6	BH7	BH4		
Depth to Top	0.20	0.30	0.50	0.80	1.00	1.20	1.40	1.60		
Depth To Bottom	0.45	0.50			1.20	1.65	1.80	2.00		
Date Sampled	30-Nov-17	30-Nov-17	28-Nov-17	28-Nov-17	30-Nov-17	23-Nov-17	29-Nov-17	30-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - ES	Soil - B	Soil - D	Soil - B	Soil - B		
Sample Matrix Code	4A	1A	1A	4A	6A	5A	6	1A		
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	-	<0.002	<0.002	-	-	-	-	mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	-	<0.002	<0.002	-	-	-	-	mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	-	<0.004	<0.004	-	-	-	-	mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	-	-	<0.007	<0.007	-	-	-	-	mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	-	<0.006	<0.006	-	-	-	-	mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	-	<0.004	<0.004	-	-	-	-	mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	-	<0.004	<0.004	-	-	-	-	mg/kg	A-T-004s
PCB Total of EC7 _A ^{M#}	-	-	<0.007	<0.007	-	-	-	-	mg/kg	A-T-004s

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/1	17/08296/2	17/08296/3	17/08296/4	17/08296/5	17/08296/6	17/08296/7	17/08296/8	Units	Method ref
Client Sample No	1	2	5	4	5	9	7	9		
Client Sample ID	BH7	BH4	BH4	BH7	BH7	BH6	BH7	BH4		
Depth to Top	0.20	0.30	0.50	0.80	1.00	1.20	1.40	1.60		
Depth To Bottom	0.45	0.50			1.20	1.65	1.80	2.00		
Date Sampled	30-Nov-17	30-Nov-17	28-Nov-17	28-Nov-17	30-Nov-17	23-Nov-17	29-Nov-17	30-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - ES	Soil - B	Soil - D	Soil - B	Soil - B		
Sample Matrix Code	4A	1A	1A	4A	6A	5A	6	1A		
SVOC										
Hexachlorobenzene _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Diethyl phthalate _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Dimethyl phthalate _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Dibenzofuran _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Carbazole _A	-	-	<100	19400	-	-	-	-	µg/kg	A-T-052s
Butylbenzyl phthalate _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	-	-	<500	<5000	-	-	-	-	µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
4-Nitrophenol _A	-	-	<100	4970	-	-	-	-	µg/kg	A-T-052s
4-Methylphenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2-Nitrophenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2-Methylphenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2-Chlorophenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2,6-Dinitrotoluene _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2,4-Dinitrotoluene _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2,4-Dimethylphenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2,4-Dichlorophenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2-Chloronaphthalene _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
2-Methylnaphthalene _A	-	-	<100	9070	-	-	-	-	µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Phenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Pentachlorophenol _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
n-Diethylphthalate _A	-	-	<500	<5000	-	-	-	-	µg/kg	A-T-052s
n-Dibutylphthalate _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Nitrobenzene _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Isophorone _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s
Hexachloroethane _A	-	-	<100	<1000	-	-	-	-	µg/kg	A-T-052s

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/1	17/08296/2	17/08296/3	17/08296/4	17/08296/5	17/08296/6	17/08296/7	17/08296/8	Units	Method ref
Client Sample No	1	2	5	4	5	9	7	9		
Client Sample ID	BH7	BH4	BH4	BH7	BH7	BH6	BH7	BH4		
Depth to Top	0.20	0.30	0.50	0.80	1.00	1.20	1.40	1.60		
Depth To Bottom	0.45	0.50			1.20	1.65	1.80	2.00		
Date Sampled	30-Nov-17	30-Nov-17	28-Nov-17	28-Nov-17	30-Nov-17	23-Nov-17	29-Nov-17	30-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - ES	Soil - B	Soil - D	Soil - B	Soil - B		
Sample Matrix Code	4A	1A	1A	4A	6A	5A	6	1A		
Hexachlorocyclopentadiene _A	-	-	<100	<1000	-	-	-	-		
Perylene _A	-	-	<100	10300	-	-	-	-	µg/kg	A-T-052s

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/1	17/08296/2	17/08296/3	17/08296/4	17/08296/5	17/08296/6	17/08296/7	17/08296/8	Units	Method ref
Client Sample No	1	2	5	4	5	9	7	9		
Client Sample ID	BH7	BH4	BH4	BH7	BH7	BH6	BH7	BH4		
Depth to Top	0.20	0.30	0.50	0.80	1.00	1.20	1.40	1.60		
Depth To Bottom	0.45	0.50			1.20	1.65	1.80	2.00		
Date Sampled	30-Nov-17	30-Nov-17	28-Nov-17	28-Nov-17	30-Nov-17	23-Nov-17	29-Nov-17	30-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - ES	Soil - B	Soil - D	Soil - B	Soil - B		
Sample Matrix Code	4A	1A	1A	4A	6A	5A	6	1A		
VOC										
Dichlorodifluoromethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Chloromethane _A	-	-	<10	<10	-	-	-	-	µg/kg	A-T-006s
Vinyl Chloride _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromomethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Chloroethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Carbon Disulphide _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Dichloromethane _A	-	-	<5	<5	-	-	-	-	µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromochloromethane _A [#]	-	-	<5	<5	-	-	-	-	µg/kg	A-T-006s
Chloroform _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	-	-	<2	<2	-	-	-	-	µg/kg	A-T-006s
Benzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Trichloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Dibromomethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromodichloromethane _A [#]	-	-	<10	<10	-	-	-	-	µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Toluene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Tetrachloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Dibromochloromethane _A [#]	-	-	<3	<3	-	-	-	-	µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/1	17/08296/2	17/08296/3	17/08296/4	17/08296/5	17/08296/6	17/08296/7	17/08296/8	Units	Method ref
Client Sample No	1	2	5	4	5	9	7	9		
Client Sample ID	BH7	BH4	BH4	BH7	BH7	BH6	BH7	BH4		
Depth to Top	0.20	0.30	0.50	0.80	1.00	1.20	1.40	1.60		
Depth To Bottom	0.45	0.50			1.20	1.65	1.80	2.00		
Date Sampled	30-Nov-17	30-Nov-17	28-Nov-17	28-Nov-17	30-Nov-17	23-Nov-17	29-Nov-17	30-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - ES	Soil - B	Soil - D	Soil - B	Soil - B		
Sample Matrix Code	4A	1A	1A	4A	6A	5A	6	1A		
Chlorobenzene _A [#]	-	-	<1	<1	-	-	-	-		
1,1,1,2-Tetrachloroethane _A	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Ethylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
m & p Xylene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
o-Xylene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Styrene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromoform _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Isopropylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1,1,2,2-Tetrachloroethane _A	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromobenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
n-Propylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
2-Chlorotoluene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
4-Chlorotoluene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
tert-Butylbenzene _A [#]	-	-	<2	<2	-	-	-	-	µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
sec-Butylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,3-Dichlorobenzene _A	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
n-Butylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	-	-	<2	<2	-	-	-	-	µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	-	-	<3	<3	-	-	-	-	µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	-	-	<3	<3	-	-	-	-	µg/kg	A-T-006s

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/1	17/08296/2	17/08296/3	17/08296/4	17/08296/5	17/08296/6	17/08296/7	17/08296/8	Units	Method ref
Client Sample No	1	2	5	4	5	9	7	9		
Client Sample ID	BH7	BH4	BH4	BH7	BH7	BH6	BH7	BH4		
Depth to Top	0.20	0.30	0.50	0.80	1.00	1.20	1.40	1.60		
Depth To Bottom	0.45	0.50			1.20	1.65	1.80	2.00		
Date Sampled	30-Nov-17	30-Nov-17	28-Nov-17	28-Nov-17	30-Nov-17	23-Nov-17	29-Nov-17	30-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - ES	Soil - B	Soil - D	Soil - B	Soil - B		
Sample Matrix Code	4A	1A	1A	4A	6A	5A	6	1A		
TPH UKCWG										
Ali >C5-C6 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	-	-	<0.1	4.6	-	-	-	-	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	-	-	<0.1	14.4	-	-	-	-	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	-	-	<0.1	5.6	-	-	-	-	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	-	-	<0.1	19.5	-	-	-	-	mg/kg	A-T-023s
Ali >C35-C44 _A	-	-	<0.1	<0.1	-	-	-	-	mg/kg	A-T-023s
Total Aliphatics _A	-	-	<0.1	43.9	-	-	-	-	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	-	-	<0.01	0.02	-	-	-	-	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	-	-	<0.1	30.2	-	-	-	-	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	-	-	<0.1	80.1	-	-	-	-	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	-	-	0.4	613	-	-	-	-	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	-	-	3.3	1380	-	-	-	-	mg/kg	A-T-023s
Aro >C35-C44 _A	-	-	<0.1	79.8	-	-	-	-	mg/kg	A-T-023s
Total Aromatics _A	-	-	3.8	2100	-	-	-	-	mg/kg	A-T-023s
TPH (Ali & Aro) _A	-	-	3.8	2150	-	-	-	-	mg/kg	A-T-023s
BTEX - Benzene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
BTEX - Toluene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
MTBE _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
% Stones >10mm _A	<0.1	<0.1	<0.1	15.1	<0.1	<0.1	<0.1	0.2		
pH _D	-	-	9.14	-	-	-	-	-	pH	A-T-031s
pH BRE _D	-	-	-	8.97	8.47	8.03	-	8.81	pH	A-T-031s
Ammoniacal nitrogen _D	-	-	1.2	-	-	-	-	-	mg/kg	A-T-033s
Ammonium NH4 BRE (water sol 2:1) _D	-	-	-	<1.00	6.26	13.4	-	2.99	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	-	-	-	14	83	186	-	67	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	-	-	-	<0.4	<0.4	<0.4	-	<0.4	mg/l	A-T-026s
Sulphate (water sol 2:1) _D ^{M#}	-	-	0.02	-	-	-	-	-	g/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	16	64	503	-	86	mg/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	-	-	230	-	-	-	-	-	mg/kg	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	0.03	0.08	0.22	-	<0.02	% w/w	A-T-028s
Sulphur BRE (total) _D	-	-	-	<0.01	0.06	1.34	-	0.03	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	-	-	2	7	55	-	4	mg/l	A-T-SOLMETS
Cyanide (total) _A ^{M#}	-	-	<1	-	-	-	-	-	mg/kg	A-T-042sTCN
Phenols - Total by HPLC _A	-	-	<0.2	-	-	-	-	-	mg/kg	A-T-050s
Sulphide _A	-	-	<15	-	-	-	-	-	mg/kg	A-T-S2-s
Sulphur (elemental) _D ^{M#}	-	-	10	-	-	-	-	-	mg/kg	A-T-029s
Organic matter _D ^{M#}	1.3	23.5	<0.1	-	-	-	4.1	-	% w/w	A-T-032 OM
Arsenic _D ^{M#}	-	-	4	-	-	-	-	-	mg/kg	A-T-024s
Boron (water soluble) _D ^{M#}	-	-	<1.0	-	-	-	-	-	mg/kg	A-T-027s
Cadmium _D ^{M#}	-	-	<0.5	-	-	-	-	-	mg/kg	A-T-024s
Copper _D ^{M#}	-	-	3	-	-	-	-	-	mg/kg	A-T-024s
Chromium _D ^{M#}	-	-	16	-	-	-	-	-	mg/kg	A-T-024s
Chromium (hexavalent) _D	-	-	<1	-	-	-	-	-	mg/kg	A-T-040s
Lead _D ^{M#}	-	-	15	-	-	-	-	-	mg/kg	A-T-024s
Mercury _D	-	-	<0.17	-	-	-	-	-	mg/kg	A-T-024s
Nickel _D ^{M#}	-	-	11	-	-	-	-	-	mg/kg	A-T-024s
Selenium _D ^{M#}	-	-	<1	-	-	-	-	-	mg/kg	A-T-024s
Zinc _D ^{M#}	-	-	16	-	-	-	-	-	mg/kg	A-T-024s
Leachate Prep NRA (10:1) _A	-	-	*	-	-	-	-	-		A-T-001
pH (leachable) _A [#]	-	-	7.20	-	-	-	-	-	pH	A-T-031w
Ammoniacal nitrogen (leachable) _A	-	-	<0.02	-	-	-	-	-	mg/l	A-T-033w
Sulphate (leachable) _A [#]	-	-	3.63	-	-	-	-	-	mg/l	A-T-026w

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
Cyanide (total) (leachable) _A	-	-	<0.005	-	-	-	-	-		
Phenols (total by HPLC) (leachable) _A	-	-	<0.01	-	-	-	-	-	mg/l	A-T-050w
Sulphide (leachable) _A	-	-	<0.1	-	-	-	-	-	mg/l	A-T-S2-w
DOC (leachable) _A [#]	-	-	2.0	-	-	-	-	-	mg/l	A-T-032w
Arsenic (leachable) _A [#]	-	-	5	-	-	-	-	-	µg/l	A-T-025w
Boron (leachable) _A [#]	-	-	13	-	-	-	-	-	µg/l	A-T-025w
Cadmium (leachable) _A [#]	-	-	<1	-	-	-	-	-	µg/l	A-T-025w
Copper (leachable) _A [#]	-	-	2	-	-	-	-	-	µg/l	A-T-025w
Chromium (leachable) _A [#]	-	-	<1	-	-	-	-	-	µg/l	A-T-025w
Chromium (hexavalent) (leachable) _A	-	-	<0.05	-	-	-	-	-	mg/l	A-T-040w
Lead (leachable) _A [#]	-	-	8	-	-	-	-	-	µg/l	A-T-025w
Mercury (leachable) _A [#]	-	-	<0.1	-	-	-	-	-	µg/l	A-T-025w
Nickel (leachable) _A [#]	-	-	<1	-	-	-	-	-	µg/l	A-T-025w
Selenium (leachable) _A [#]	-	-	<1	-	-	-	-	-	µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	-	-	<0.1	-	-	-	-	-	mg/l	A-T-029w
Zinc (leachable) _A [#]	-	-	7	-	-	-	-	-	µg/l	A-T-025w

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	-	NAD	-	-	-	-	-	A-T-045	
Asbestos ACM - Suitable for Water Absorption Test?	-	-	N/A	-	-	-	-	-		

Envirolab Job Number: 17/08296

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Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
PAH 16										
Acenaphthene _A ^{M#}	-	-	0.34	-	-	-	-	-	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	-	-	0.05	-	-	-	-	-	mg/kg	A-T-019s
Anthracene _A ^{M#}	-	-	5.43	-	-	-	-	-	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	-	27.2	-	-	-	-	-	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	-	13.9	-	-	-	-	-	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	-	15.3	-	-	-	-	-	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	-	5.10	-	-	-	-	-	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	-	7.11	-	-	-	-	-	mg/kg	A-T-019s
Chrysene _A ^{M#}	-	-	16.2	-	-	-	-	-	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	-	1.27	-	-	-	-	-	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	-	-	51.9	-	-	-	-	-	mg/kg	A-T-019s
Fluorene _A ^{M#}	-	-	0.43	-	-	-	-	-	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	-	7.16	-	-	-	-	-	mg/kg	A-T-019s
Naphthalene _A ^{M#}	-	-	<0.03	-	-	-	-	-	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	-	-	15	-	-	-	-	-	mg/kg	A-T-019s
Pyrene _A ^{M#}	-	-	44.3	-	-	-	-	-	mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	-	-	211	-	-	-	-	-	mg/kg	A-T-019s

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	-	-	0.03	-	-	-	-	-	µg/l	A-T-019w
Acenaphthylene (leachable) _A	-	-	0.02	-	-	-	-	-	µg/l	A-T-019w
Anthracene (leachable) _A	-	-	<0.02	-	-	-	-	-	µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	-	-	0.03	-	-	-	-	-	µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	-	-	0.08	-	-	-	-	-	µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	-	-	0.04	-	-	-	-	-	µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	-	-	0.07	-	-	-	-	-	µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	-	-	0.03	-	-	-	-	-	µg/l	A-T-019w
Chrysene (leachable) _A	-	-	<0.02	-	-	-	-	-	µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	-	-	0.11	-	-	-	-	-	µg/l	A-T-019w
Fluoranthene (leachable) _A	-	-	<0.02	-	-	-	-	-	µg/l	A-T-019w
Fluorene (leachable) _A	-	-	<0.02	-	-	-	-	-	µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	-	-	0.09	-	-	-	-	-	µg/l	A-T-019w
Naphthalene (leachable) _A	-	-	0.17	-	-	-	-	-	µg/l	A-T-019w
Phenanthrene (leachable) _A	-	-	<0.02	-	-	-	-	-	µg/l	A-T-019w
Pyrene (leachable) _A	-	-	<0.02	-	-	-	-	-	µg/l	A-T-019w
PAH (total 16) (leachable) _A	-	-	0.67	-	-	-	-	-	µg/l	A-T-019w

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Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
Speciated PCB-EC7										
PCB BZ 118 _A ^{M#}	-	-	<0.007	-	-	-	-	-	mg/kg	A-T-004s

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Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
Speciated PCB-WHO12										
PCB BZ 81 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 105 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 114 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 123 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 126 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 156 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 157 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 167 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 169 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 189 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 77 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s

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Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
SVOC (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2-Chlorophenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2-Methylphenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
2-Nitrophenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
4-Methylphenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
4-Nitrophenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Acenaphthene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Acenaphthylene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Anthracene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Benzo(a)anthracene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Benzo(a)pyrene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Benzo(b)fluoranthene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Benzo(ghi)perylene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Benzo(k)fluoranthene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	-	-	<4	-	-	-	-	-	µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w

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Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
Carbazole (leachable) _A	-	-	<2	-	-	-	-	-		
Chrysene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Dibenzo(ah)anthracene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Dibenzofuran (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Diethyl phthalate (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-052w
Fluoranthene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Fluorene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Hexachlorocyclopentadiene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Hexachloroethane (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Indeno(1,2,3-cd)pyrene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Isophorone (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Naphthalene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Nitrobenzene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Pentachlorophenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Perylene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Phenanthrene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Phenol (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w
Pyrene (leachable) _A	-	-	<2	-	-	-	-	-	µg/l	A-T-052w

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Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
SVOC										
Hexachlorobenzene _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Diethyl phthalate _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Dimethyl phthalate _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Dibenzofuran _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Carbazole _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Butylbenzyl phthalate _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	-	-	<500	-	-	-	-	-	µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
4-Nitrophenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
4-Methylphenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2-Nitrophenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2-Methylphenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2-Chlorophenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2,6-Dinitrotoluene _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2,4-Dinitrotoluene _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2,4-Dimethylphenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2,4-Dichlorophenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2-Chloronaphthalene _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
2-Methylnaphthalene _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Phenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Pentachlorophenol _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
n-Diethylphthalate _A	-	-	<500	-	-	-	-	-	µg/kg	A-T-052s
n-Dibutylphthalate _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Nitrobenzene _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Isophorone _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s
Hexachloroethane _A	-	-	<100	-	-	-	-	-	µg/kg	A-T-052s

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Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
Hexachlorocyclopentadiene _A	-	-	<100	-	-	-	-	-		
Perylene _A	-	-	140	-	-	-	-	-	µg/kg	A-T-052s

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Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
VOC										
Dichlorodifluoromethane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Chloromethane _A	-	-	<10	-	-	-	-	-	µg/kg	A-T-006s
Vinyl Chloride _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Bromomethane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Chloroethane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Carbon Disulphide _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Dichloromethane _A	-	-	<5	-	-	-	-	-	µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Bromochloromethane _A [#]	-	-	<5	-	-	-	-	-	µg/kg	A-T-006s
Chloroform _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	-	-	<2	-	-	-	-	-	µg/kg	A-T-006s
Benzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Trichloroethene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Dibromomethane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Bromodichloromethane _A [#]	-	-	<10	-	-	-	-	-	µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Toluene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Tetrachloroethene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Dibromochloromethane _A [#]	-	-	<3	-	-	-	-	-	µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
Chlorobenzene _A [#]	-	-	<1	-	-	-	-	-		
1,1,1,2-Tetrachloroethane _A	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Ethylbenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
m & p Xylene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
o-Xylene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Styrene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Bromoform _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Isopropylbenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,1,1,2,2-Tetrachloroethane _A	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
Bromobenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
n-Propylbenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
2-Chlorotoluene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
4-Chlorotoluene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
tert-Butylbenzene _A [#]	-	-	<2	-	-	-	-	-	µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
sec-Butylbenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,3-Dichlorobenzene _A	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
n-Butylbenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	-	-	<2	-	-	-	-	-	µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	-	-	<3	-	-	-	-	-	µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	-	-	<1	-	-	-	-	-	µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	-	-	<3	-	-	-	-	-	µg/kg	A-T-006s

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Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
TPH UKCWG										
Ali >C5-C6 _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	-	-	<0.1	-	-	-	-	-	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	-	-	<0.1	-	-	-	-	-	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	-	-	<0.1	-	-	-	-	-	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	-	-	<0.1	-	-	-	-	-	mg/kg	A-T-023s
Ali >C35-C44 _A	-	-	<0.1	-	-	-	-	-	mg/kg	A-T-023s
Total Aliphatics _A	-	-	<0.1	-	-	-	-	-	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	-	-	<0.1	-	-	-	-	-	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	-	-	<0.1	-	-	-	-	-	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	-	-	3.3	-	-	-	-	-	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	-	-	2.6	-	-	-	-	-	mg/kg	A-T-023s
Aro >C35-C44 _A	-	-	<0.1	-	-	-	-	-	mg/kg	A-T-023s
Total Aromatics _A	-	-	5.9	-	-	-	-	-	mg/kg	A-T-023s
TPH (Ali & Aro) _A	-	-	5.9	-	-	-	-	-	mg/kg	A-T-023s
BTEX - Benzene _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
BTEX - Toluene _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s
MTBE _A [#]	-	-	<0.01	-	-	-	-	-	mg/kg	A-T-022s

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/9	17/08296/10	17/08296/11	17/08296/12	17/08296/13	17/08296/14	17/08296/15	17/08296/16	Units	Method ref
Client Sample No	11	11	11	12	13	10	13	15		
Client Sample ID	BH6	BH7	BH4	BH4	BH4	BH7	BH7	BH7		
Depth to Top	2.00	2.00	2.00	2.00	2.30	2.45	3.00	4.0		
Depth To Bottom	2.50	2.50		2.30	2.70	2.60	3.50	4.45		
Date Sampled	23-Nov-17	30-Nov-17	28-Nov-17	30-Nov-17	30-Nov-17	29-Nov-17	30-Nov-17	29-Nov-17		
Sample Type	Soil - B	Soil - B	Soil - ES	Soil - B	Soil - B	Soil - D	Soil - B	Soil - D		
Sample Matrix Code	6	6A	1A	1A	6	6AE	6AE	5		
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	-	-	6	-	-	-	-	-	µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	-	-	9	-	-	-	-	-	µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
Total Aliphatics (leachable) _A	-	-	15	-	-	-	-	-	µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
Total Aromatics (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	-	-	15	-	-	-	-	-	µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	-	-	<10	-	-	-	-	-	µg/l	A-T-023w
BTEX - Benzene (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
BTEX - Toluene (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	-	-	<1	-	-	-	-	-	µg/l	A-T-022w
MTBE (leachable) _A	-	-	3	-	-	-	-	-	µg/l	A-T-022w

Envirolab Job Number: 17/08296

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08296/17	17/08296/18							Units	Method ref
Client Sample No	22	31								
Client Sample ID	BH4	BH4								
Depth to Top	4.40	7.0								
Depth To Bottom	4.90	7.50								
Date Sampled	30-Nov-17	29-Nov-17								
Sample Type	Soil - B	Soil - B								
Sample Matrix Code	6AE	1								
% Stones >10mm _A	<0.1	<0.1							% w/w	A-T-044
pH BRE _D	7.51	8.12							pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	55.3	<1.00							mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	855	41							mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	<0.4	<0.4							mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	428	16							mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.38	<0.02							% w/w	A-T-028s
Sulphur BRE (total) _D	2.76	0.07							% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	482	7							mg/l	A-T-SOLMETS

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 17/08296
Issue Number: 1
Date: 14-Dec-17

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 573823

Date Samples Received: 30-Nov-17
Date Instructions Received: 6-Dec-17
Date Analysis Completed: 14-Dec-17

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

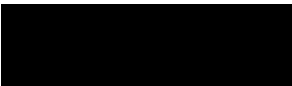
Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

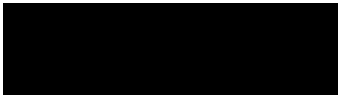
Please contact us if you need any further information.

Prepared by:

Approved by:



Holly Neary-King
Administrative Assistant



Iain Haslock
Analytical Consultant



Sample Details						Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	17/08296/11		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				11							
Client Sample ID				BH4							
Depth to Top				2							
Depth to Bottom											
Date Sampled				28/11/2017							
Sample Type				Soil - ES							
Sample Matrix Code				1A							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	9.14		-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.04		-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.03		-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	<0.5		-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	<0.03		3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	211		100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10		500	-	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007		1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01		6	-	-			
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
				mg/l		mg/kg					
Arsenic	A-T-025	Y	N	0.003	0.003	0.007	0.030	0.5 2 25			
Barium	A-T-025	Y	N	0.013	0.006	0.027	0.060	20 100 300			
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04 1 5			
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5 10 70			
Copper	A-T-025	Y	N	0.002	0.001	0.004	0.010	2 50 100			
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01 0.2 2			
Molybdenum	A-T-025	Y	N	0.003	<0.001	0.006	<0.01	0.5 10 30			
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.4 10 40			
Lead	A-T-025	Y	N	0.002	0.005	0.005	0.050	0.5 10 50			
Antimony	A-T-025	Y	N	0.009	0.002	0.018	0.030	0.06 0.7 5			
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1 0.5 7			
Zinc	A-T-025	Y	N	0.009	0.008	0.020	0.080	4 50 200			
Chloride	A-T-026	Y	N	16	2	34	28	800 15000 25000			
Fluoride	A-T-026	Y	N	0.2	<0.10	0.5	<1	10 150 500			
Sulphate as SO ₄	A-T-026	Y	N	16	2	34	33	1000 20000 50000			
Total Dissolved Solids	A-T-035	N	N	81	27	173	320	4000 60000 100000			
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1 - -			
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500 800 1000			
Leach Test Information											
pH (pH Units)	A-T-031	N	Y	7.2	7.6						
Conductivity (µS/cm)	A-T-037	N	N	161	54						
Mass Sample (kg)				0.200							
Dry Matter (%)	A-T-044	N	N	87.6							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.400							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

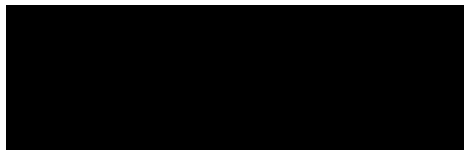
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 17/08396
Issue Number: 1
Date: 18 December, 2017

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 574561
Date Samples Received: 11/12/17
Date Instructions Received: 11/12/17
Date Analysis Completed: 18/12/17

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Iain Haslock
Analytical Consultant

Envirolab Job Number: 17/08396

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08396/1	17/08396/2	17/08396/3	17/08396/4	17/08396/5	17/08396/6	17/08396/7	17/08396/8	Units	Method ref
Client Sample No	42	54	65	71	75	3	9	12		
Client Sample ID	BH4	BH4	BH4	BH4	BH4	BH4A	BH4A	BH4A		
Depth to Top	12.0	17.0	22.0	26.0	28.0	0.50	2.10	3.0		
Depth To Bottom	12.45	17.45	22.45	26.45	28.45	1.00	2.50	3.50		
Date Sampled	01-Dec-17	04-Dec-17	01-Dec-17	05-Dec-17	05-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - B	Soil - B	Soil - B		
Sample Matrix Code	1A	4	5	4	5	6A	6AE	6AE		
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	13.3	3.8	<0.1		
pH BRE _D	8.46	8.27	8.39	8.88	8.44	8.42	-	7.92	pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	<1.00	<1.00	<1.00	<1.00	<1.00	1.01	-	4.58	mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	179	1430	1490	95	193	9	-	93	mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	<0.4	<0.4	<0.4	<0.4	<0.4	2.0	-	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	28	143	142	24	58	17	-	409	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	<0.02	0.03	0.03	<0.02	0.06	0.10	-	0.15	% w/w	A-T-028s
Sulphur BRE (total) _D	<0.01	0.01	0.01	0.07	0.36	0.06	-	0.56	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	10	78	78	6	17	4	-	62	mg/l	A-T-SOLMETs
Organic matter _D ^{M#}	-	-	-	-	-	-	4.0	6.0	% w/w	A-T-032 OM

Envirolab Job Number: 17/08396

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08396/9	17/08396/10	17/08396/11						Units	Method ref
Client Sample No	2	7	14							
Client Sample ID	BH5	BH5	BH5							
Depth to Top	0.30	2.0	4.0							
Depth To Bottom	0.80	2.45	4.50							
Date Sampled	08-Dec-17	01-Dec-17	08-Dec-17							
Sample Type	Soil - B	Soil - D	Soil - B							
Sample Matrix Code	4AE	6	6AE							
% Stones >10mm _A	5.9	<0.1	2.2							
pH BRE _D	8.40	7.65	8.10						pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	1.09	7.45	2.71						mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	10	163	22						mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	7.9	<0.4	<0.4						mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	30	702	27						mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.09	0.35	0.04						% w/w	A-T-028s
Sulphur BRE (total) _D	0.05	3.70	0.17						% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	7	84	7						mg/l	A-T-SOLMETS
Organic matter _D ^{M#}	-	15.6	1.6						% w/w	A-T-032 OM

REPORT NOTES

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A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

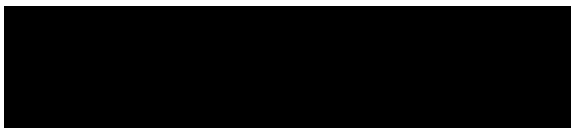
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 17/08632
Issue Number: 1 **Date:** 05 January, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

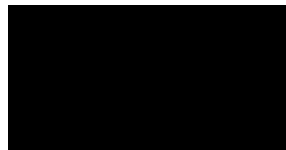
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 575575
Date Samples Received: 14/12/17
Date Instructions Received: 20/12/17
Date Analysis Completed: 05/01/18

Prepared by:



Danielle Brierley
Client Manager

Approved by:



Georgia King
Admins & Client Services Supervisor

Envirolab Job Number: 17/08632

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3						Units	Method ref
Client Sample No	14	27	3							
Client Sample ID	BH4D	BH4D	BH5A							
Depth to Top	3.90	9.90	0.50							
Depth To Bottom	4.00	10.00	0.60							
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	1	4AB							
Chromium (leachable) _A [#]	<1	-	-						µg/l	A-T-025w
Chromium (hexavalent) (leachable) _A	<0.05	-	-						mg/l	A-T-040w
Lead (leachable) _A [#]	<1	-	-						µg/l	A-T-025w
Mercury (leachable) _A [#]	<0.1	-	-						µg/l	A-T-025w
Nickel (leachable) _A [#]	3	-	-						µg/l	A-T-025w
Selenium (leachable) _A [#]	<1	-	-						µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	<0.1	-	-						mg/l	A-T-029w
Zinc (leachable) _A [#]	44	-	-						µg/l	A-T-025w

Envirolab Job Number: 17/08632

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3						Units	Method ref		
Client Sample No	14	27	3									
Client Sample ID	BH4D	BH4D	BH5A									
Depth to Top	3.90	9.90	0.50									
Depth To Bottom	4.00	10.00	0.60									
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17									
Sample Type	Soil - ES	Soil - ES	Soil - ES									
Sample Matrix Code	6AE	1	4AB									
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	NAD	-	NAD							A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	N/A	-	N/A									

Envirolab Job Number: 17/08632

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3							
Client Sample No	14	27	3							
Client Sample ID	BH4D	BH4D	BH5A							
Depth to Top	3.90	9.90	0.50							
Depth To Bottom	4.00	10.00	0.60							
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	1	4AB							
PAH 16										
Acenaphthene _A ^{M#}	0.08	<0.01	0.03						mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	0.05	<0.01	0.06						mg/kg	A-T-019s
Anthracene _A ^{M#}	0.21	<0.02	0.11						mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.78	<0.04	0.89						mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.68	<0.04	0.94						mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	1.06	<0.05	1.36						mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.44	<0.05	0.63						mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.36	<0.07	0.45						mg/kg	A-T-019s
Chrysene _A ^{M#}	0.89	<0.06	1.08						mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	0.11	<0.04	0.13						mg/kg	A-T-019s
Fluoranthene _A ^{M#}	2.05	<0.08	1.98						mg/kg	A-T-019s
Fluorene _A ^{M#}	0.11	<0.01	0.04						mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.52	<0.03	0.74						mg/kg	A-T-019s
Naphthalene _A ^{M#}	0.06	<0.03	<0.03						mg/kg	A-T-019s
Phenanthrene _A ^{M#}	0.78	<0.03	0.72						mg/kg	A-T-019s
Pyrene _A ^{M#}	1.52	<0.07	1.63						mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	9.69	<0.08	10.8						mg/kg	A-T-019s

Envirolab Job Number: 17/08632

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3							
Client Sample No	14	27	3							
Client Sample ID	BH4D	BH4D	BH5A							
Depth to Top	3.90	9.90	0.50							
Depth To Bottom	4.00	10.00	0.60							
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	1	4AB							
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	0.11	-	-						µg/l	A-T-019w
Acenaphthylene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Anthracene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Chrysene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Fluoranthene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Fluorene (leachable) _A	0.02	-	-						µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Naphthalene (leachable) _A	0.10	-	-						µg/l	A-T-019w
Phenanthrene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Pyrene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
PAH (total 16) (leachable) _A	0.23	-	-						µg/l	A-T-019w

Envirolab Job Number: 17/08632

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3						Units	Method ref
Client Sample No	14	27	3							
Client Sample ID	BH4D	BH4D	BH5A							
Depth to Top	3.90	9.90	0.50							
Depth To Bottom	4.00	10.00	0.60							
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	1	4AB							
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	-	<0.002						mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	-	<0.002						mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	-	<0.004						mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	-	<0.007						mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	-	<0.006						mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	-	<0.004						mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	-	<0.004						mg/kg	A-T-004s
PCB Total of EC7 _A ^{M#}	-	-	<0.007						mg/kg	A-T-004s

Envirolab Job Number: 17/08632

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Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3						Units	Method ref
Client Sample No	14	27	3							
Client Sample ID	BH4D	BH4D	BH5A							
Depth to Top	3.90	9.90	0.50							
Depth To Bottom	4.00	10.00	0.60							
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	1	4AB							
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 105 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 114 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 123 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 126 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 156 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 157 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 167 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 169 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 189 _A	<0.005	-	-						mg/kg	A-T-004s
PCB BZ 77 _A	<0.005	-	-						mg/kg	A-T-004s

Envirolab Job Number: 17/08632

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3							
Client Sample No	14	27	3							
Client Sample ID	BH4D	BH4D	BH5A							
Depth to Top	3.90	9.90	0.50							
Depth To Bottom	4.00	10.00	0.60							
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	1	4AB							
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	<2	-	-						µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	<2	-	-						µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	<2	-	-						µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	<2	-	-						µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	<2	-	-						µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	<2	-	-						µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	<2	-	-						µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	<2	-	-						µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	<2	-	-						µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	<2	-	-						µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	<2	-	-						µg/l	A-T-052w
2-Chlorophenol (leachable) _A	<2	-	-						µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	<2	-	-						µg/l	A-T-052w
2-Methylphenol (leachable) _A	<2	-	-						µg/l	A-T-052w
2-Nitrophenol (leachable) _A	<2	-	-						µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	<2	-	-						µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	<2	-	-						µg/l	A-T-052w
4-Methylphenol (leachable) _A	<2	-	-						µg/l	A-T-052w
4-Nitrophenol (leachable) _A	<2	-	-						µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	<2	-	-						µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	<2	-	-						µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	<2	-	-						µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	<4	-	-						µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	<2	-	-						µg/l	A-T-052w
Carbazole (leachable) _A	<2	-	-						µg/l	A-T-052w
Dibenzofuran (leachable) _A	<2	-	-						µg/l	A-T-052w
Diethyl phthalate (leachable) _A	<2	-	-						µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	<2	-	-						µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	<12	-	-						µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	<10	-	-						µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	<2	-	-						µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	<2	-	-						µg/l	A-T-052w

Envirolab Job Number: 17/08632

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3						Units	Method ref
Client Sample No	14	27	3							
Client Sample ID	BH4D	BH4D	BH5A							
Depth to Top	3.90	9.90	0.50							
Depth To Bottom	4.00	10.00	0.60							
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	1	4AB							
Hexachlorocyclopentadiene (leachable) _A	<2	-	-							
Hexachloroethane (leachable) _A	<2	-	-						µg/l	A-T-052w
Isophorone (leachable) _A	<2	-	-						µg/l	A-T-052w
Nitrobenzene (leachable) _A	<2	-	-						µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	<2	-	-						µg/l	A-T-052w
Pentachlorophenol (leachable) _A	<2	-	-						µg/l	A-T-052w
Perylene (leachable) _A	<2	-	-						µg/l	A-T-052w
Phenol (leachable) _A	<2	-	-						µg/l	A-T-052w

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Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3						Units	Method ref		
Client Sample No	14	27	3									
Client Sample ID	BH4D	BH4D	BH5A									
Depth to Top	3.90	9.90	0.50									
Depth To Bottom	4.00	10.00	0.60									
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17									
Sample Type	Soil - ES	Soil - ES	Soil - ES									
Sample Matrix Code	6AE	1	4AB									
Hexachlorocyclopentadiene _A	<100	<100	<100						µg/kg	A-T-052s		
Perylene _A	1060	<100	502						µg/kg	A-T-052s		

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3							Units	Method ref
Client Sample No	14	27	3								
Client Sample ID	BH4D	BH4D	BH5A								
Depth to Top	3.90	9.90	0.50								
Depth To Bottom	4.00	10.00	0.60								
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17								
Sample Type	Soil - ES	Soil - ES	Soil - ES								
Sample Matrix Code	6AE	1	4AB								
Chlorobenzene _A [#]	<1	<1	<1								
1,1,1,2-Tetrachloroethane _A	<1	<1	<1							µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
m & p Xylene _A [#]	<1	<1	<1							µg/kg	A-T-006s
o-Xylene _A [#]	<1	<1	<1							µg/kg	A-T-006s
Styrene _A [#]	<1	<1	<1							µg/kg	A-T-006s
Bromoform _A [#]	<1	<1	<1							µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	<1	<1							µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	<1	<1							µg/kg	A-T-006s
Bromobenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1	<1	<1							µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2	<2	<2							µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1	<1	<1							µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2	<2	<2							µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3	<3	<3							µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	13	<1	<1							µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3	<3	<3							µg/kg	A-T-006s

Envirolab Job Number: 17/08632

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Lab Sample ID	17/08632/1	17/08632/2	17/08632/3							
Client Sample No	14	27	3							
Client Sample ID	BH4D	BH4D	BH5A							
Depth to Top	3.90	9.90	0.50							
Depth To Bottom	4.00	10.00	0.60							
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	1	4AB							
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Ali >C12-C16 _A [#]	3.6	<0.1	<0.1						mg/kg	A-T-023s
Ali >C16-C21 _A [#]	10.5	<0.1	<0.1						mg/kg	A-T-023s
Ali >C21-C35 _A [#]	96.6	<0.1	<0.1						mg/kg	A-T-023s
Ali >C35-C44 _A	8.9	<0.1	<0.1						mg/kg	A-T-023s
Total Aliphatics _A	120	<0.1	<0.1						mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	0.02						mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Aro >C12-C16 _A [#]	7.5	<0.1	1.2						mg/kg	A-T-023s
Aro >C16-C21 _A [#]	23.8	<0.1	5.7						mg/kg	A-T-023s
Aro >C21-C35 _A [#]	97.6	<0.1	21.6						mg/kg	A-T-023s
Aro >C35-C44 _A	3.5	<0.1	1.8						mg/kg	A-T-023s
Total Aromatics _A	132	<0.1	30.4						mg/kg	A-T-023s
TPH (Ali & Aro) _A	252	<0.1	30.4						mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s

Envirolab Job Number: 17/08632

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08632/1	17/08632/2	17/08632/3							
Client Sample No	14	27	3							
Client Sample ID	BH4D	BH4D	BH5A							
Depth to Top	3.90	9.90	0.50							
Depth To Bottom	4.00	10.00	0.60							
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	1	4AB							
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	<1	-	-						µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	<1	-	-						µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	<1	-	-						µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	<10	-	-						µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	<10	-	-						µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	<10	-	-						µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	<10	-	-						µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	<10	-	-						µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	<1	-	-						µg/l	A-T-022w
Total Aliphatics (leachable) _A	<10	-	-						µg/l	A-T-023w
Aro >C7-C8 (leachable) _A	<1	-	-						µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	<1	-	-						µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	<1	-	-						µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	<10	-	-						µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	<10	-	-						µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	<10	-	-						µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	<10	-	-						µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	<10	-	-						µg/l	A-T-023w
Total Aromatics (leachable) _A	<10	-	-						µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	<10	-	-						µg/l	A-T-023w
BTEX - Benzene (leachable) _A	<1	-	-						µg/l	A-T-022w
BTEX - Toluene (leachable) _A	<1	-	-						µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	<1	-	-						µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	<1	-	-						µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	<1	-	-						µg/l	A-T-022w
MTBE (leachable) _A	<1	-	-						µg/l	A-T-022w

REPORT NOTES

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

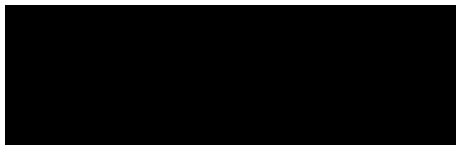
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/00015
Issue Number: 1
Date: 10 January, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

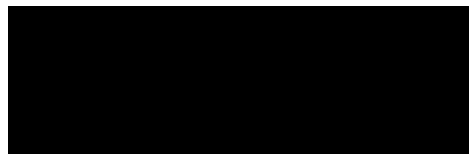
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 576269
Date Samples Received: 03/01/18
Date Instructions Received: 03/01/18
Date Analysis Completed: 10/01/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/00015

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00015/1	18/00015/2	18/00015/3	18/00015/4	18/00015/5	18/00015/6	18/00015/7	18/00015/8	Units	Method ref
Client Sample No	7	13	16	22	37	47	54	64		
Client Sample ID	BH5A	BH5A	BH5A	BH5A	BH5A	BH5A	BH5A	BH5A		
Depth to Top	1.20	2.50	3.0	5.0	10.0	15.0	18.0	23.0		
Depth To Bottom	1.65	3.00	3.50	5.45	10.45	15.45	18.45	23.50		
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17	13-Dec-17	13-Dec-17	13-Dec-17	14-Dec-17	14-Dec-17		
Sample Type	Soil - D	Soil - B	Soil - B	Soil - D	Soil - D	Soil - D	Soil - D	Soil - B		
Sample Matrix Code	6A	6E	6A	5A	1	1	1	1		
% Stones >10mm _A	1.4	<0.1	4.0	<0.1	<0.1	<0.1	<0.1	<0.1		
pH BRE _D	8.18	-	-	7.97	8.33	8.55	8.66	8.87	pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	4.45	-	-	3.77	<1.00	<1.00	1.26	<1.00	mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	36	-	-	36	324	791	734	369	mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	0.7	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	57	-	-	55	52	94	113	65	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.09	-	-	<0.02	<0.02	0.04	0.03	<0.02	% w/w	A-T-028s
Sulphur BRE (total) _D	0.05	-	-	0.05	0.02	0.01	0.01	<0.01	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	5	-	-	8	17	51	38	17	mg/l	A-T-SOLMETS
Organic matter _D ^{M#}	-	19.5	4.4	-	-	-	-	-	% w/w	A-T-032 OM

Envirolab Job Number: 18/00015

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00015/9								Units	Method ref
Client Sample No	74									
Client Sample ID	BH5A									
Depth to Top	29.0									
Depth To Bottom	29.45									
Date Sampled	14-Dec-17									
Sample Type	Soil - B									
Sample Matrix Code	5									
% Stones >10mm _A	<0.1								% w/w	A-T-044
pH BRE _D	8.59								pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	<1.00								mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	723								mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	<0.4								mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	137								mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.07								% w/w	A-T-028s
Sulphur BRE (total) _D	0.54								% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	41								mg/l	A-T-SOLMET5

REPORT NOTES

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Soil chemical analysis:

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For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

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Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

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Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

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N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

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Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

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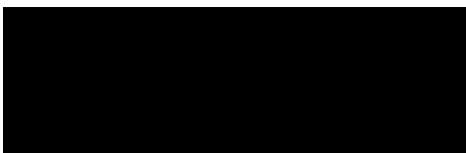
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/00042
Issue Number: 1 **Date:** 10 January, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

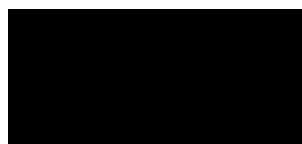
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 576388
Date Samples Received: 04/01/18
Date Instructions Received: 04/01/18
Date Analysis Completed: 10/01/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Georgia King
Admins & Client Services Supervisor

Envirolab Job Number: 18/00042

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00042/1	18/00042/2	18/00042/3	18/00042/4	18/00042/5	18/00042/6	18/00042/7		Units	Method ref
Client Sample No	6	19	25	39	50	56	65			
Client Sample ID	BH4D	BH4D	BH4D	BH4D	BH4D	BH4D	BH4D			
Depth to Top	1.20	6.0	9.0	16.0	22.0	26.0	28.45			
Depth To Bottom	1.65	6.45	9.45	16.45	22.45	26.45	28.60			
Date Sampled	12-Dec-17	12-Dec-17	12-Dec-17	13-Dec-17	14-Dec-17	14-Dec-17	14-Dec-17			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	4AE	1A	1A	1	1	4	5			
% Stones >10mm _A	9.5	1.9	0.8	<0.1	<0.1	<0.1	<0.1		% w/w	A-T-044
pH BRE _D	8.03	8.78	8.38	8.42	9.14	8.84	8.61		pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	1.11	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00		mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	27	366	681	536	261	301	579		mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	7.5	<0.4	<0.4	1.0	<0.4	<0.4	<0.4		mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	341	57	80	64	37	70	136		mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.23	<0.02	<0.02	<0.02	<0.02	0.03	0.07		% w/w	A-T-028s
Sulphur BRE (total) _D	0.26	<0.01	<0.01	<0.01	<0.01	0.16	0.28		% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	10	15	36	30	10	18	27		mg/l	A-T-SOLMETS

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

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Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

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Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 17/08632
Issue Number: 1 Date: 8-Jan-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 575575

Date Samples Received: 14-Dec-17
Date Instructions Received: 20-Dec-17
Date Analysis Completed: 5-Jan-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

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Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

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Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

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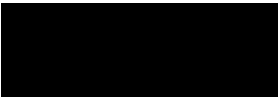
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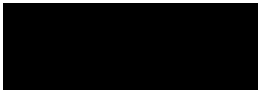
Please contact us if you need any further information.

Prepared by:

Approved by:



Holly Neary-King
Administrative Assistant



Richard Wong
Client Manager



Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	17/08632/1						
Client Sample Number				14				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				BH4D						
Depth to Top				3.9						
Depth to Bottom				4.00						
Date Sampled				12/12/2017						
Sample Type				Soil - ES						
Sample Matrix Code				6AE						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	7.78				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.1				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.05				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	11.4				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	6.36				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	9.79				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	815				500	-	-
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	Y	N	0.009	0.002	0.032	0.030	0.5	2	25
Barium	A-T-025	Y	N	0.025	0.024	0.093	0.290	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.001	<0.001	0.004	0.010	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.073	0.026	0.268	0.360	0.5	10	30
Nickel	A-T-025	Y	N	0.003	0.002	0.010	0.030	0.4	10	40
Lead	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	50
Antimony	A-T-025	Y	N	0.007	0.004	0.024	0.050	0.06	0.7	5
Selenium	A-T-025	Y	N	0.001	<0.001	0.005	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.006	0.018	0.024	0.200	4	50	200
Chloride	A-T-026	Y	N	153	32	565	531	800	15000	25000
Fluoride	A-T-026	Y	N	0.2	0.2	0.8	2.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	367	146	1354	1990	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	947	375	3497	5116	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.9	8.1					
Conductivity (µS/cm)	A-T-037	N	N	1893	749					
Mass Sample (kg)				0.201						
Dry Matter (%)	A-T-044	N	N	58.5						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			0.940						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

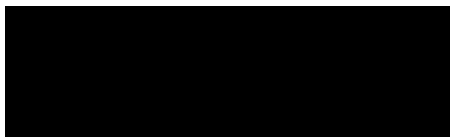
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 17/08066
Issue Number: 1
Date: 11 December, 2017

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 572985
Date Samples Received: 27/11/17
Date Instructions Received: 28/11/17
Date Analysis Completed: 08/12/17

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 17/08066

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3						Units	Method ref
Client Sample No	3	18	6							
Client Sample ID	BH6	BH6	BH6							
Depth to Top	0.50	2.00	1.00							
Depth To Bottom	0.60	2.10	1.10							
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AE	4A	5A							
Chromium (leachable) _A [#]	<1	-	-						µg/l	A-T-025w
Chromium (hexavalent) (leachable) _A	<0.05	-	-						mg/l	A-T-040w
Lead (leachable) _A [#]	67	-	-						µg/l	A-T-025w
Mercury (leachable) _A [#]	<0.1	-	-						µg/l	A-T-025w
Nickel (leachable) _A [#]	3	-	-						µg/l	A-T-025w
Selenium (leachable) _A [#]	<1	-	-						µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	<0.1	-	-						mg/l	A-T-029w
Zinc (leachable) _A [#]	24	-	-						µg/l	A-T-025w

Envirolab Job Number: 17/08066

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3						Units	Method ref		
Client Sample No	3	18	6									
Client Sample ID	BH6	BH6	BH6									
Depth to Top	0.50	2.00	1.00									
Depth To Bottom	0.60	2.10	1.10									
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17									
Sample Type	Soil - ES	Soil - ES	Soil - ES									
Sample Matrix Code	4AE	4A	5A									
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	Chrysotile	NAD	Chrysotile							A-T-045		
Asbestos Matrix (microscope) _A	Loose Fibres	-	Loose Fibres							A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A									
Asbestos in Soil Quantification % (Hand Picking & Weighing)												
Asbestos in soil % composition (hand picking and weighing) _B	0.016	-	<0.001						% w/w	A-T-054		

Envirolab Job Number: 17/08066

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Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3							
Client Sample No	3	18	6							
Client Sample ID	BH6	BH6	BH6							
Depth to Top	0.50	2.00	1.00							
Depth To Bottom	0.60	2.10	1.10							
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AE	4A	5A							
PAH 16										
Acenaphthene _A ^{M#}	0.62	0.01	-						mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	0.09	0.01	-						mg/kg	A-T-019s
Anthracene _A ^{M#}	1.20	0.06	-						mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	3.96	0.27	-						mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	3.17	0.20	-						mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	3.82	0.29	-						mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	1.70	0.15	-						mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	1.32	0.09	-						mg/kg	A-T-019s
Chrysene _A ^{M#}	3.88	0.31	-						mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	0.41	<0.04	-						mg/kg	A-T-019s
Fluoranthene _A ^{M#}	7.87	0.63	-						mg/kg	A-T-019s
Fluorene _A ^{M#}	0.63	0.02	-						mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	1.94	0.16	-						mg/kg	A-T-019s
Naphthalene _A ^{M#}	1.18	<0.03	-						mg/kg	A-T-019s
Phenanthrene _A ^{M#}	4.87	0.35	-						mg/kg	A-T-019s
Pyrene _A ^{M#}	6.54	0.59	-						mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	43.2	3.16	-						mg/kg	A-T-019s

Envirolab Job Number: 17/08066

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3							
Client Sample No	3	18	6							
Client Sample ID	BH6	BH6	BH6							
Depth to Top	0.50	2.00	1.00							
Depth To Bottom	0.60	2.10	1.10							
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AE	4A	5A							
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	0.52	-	-						µg/l	A-T-019w
Acenaphthylene (leachable) _A	0.04	-	-						µg/l	A-T-019w
Anthracene (leachable) _A	0.05	-	-						µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	0.06	-	-						µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	0.03	-	-						µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Chrysene (leachable) _A	0.07	-	-						µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Fluoranthene (leachable) _A	0.20	-	-						µg/l	A-T-019w
Fluorene (leachable) _A	0.23	-	-						µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	<0.02	-	-						µg/l	A-T-019w
Naphthalene (leachable) _A	0.51	-	-						µg/l	A-T-019w
Phenanthrene (leachable) _A	0.20	-	-						µg/l	A-T-019w
Pyrene (leachable) _A	0.18	-	-						µg/l	A-T-019w
PAH (total 16) (leachable) _A	2.09	-	-						µg/l	A-T-019w

Envirolab Job Number: 17/08066

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3						Units	Method ref
Client Sample No	3	18	6							
Client Sample ID	BH6	BH6	BH6							
Depth to Top	0.50	2.00	1.00							
Depth To Bottom	0.60	2.10	1.10							
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AE	4A	5A							
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	<0.002	-	-						mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	<0.002	-	-						mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	<0.004	-	-						mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	<0.007	-						mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	<0.006	-	-						mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	<0.004	-	-						mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	<0.004	-	-						mg/kg	A-T-004s
PCB Total of EC7 _A ^{M#}	<0.007	-	-						mg/kg	A-T-004s

Envirolab Job Number: 17/08066

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Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3						Units	Method ref
Client Sample No	3	18	6							
Client Sample ID	BH6	BH6	BH6							
Depth to Top	0.50	2.00	1.00							
Depth To Bottom	0.60	2.10	1.10							
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AE	4A	5A							
Speciated PCB-WHO12										
PCB BZ 81 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 105 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 114 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 123 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 126 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 156 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 157 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 167 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 169 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 189 _A	-	<0.005	-						mg/kg	A-T-004s
PCB BZ 77 _A	-	<0.005	-						mg/kg	A-T-004s

Envirolab Job Number: 17/08066

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3						Units	Method ref
Client Sample No	3	18	6							
Client Sample ID	BH6	BH6	BH6							
Depth to Top	0.50	2.00	1.00							
Depth To Bottom	0.60	2.10	1.10							
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AE	4A	5A							
Hexachlorocyclopentadiene (leachable) _A	<10	-	-						µg/l	A-T-052w
Hexachloroethane (leachable) _A	<10	-	-						µg/l	A-T-052w
Isophorone (leachable) _A	<10	-	-						µg/l	A-T-052w
Nitrobenzene (leachable) _A	<10	-	-						µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	<10	-	-						µg/l	A-T-052w
Pentachlorophenol (leachable) _A	<10	-	-						µg/l	A-T-052w
Perylene (leachable) _A	<10	-	-						µg/l	A-T-052w
Phenol (leachable) _A	<10	-	-						µg/l	A-T-052w

Envirolab Job Number: 17/08066

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3						Units	Method ref
Client Sample No	3	18	6							
Client Sample ID	BH6	BH6	BH6							
Depth to Top	0.50	2.00	1.00							
Depth To Bottom	0.60	2.10	1.10							
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AE	4A	5A							
Hexachlorocyclopentadiene _A	<100	<100	-						µg/kg	A-T-052s
Perylene _A	632	266	-						µg/kg	A-T-052s

Envirolab Job Number: 17/08066

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3							
Client Sample No	3	18	6							
Client Sample ID	BH6	BH6	BH6							
Depth to Top	0.50	2.00	1.00							
Depth To Bottom	0.60	2.10	1.10							
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4AE	4A	5A							
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
Ali >C8-C10 _A [#]	0.05	<0.01	-						mg/kg	A-T-022s
Ali >C10-C12 _A [#]	4.4	<0.1	-						mg/kg	A-T-023s
Ali >C12-C16 _A [#]	28.6	<0.1	-						mg/kg	A-T-023s
Ali >C16-C21 _A [#]	57.2	<0.1	-						mg/kg	A-T-023s
Ali >C21-C35 _A [#]	43.8	<0.1	-						mg/kg	A-T-023s
Ali >C35-C44 _A	1.6	<0.1	-						mg/kg	A-T-023s
Total Aliphatics _A	136	<0.1	-						mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
Aro >C9-C10 _A [#]	0.07	<0.01	-						mg/kg	A-T-022s
Aro >C10-C12 _A [#]	5.1	<0.1	-						mg/kg	A-T-023s
Aro >C12-C16 _A [#]	15.8	<0.1	-						mg/kg	A-T-023s
Aro >C16-C21 _A [#]	64.0	<0.1	-						mg/kg	A-T-023s
Aro >C21-C35 _A [#]	62.5	<0.1	-						mg/kg	A-T-023s
Aro >C35-C44 _A	0.7	<0.1	-						mg/kg	A-T-023s
Total Aromatics _A	148	<0.1	-						mg/kg	A-T-023s
TPH (Ali & Aro) _A	284	<0.1	-						mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s

Envirolab Job Number: 17/08066

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08066/1	17/08066/2	17/08066/3							Units	Method ref
Client Sample No	3	18	6								
Client Sample ID	BH6	BH6	BH6								
Depth to Top	0.50	2.00	1.00								
Depth To Bottom	0.60	2.10	1.10								
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17								
Sample Type	Soil - ES	Soil - ES	Soil - ES								
Sample Matrix Code	4AE	4A	5A								
TPH UKCWG (leachable)											
Ali >C5-C6 (leachable) _A	1	-	-							µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	4	-	-							µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	<1	-	-							µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	<10	-	-							µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	<10	-	-							µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	<10	-	-							µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	<10	-	-							µg/l	A-T-023w
Total Aliphatics (leachable) _A	<10	-	-							µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	<10	-	-							µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	<1	-	-							µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	<1	-	-							µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	<1	-	-							µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	<1	-	-							µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	<10	-	-							µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	11	-	-							µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	<10	-	-							µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	<10	-	-							µg/l	A-T-023w
Total Aromatics (leachable) _A	11	-	-							µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	11	-	-							µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	<10	-	-							µg/l	A-T-023w
BTEX - Benzene (leachable) _A	<1	-	-							µg/l	A-T-022w
BTEX - Toluene (leachable) _A	<1	-	-							µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	<1	-	-							µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	<1	-	-							µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	<1	-	-							µg/l	A-T-022w
MTBE (leachable) _A	1	-	-							µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

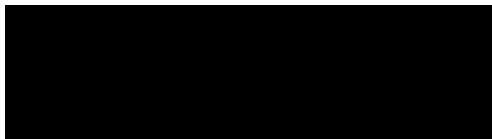
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 17/08196
Issue Number: 1
Date: 08 December, 2017

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

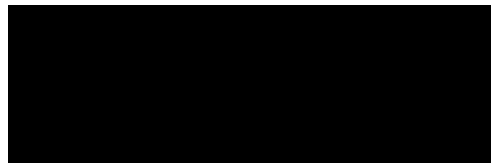
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 573343
Date Samples Received: 01/12/17
Date Instructions Received: 01/12/17
Date Analysis Completed: 08/12/17

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 17/08196

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08196/1	17/08196/2	17/08196/3	17/08196/4	17/08196/5	17/08196/6	17/08196/7	17/08196/8	Units	Method ref
Client Sample No	7	19	21	23	29	38	47	55		
Client Sample ID	BH6	BH6	BH6	BH6	BH6	BH6	BH6	BH6		
Depth to Top	0.40	4.00	5.00	6.00	8.00	12.00	16.00	20.00		
Depth To Bottom	0.50	4.45	5.45	6.45	8.45	12.39	16.45	20.41		
Date Sampled	23-Nov-17	23-Nov-17	23-Nov-17	23-Nov-17	23-Nov-17	24-Nov-17	27-Nov-17	27-Nov-17		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	4A	4A	1A	1A	1	1	1	1A		
% Stones >10mm _A	12.4	9.4	12.3	6.2	<0.1	<0.1	<0.1	<0.1		
pH BRE _D	8.03	8.45	8.62	8.59	8.92	8.12	8.39	8.63	pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	10.8	<1.00	<1.00	<1.00	1.32	<1.00	<1.00	<1.00	mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	39	19	270	407	268	872	1400	633	mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	64	14	34	48	41	115	187	89	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.13	<0.02	<0.02	<0.02	<0.02	0.03	0.04	0.03	% w/w	A-T-028s
Sulphur BRE (total) _D	0.18	0.03	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	6	5	15	21	5	61	92	33	mg/l	A-T-SOLMETS

Envirolab Job Number: 17/08196

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08196/9	17/08196/10							Units	Method ref
Client Sample No	62	70								
Client Sample ID	BH6	BH6								
Depth to Top	24.00	28.00								
Depth To Bottom	24.45	28.45								
Date Sampled	27-Nov-17	27-Nov-17								
Sample Type	Soil - D	Soil - D								
Sample Matrix Code	1	5								
% Stones >10mm _A	<0.1	<0.1								
pH BRE _D	8.57	8.36							pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	<1.00	1.03							mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	352	925							mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	<0.4	<0.4							mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	61	164							mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.03	0.09							% w/w	A-T-028s
Sulphur BRE (total) _D	0.17	0.54							% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	17	42							mg/l	A-T-SOLMET5

REPORT NOTES

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A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

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US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 17/08066
Issue Number: 1
Date: 11-Dec-17

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 572985

Date Samples Received: 27-Nov-17
Date Instructions Received: 28-Nov-17
Date Analysis Completed: 8-Dec-17

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:



Holly Neary-King
Administrative Assistant

Richard Wong
Client Manager



Sample Details					Landfill Waste Acceptance Criteria Limits								
Lab Sample ID	Method	ISO17025	MCERTS	17/08066/1				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				3									
Client Sample ID				BH6									
Depth to Top				0.5									
Depth to Bottom				0.60									
Date Sampled				23/11/2017									
Sample Type				Soil - ES									
Sample Matrix Code				4AE									
Solid Waste Analysis													
pH (pH Units) _D	A-T-031	Y	Y	8.11				-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.56				-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.17				-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	6.1				-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	2.6				3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	43.4				100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	123				500	-	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-			
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)					
				mg/l		mg/kg							
Arsenic	A-T-025	Y	N	0.009	0.006	0.019	0.060	0.5	2	25			
Barium	A-T-025	Y	N	0.065	0.044	0.142	0.470	20	100	300			
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5			
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70			
Copper	A-T-025	Y	N	0.014	0.011	0.032	0.120	2	50	100			
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2			
Molybdenum	A-T-025	Y	N	0.054	0.010	0.119	0.140	0.5	10	30			
Nickel	A-T-025	Y	N	0.005	0.002	0.012	0.030	0.4	10	40			
Lead	A-T-025	Y	N	0.067	0.101	0.147	1.000	0.5	10	50			
Antimony	A-T-025	Y	N	0.023	0.014	0.051	0.150	0.06	0.7	5			
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7			
Zinc	A-T-025	Y	N	0.032	0.028	0.071	0.290	4	50	200			
Chloride	A-T-026	Y	N	29	5	64	71	800	15000	25000			
Fluoride	A-T-026	Y	N	0.4	0.2	0.9	2.0	10	150	500			
Sulphate as SO ₄	A-T-026	Y	N	50	11	110	146	1000	20000	50000			
Total Dissolved Solids	A-T-035	N	N	262	73	575	909	4000	60000	100000			
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-			
Dissolved Organic Carbon	A-T-032	N	N	27.7	<20.0	61	<200	500	800	1000			
Leach Test Information													
pH (pH Units)	A-T-031	N	Y	7.9	7.4								
Conductivity (µS/cm)	A-T-037	N	N	524	145								
Mass Sample (kg)				0.200									
Dry Matter (%)	A-T-044	N	N	85.9									
Stage 1													
Volume Leachant, L ₂ (l)	A-T-046			0.350									
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150									
Stage 2													
Volume Leachant, L ₈ (l)	A-T-046			1.380									
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation													

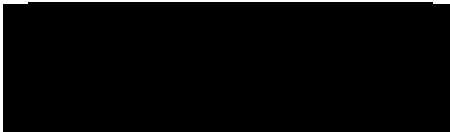
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/00646
Issue Number: 1
Date: 05 February, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

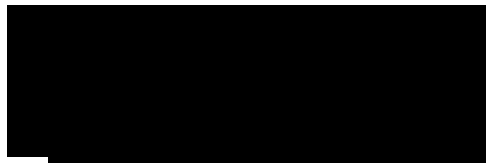
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 579331
Date Samples Received: 25/01/18
Date Instructions Received: 29/01/18
Date Analysis Completed: 05/02/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/00646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00646/1	18/00646/2							Units	Method ref
Client Sample No	5	23								
Client Sample ID	BH8	BH8								
Depth to Top	1.0	4.90								
Depth To Bottom	1.10	5.0								
Date Sampled	23-Jan-18	23-Jan-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	1A								
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	-								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	-								

Envirolab Job Number: 18/00646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00646/1	18/00646/2							Units	Method ref
Client Sample No	5	23								
Client Sample ID	BH8	BH8								
Depth to Top	1.0	4.90								
Depth To Bottom	1.10	5.0								
Date Sampled	23-Jan-18	23-Jan-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	1A								
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 105 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 114 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 118 _A ^{MF}	<0.007	-						mg/kg	A-T-004s	
PCB BZ 123 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 126 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 156 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 157 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 167 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 169 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 189 _A	<0.005	-						mg/kg	A-T-004s	
PCB BZ 77 _A	<0.005	-						mg/kg	A-T-004s	
Total Speciated PCB-WHO12 _A	<0.007	-						mg/kg	A-T-004s	

Envirolab Job Number: 18/00646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00646/1	18/00646/2							Units	Method ref
Client Sample No	5	23								
Client Sample ID	BH8	BH8								
Depth to Top	1.0	4.90								
Depth To Bottom	1.10	5.0								
Date Sampled	23-Jan-18	23-Jan-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	1A								
Hexachlorocyclopentadiene _A	<100	<100						µg/kg	A-T-052s	
Perylene _A	<100	<100						µg/kg	A-T-052s	

REPORT NOTES

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For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

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E = contains roots/twigs.

Key:

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US indicates Unsuitable Sample for analysis.

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Subscript "A" indicates analysis performed on the sample as received.

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Please contact us if you need any further information.

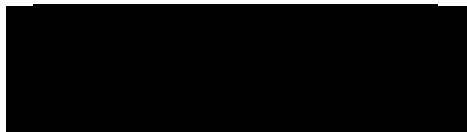
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/00786
Issue Number: 1
Date: 12 February, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

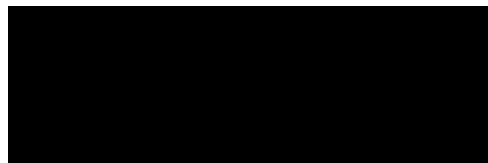
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 579974
Date Samples Received: 02/02/18
Date Instructions Received: 02/02/18
Date Analysis Completed: 10/02/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/00786

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00786/1	18/00786/2	18/00786/3	18/00786/4	18/00786/5	18/00786/6	18/00786/7	18/00786/8	Units	Method ref
Client Sample No	13	15	41	51	69	79	85	93		
Client Sample ID	BH8	BH8	BH8	BH8	BH8	BH8	BH8	BH8		
Depth to Top	2.0	2.2	11.0	15.0	24.00	28.45	31.20	36.0		
Depth To Bottom										
Date Sampled	23-Jan-18	23-Jan-18	24-Jan-18	25-Jan-18	26-Jan-18	26-Jan-18	29-Jan-18	29-Jan-18		
Sample Type	Soil - D	Soil - B	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	6A	6A	5	5	5	5	5	5A		
% Stones >10mm _A	<0.1	2.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
pH BRE _D	8.25	-	8.53	9.17	8.46	8.04	8.29	8.55	pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	5.71	-	<1.00	<1.00	<1.00	1.35	1.26	1.81	mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	97	-	435	160	675	1160	1040	572	mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	<0.4	-	<0.4	<0.4	<0.4	<0.4	21.5	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	157	-	65	33	91	203	299	97	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.16	-	<0.02	<0.02	0.04	0.10	0.10	0.07	% w/w	A-T-028s
Sulphur BRE (total) _D	0.85	-	<0.01	<0.01	0.08	0.56	0.29	0.32	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	21	-	19	6	46	45	56	27	mg/l	A-T-SOLMETs
Organic matter _D ^{M#}	2.6	18.2	-	-	-	-	-	1.2	% w/w	A-T-032 OM
Organic Matter _D	2.6	18.2	-	-	-	-	-	1.2	% w/w	A-T-032 OM

REPORT NOTES

General:

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All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

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If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

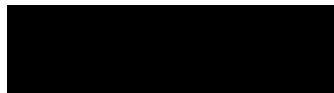
FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/00786/1

Envirolab Job Number: 18/00786
Issue Number: 2
Date: 13 February, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

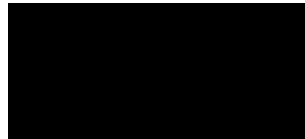
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 579974
Date Samples Received: 02/02/18
Date Instructions Received: 02/02/18
Date Analysis Completed: 13/02/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/00786

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00786/1	18/00786/2	18/00786/3	18/00786/4	18/00786/5	18/00786/6	18/00786/7	18/00786/8	Units	Method ref
Client Sample No	13	15	41	51	69	79	85	93		
Client Sample ID	BH8	BH8	BH8	BH8	BH8	BH8	BH8	BH8		
Depth to Top	2.0	2.2	11.0	15.0	24.00	28.45	31.20	36.0		
Depth To Bottom										
Date Sampled	23-Jan-18	23-Jan-18	24-Jan-18	25-Jan-18	26-Jan-18	26-Jan-18	29-Jan-18	29-Jan-18		
Sample Type	Soil - D	Soil - B	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	6A	6A	5	5	5	5	5	5A		
% Stones >10mm _A	<0.1	2.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
pH BRE _D	8.25	-	8.53	9.17	8.46	8.04	8.29	8.55	pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	5.71	-	<1.00	<1.00	<1.00	1.35	1.26	1.81	mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	97	-	435	160	675	1160	1040	572	mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	<0.4	-	<0.4	<0.4	<0.4	<0.4	21.5	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	157	-	65	33	91	203	299	97	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.16	-	<0.02	<0.02	0.04	0.10	0.10	0.07	% w/w	A-T-028s
Sulphur BRE (total) _D	0.85	-	<0.01	<0.01	0.08	0.56	0.29	0.32	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	21	-	19	6	46	45	56	27	mg/l	A-T-SOLMETs
Organic matter _D ^{M#}	1.9	15.3	-	-	-	-	-	<0.1	% w/w	A-T-032 OM
Organic Matter _D	2.6	18.2	-	-	-	-	-	1.2	% w/w	A-T-032 OM

REPORT NOTES

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A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 18/00646
Issue Number: 1
Date: 5-Feb-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 579331

Date Samples Received: 25-Jan-18
Date Instructions Received: 29-Jan-18
Date Analysis Completed: 5-Feb-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

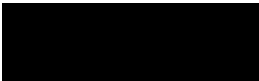
Superscript # indicates method accredited to ISO 17025.

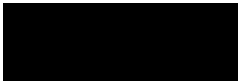
Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:


Holly Neary-King
Administrative Assistant


Richard Wong
Client Manager



Sample Details						Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/00646/1		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				5							
Client Sample ID				BH8							
Depth to Top				1							
Depth to Bottom				1.10							
Date Sampled				23/01/2018							
Sample Type				Soil - ES							
Sample Matrix Code				4A							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	7.71		-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N			-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N			-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	9.3		-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	7.16		3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08		100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	35		500	-	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007		1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01		6	-	-			
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
				mg/l		mg/kg					
Arsenic	A-T-025	Y	N	0.011	0.013	0.025	0.130	0.5	2	25	
Barium	A-T-025	Y	N	0.023	0.006	0.055	0.080	20	100	300	
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5	
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70	
Copper	A-T-025	Y	N	0.003	0.001	0.007	0.020	2	50	100	
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2	
Molybdenum	A-T-025	Y	N	0.066	0.010	0.155	0.160	0.5	10	30	
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.4	10	40	
Lead	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	50	
Antimony	A-T-025	Y	N	0.010	0.003	0.024	0.040	0.06	0.7	5	
Selenium	A-T-025	Y	N	0.011	0.006	0.026	0.070	0.1	0.5	7	
Zinc	A-T-025	Y	N	0.001	<0.001	0.003	<0.01	4	50	200	
Chloride	A-T-026	Y	N	31	3	72	53	800	15000	25000	
Fluoride	A-T-026	Y	N	0.5	0.4	1.2	4.0	10	150	500	
Sulphate as SO ₄	A-T-026	Y	N	47	7	109	105	1000	20000	50000	
Total Dissolved Solids	A-T-035	N	N	216	57	504	734	4000	60000	100000	
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-	
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000	
Leach Test Information											
pH (pH Units)	A-T-031	N	Y	7.7	8.0						
Conductivity (µS/cm)	A-T-037	N	N	432	113						
Mass Sample (kg)				0.200							
Dry Matter (%)	A-T-044	N	N	82.4							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.320							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

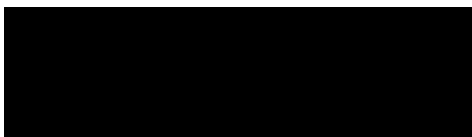
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/00839
Issue Number: 1
Date: 14 February, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

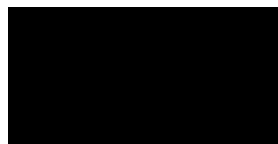
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 580346
Date Samples Received: 05/02/18
Date Instructions Received: 06/02/18
Date Analysis Completed: 14/02/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/00839

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00839/1									Units	Method ref
Client Sample No	14										
Client Sample ID	BH9										
Depth to Top	3.50										
Depth To Bottom	3.60										
Date Sampled	31-Jan-18										
Sample Type	Soil - ES										
Sample Matrix Code	1A										
% Stones >10mm _A	10.4									% w/w	A-T-044
pH _D	8.56									pH	A-T-031s
Ammoniacal nitrogen _D	1.3									mg/kg	A-T-033s
Sulphate (water sol 2:1) _D ^{M#}	<0.01									g/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	<200									mg/kg	A-T-028s
Cyanide (total) _A ^{M#}	<1									mg/kg	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2									mg/kg	A-T-050s
Sulphide _A	<5									mg/kg	A-T-S2-s
Sulphur (elemental) _D ^{M#}	<5									mg/kg	A-T-029s
Organic matter _D ^{M#}	<0.1									% w/w	A-T-032 OM
Arsenic _D ^{M#}	2									mg/kg	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0									mg/kg	A-T-027s
Cadmium _D ^{M#}	<0.5									mg/kg	A-T-024s
Copper _D ^{M#}	<1									mg/kg	A-T-024s
Chromium _D ^{M#}	4									mg/kg	A-T-024s
Chromium (hexavalent) _D	<1									mg/kg	A-T-040s
Lead _D ^{M#}	3									mg/kg	A-T-024s
Mercury _D	<0.17									mg/kg	A-T-024s
Nickel _D ^{M#}	3									mg/kg	A-T-024s
Selenium _D ^{M#}	<1									mg/kg	A-T-024s
Zinc _D ^{M#}	<5									mg/kg	A-T-024s

Envirolab Job Number: 18/00839

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00839/1									Units	Method ref
Client Sample No	14										
Client Sample ID	BH9										
Depth to Top	3.50										
Depth To Bottom	3.60										
Date Sampled	31-Jan-18										
Sample Type	Soil - ES										
Sample Matrix Code	1A										
PAH 16											
Acenaphthene _A ^{M#}	<0.01								mg/kg	A-T-019s	
Acenaphthylene _A ^{M#}	<0.01								mg/kg	A-T-019s	
Anthracene _A ^{M#}	<0.02								mg/kg	A-T-019s	
Benzo(a)anthracene _A ^{M#}	<0.04								mg/kg	A-T-019s	
Benzo(a)pyrene _A ^{M#}	<0.04								mg/kg	A-T-019s	
Benzo(b)fluoranthene _A ^{M#}	<0.05								mg/kg	A-T-019s	
Benzo(ghi)perylene _A ^{M#}	<0.05								mg/kg	A-T-019s	
Benzo(k)fluoranthene _A ^{M#}	<0.07								mg/kg	A-T-019s	
Chrysene _A ^{M#}	<0.06								mg/kg	A-T-019s	
Dibenzo(ah)anthracene _A ^{M#}	<0.04								mg/kg	A-T-019s	
Fluoranthene _A ^{M#}	<0.08								mg/kg	A-T-019s	
Fluorene _A ^{M#}	<0.01								mg/kg	A-T-019s	
Indeno(123-cd)pyrene _A ^{M#}	<0.03								mg/kg	A-T-019s	
Naphthalene _A ^{M#}	<0.03								mg/kg	A-T-019s	
Phenanthrene _A ^{M#}	<0.03								mg/kg	A-T-019s	
Pyrene _A ^{M#}	<0.07								mg/kg	A-T-019s	
PAH (total 16) _A ^{M#}	<0.08								mg/kg	A-T-019s	

Envirolab Job Number: 18/00839

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00839/1									Units	Method ref
Client Sample No	14										
Client Sample ID	BH9										
Depth to Top	3.50										
Depth To Bottom	3.60										
Date Sampled	31-Jan-18										
Sample Type	Soil - ES										
Sample Matrix Code	1A										
SVOC											
Hexachlorobenzene _A	<100									µg/kg	A-T-052s
Diethyl phthalate _A	<100									µg/kg	A-T-052s
Dimethyl phthalate _A	<100									µg/kg	A-T-052s
Dibenzofuran _A	<100									µg/kg	A-T-052s
Carbazole _A	<100									µg/kg	A-T-052s
Butylbenzyl phthalate _A	<100									µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<500									µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	<100									µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	<100									µg/kg	A-T-052s
4-Nitrophenol _A	<100									µg/kg	A-T-052s
4-Methylphenol _A	<100									µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	<100									µg/kg	A-T-052s
2-Nitrophenol _A	<100									µg/kg	A-T-052s
2-Methylphenol _A	<100									µg/kg	A-T-052s
2-Chlorophenol _A	<100									µg/kg	A-T-052s
2,6-Dinitrotoluene _A	<100									µg/kg	A-T-052s
2,4-Dinitrotoluene _A	<100									µg/kg	A-T-052s
2,4-Dimethylphenol _A	<100									µg/kg	A-T-052s
2,4-Dichlorophenol _A	<100									µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	<100									µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	<100									µg/kg	A-T-052s
2-Chloronaphthalene _A	<100									µg/kg	A-T-052s
2-Methylnaphthalene _A	<100									µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100									µg/kg	A-T-052s
Phenol _A	<100									µg/kg	A-T-052s
Pentachlorophenol _A	<100									µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	<100									µg/kg	A-T-052s
n-Dioctylphthalate _A	<500									µg/kg	A-T-052s
n-Dibutylphthalate _A	<100									µg/kg	A-T-052s
Nitrobenzene _A	<100									µg/kg	A-T-052s
Isophorone _A	<100									µg/kg	A-T-052s
Hexachloroethane _A	<100									µg/kg	A-T-052s

Envirolab Job Number: 18/00839

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00839/1								Units	Method ref
Client Sample No	14									
Client Sample ID	BH9									
Depth to Top	3.50									
Depth To Bottom	3.60									
Date Sampled	31-Jan-18									
Sample Type	Soil - ES									
Sample Matrix Code	1A									
Hexachlorocyclopentadiene _A	<100								µg/kg	A-T-052s
Perylene _A	<100								µg/kg	A-T-052s

Envirolab Job Number: 18/00839

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00839/1									Units	Method ref
Client Sample No	14										
Client Sample ID	BH9										
Depth to Top	3.50										
Depth To Bottom	3.60										
Date Sampled	31-Jan-18										
Sample Type	Soil - ES										
Sample Matrix Code	1A										
VOC											
Dichlorodifluoromethane _A [#]	<1									µg/kg	A-T-006s
Chloromethane _A [#]	<10									µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1									µg/kg	A-T-006s
Bromomethane _A [#]	<1									µg/kg	A-T-006s
Chloroethane _A [#]	<1									µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1									µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1									µg/kg	A-T-006s
Carbon Disulphide _A [#]	1									µg/kg	A-T-006s
Dichloromethane _A	<5									µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1									µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1									µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1									µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1									µg/kg	A-T-006s
Bromochloromethane _A [#]	<5									µg/kg	A-T-006s
Chloroform _A [#]	<1									µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1									µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1									µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1									µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2									µg/kg	A-T-006s
Benzene _A [#]	<1									µg/kg	A-T-006s
Trichloroethene _A [#]	<1									µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1									µg/kg	A-T-006s
Dibromomethane _A [#]	<1									µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10									µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1									µg/kg	A-T-006s
Toluene _A [#]	<1									µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1									µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1									µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1									µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1									µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3									µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1									µg/kg	A-T-006s

Envirolab Job Number: 18/00839

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00839/1									Units	Method ref
Client Sample No	14										
Client Sample ID	BH9										
Depth to Top	3.50										
Depth To Bottom	3.60										
Date Sampled	31-Jan-18										
Sample Type	Soil - ES										
Sample Matrix Code	1A										
Chlorobenzene _A [#]	<1									µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane _A	<1									µg/kg	A-T-006s
Ethylbenzene _A [#]	<1									µg/kg	A-T-006s
m & p Xylene _A [#]	<1									µg/kg	A-T-006s
o-Xylene _A [#]	<1									µg/kg	A-T-006s
Styrene _A [#]	<1									µg/kg	A-T-006s
Bromoform _A [#]	<1									µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1									µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1									µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1									µg/kg	A-T-006s
Bromobenzene _A [#]	<1									µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1									µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1									µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1									µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1									µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2									µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1									µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1									µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1									µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1									µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1									µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1									µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1									µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2									µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3									µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1									µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3									µg/kg	A-T-006s

Envirolab Job Number: 18/00839

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00839/1									Units	Method ref
Client Sample No	14										
Client Sample ID	BH9										
Depth to Top	3.50										
Depth To Bottom	3.60										
Date Sampled	31-Jan-18										
Sample Type	Soil - ES										
Sample Matrix Code	1A										
TPH UKCWG											
Ali >C5-C6 _A [#]	<0.01									mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01									mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01									mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1									mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1									mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1									mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1									mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1									mg/kg	A-T-023s
Total Aliphatics _A	<0.1									mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01									mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01									mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01									mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01									mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1									mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1									mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1									mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1									mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1									mg/kg	A-T-023s
Total Aromatics _A	<0.1									mg/kg	A-T-023s
TPH (Ali & Aro) _A	<0.1									mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01									mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01									mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01									mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01									mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01									mg/kg	A-T-022s
MTBE _A [#]	<0.01									mg/kg	A-T-022s

REPORT NOTES

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Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/00961
Issue Number: 1 **Date:** 16 February, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

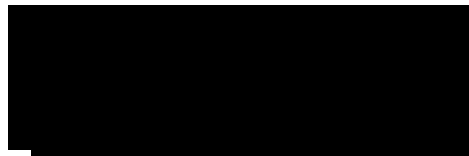
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 580605
Date Samples Received: 08/02/18
Date Instructions Received: 08/02/18
Date Analysis Completed: 16/02/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/00961

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00961/1	18/00961/2	18/00961/3	18/00961/4					Units	Method ref
Client Sample No	11	38	83	86						
Client Sample ID	BH9	BH9	BH9	BH9						
Depth to Top	2.60	12.00	34.00	36.00						
Depth To Bottom	2.70	12.45	34.45	36.45						
Date Sampled	30-Jan-18	01-Feb-18	05-Feb-18	05-Feb-18						
Sample Type	Soil - B	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	6A	4A	5A	5A						
% Stones >10mm _A	1.7	<0.1	11.1	4.0						
pH BRE _D	-	8.49	8.79	8.61					pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	-	<1.00	<1.00	45.6					mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	-	505	165	289					mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	-	<0.4	<0.4	<0.4					mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	67	36	57					mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	-	<0.02	0.04	0.05					% w/w	A-T-028s
Sulphur BRE (total) _D	-	<0.01	0.12	0.16					% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	31	11	16					mg/l	A-T-SOLMETs
Organic matter _D ^{M#}	1.8	-	-	-					% w/w	A-T-032 OM

REPORT NOTES

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

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Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02024
Issue Number: 1 **Date:** 27 March, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

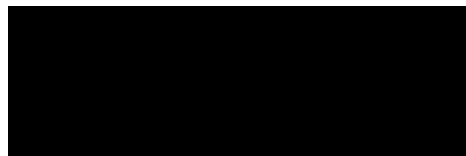
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 584698
Date Samples Received: 15/03/18
Date Instructions Received: 20/03/18
Date Analysis Completed: 26/03/18

Prepared by:



Gill Walker
Laboratory Manager

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/02024

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02024/1	18/02024/2	18/02024/3	18/02024/4	18/02024/5	18/02024/6	18/02024/7	18/02024/8	Units	Method ref
Client Sample No	21	45	52	66	76	92	104	108		
Client Sample ID	BH10A	BH10A	BH10A	BH10A	BH10A	BH10A	BH10A	BH10A		
Depth to Top	4.30	13.00	15.00	22.00	28.00	38.00	45.60	47.45		
Depth To Bottom	4.50	13.45	15.45	22.45	28.45	38.38	45.80	47.50		
Date Sampled	13-Mar-18	21-Feb-18	21-Feb-18	21-Feb-18	22-Feb-18	23-Feb-18	13-Mar-18	26-Feb-18		
Sample Type	Solid	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	7	4	1	4	5	1	5	3		
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
pH BRE _D	-	-	-	8.79	8.61	8.50	7.89	8.41	pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	-	-	-	<1.00	<1.00	<1.00	5.35	6.26	mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	-	-	-	528	1590	701	3430	928	mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	-	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	79	278	100	805	228	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	0.02	0.09	0.05	0.31	0.07	% w/w	A-T-028s
Sulphur BRE (total) _D	-	-	-	0.04	0.54	0.22	2.52	0.30	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	-	-	35	76	39	274	73	mg/l	A-T-SOLMETS
Organic matter _D ^{M#}	0.1	<0.1	<0.1	-	-	-	-	-	% w/w	A-T-032 OM

Envirolab Job Number: 18/02024

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02024/9								Units	Method ref
Client Sample No	113									
Client Sample ID	BH10A									
Depth to Top	49.50									
Depth To Bottom	49.95									
Date Sampled	26-Feb-18									
Sample Type	Soil - D									
Sample Matrix Code	3									
% Stones >10mm _A	<0.1								% w/w	A-T-044
pH BRE _D	8.27								pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	7.71								mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	457								mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	<0.4								mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	483								mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.23								% w/w	A-T-028s
Sulphur BRE (total) _D	4.68								% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	75								mg/l	A-T-SOLMETs

REPORT NOTES

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

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US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

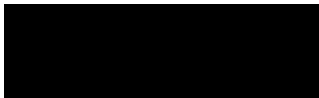
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02030
Issue Number: 1 **Date:** 27 March, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 585199
Date Samples Received: 19/03/18
Date Instructions Received: 20/03/18
Date Analysis Completed: 26/03/18

Prepared by:



Gill Walker
Laboratory Manager

Approved by:



John Gustafson
Director

Envirolab Job Number: 18/02030

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02030/1	18/02030/2	18/02030/3	18/02030/4	18/02030/5	18/02030/6	18/02030/7	18/02030/8	Units	Method ref		
Client Sample No	9	12	65	72	79	82	92	108				
Client Sample ID	BH10	BH10	BH10	BH10	BH10	BH10	BH10	BH10				
Depth to Top	2.00	3.45	24.00	28.00	32.00	34.00	40.00	49.45				
Depth To Bottom	2.50	3.60	24.45	28.45	32.45	34.45	40.45	49.50				
Date Sampled	20-Feb-18	20-Feb-18	22-Feb-18	22-Feb-18	23-Feb-18	23-Feb-18	26-Feb-18	26-Feb-18				
Sample Type	Soil - B	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	6A	6A	1	5	5	1	1	3				
% Stones >10mm _A	<0.1	3.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	A-T-044
pH BRE _D	-	-	8.60	8.61	8.19	8.42	8.60	8.47	pH	A-T-031s		
Ammonium NH ₄ BRE (water sol 2:1) _D	-	-	<1.00	<1.00	1.68	<1.00	<1.00	6.26	mg/l	A-T-033s		
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	-	-	1180	1550	963	1020	608	412	mg/l	A-T-026s		
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s		
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	140	246	166	147	90	159	mg/l	A-T-026s		
Sulphate BRE (acid sol) _D ^{M#}	-	-	0.04	0.09	0.06	0.07	0.06	0.07	% w/w	A-T-028s		
Sulphur BRE (total) _D	-	-	0.07	0.47	0.44	0.13	0.16	0.32	% w/w	A-T-024s		
Magnesium BRE (water sol 2:1) _D	-	-	97	92	42	61	45	47	mg/l	A-T-SOLMET5		
Organic matter _D ^{M#}	<0.1	<0.1	-	-	-	-	-	-	% w/w	A-T-032 OM		

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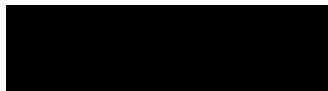
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02053
Issue Number: 1
Date: 04 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt. Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 584856
Date Samples Received: 23/02/18
Date Instructions Received: 21/03/18
Date Analysis Completed: 04/04/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Gill Walker
Laboratory Manager

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref	
Client Sample No	10	15	18	22	17						
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)						
Depth to Top	2.50	2.90	3.90	4.90	4.50						
Depth To Bottom		3.00	4.00	5.00							
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6A	4A	6A	4A	4A						
% Stones >10mm _A	2.0	33.3	19.0	22.8	23.4			% w/w			A-T-044
pH _D	7.98	11.62	9.39	9.11	8.65			pH			A-T-031s
Ammoniacal nitrogen _D	8.7	<0.2	0.5	<0.2	0.2			mg/kg	A-T-033s		
Sulphate (water sol 2:1) _D ^{M#}	0.13	0.02	0.03	0.02	0.03			g/l	A-T-026s		
Sulphate (acid soluble) _D ^{M#}	750	340	380	<200	<200			mg/kg	A-T-028s		
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1			mg/kg	A-T-042sTCN		
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2			mg/kg	A-T-050s		
Sulphide _A	<5	<5	50	5	5			mg/kg	A-T-S2-s		
Sulphur (elemental) _D ^{M#}	19	<5	42	12	<5			mg/kg	A-T-029s		
Organic matter _D ^{M#}	0.8	<0.1	0.6	<0.1	0.2			% w/w	A-T-032 OM		
Arsenic _D ^{M#}	6	2	4	3	3			mg/kg	A-T-024s		
Boron (water soluble) _D ^{M#}	1.6	<1.0	<1.0	<1.0	<1.0			mg/kg	A-T-027s		
Cadmium _D ^{M#}	<0.5	<0.5	<0.5	<0.5	<0.5			mg/kg	A-T-024s		
Copper _D ^{M#}	6	3	6	5	<1			mg/kg	A-T-024s		
Chromium _D ^{M#}	13	3	6	6	4			mg/kg	A-T-024s		
Chromium (hexavalent) _D	<1	<1	<1	<1	<1			mg/kg	A-T-040s		
Lead _D ^{M#}	25	4	13	12	4			mg/kg	A-T-024s		
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17			mg/kg	A-T-024s		
Nickel _D ^{M#}	10	3	5	8	4			mg/kg	A-T-024s		
Selenium _D ^{M#}	<1	<1	<1	<1	<1			mg/kg	A-T-024s		
Zinc _D ^{M#}	26	9	23	12	<5			mg/kg	A-T-024s		

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD	-					A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	-					

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	0.30	<0.01	<0.01				mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	0.05	<0.02	<0.02				mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	0.10	<0.04	<0.04				mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	0.10	<0.04	<0.04				mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	0.13	<0.05	<0.05				mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	0.06	<0.05	<0.05				mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07				mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	0.12	<0.06	<0.06				mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04				mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	0.28	<0.08	<0.08				mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	0.06	<0.01	<0.01				mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	0.06	<0.03	<0.03				mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	0.18	<0.03	<0.03				mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	0.12	<0.03	<0.03				mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	0.24	<0.07	<0.07				mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08	<0.08	1.78	<0.08	<0.08				mg/kg	A-T-019s

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	0.16	-	2.60	-	-				µg/l	A-T-019w
Acenaphthylene (leachable) _A	<0.02	-	<0.02	-	-				µg/l	A-T-019w
Anthracene (leachable) _A	0.04	-	0.10	-	-				µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	<0.02	-	<0.02	-	-				µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	<0.02	-	<0.02	-	-				µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	<0.02	-	<0.02	-	-				µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	<0.02	-	<0.02	-	-				µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	<0.02	-	<0.02	-	-				µg/l	A-T-019w
Chrysene (leachable) _A	<0.02	-	<0.02	-	-				µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	<0.02	-	<0.02	-	-				µg/l	A-T-019w
Fluoranthene (leachable) _A	0.03	-	0.03	-	-				µg/l	A-T-019w
Fluorene (leachable) _A	0.14	-	0.98	-	-				µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	<0.02	-	<0.02	-	-				µg/l	A-T-019w
Naphthalene (leachable) _A	1.12	-	3.75	-	-				µg/l	A-T-019w
Phenanthrene (leachable) _A	0.22	-	0.64	-	-				µg/l	A-T-019w
Pyrene (leachable) _A	<0.02	-	0.03	-	-				µg/l	A-T-019w
PAH (total 16) (leachable) _A	1.71	-	8.13	-	-				µg/l	A-T-019w

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	<0.002	-	<0.002	-				mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	<0.002	-	<0.002	-				mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	<0.004	-	<0.004	-				mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	<0.007	<0.007	<0.007	-				mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	<0.006	-	<0.006	-				mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	<0.004	-	<0.004	-				mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	<0.004	-	<0.004	-				mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	<0.007	-	<0.007	-				mg/kg	A-T-004s

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Client Project Ref: PZ1522D1

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Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 105 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 114 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 123 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 126 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 156 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 157 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 167 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 169 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 189 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
PCB BZ 77 _A	<0.005	-	<0.005	-	-				mg/kg	A-T-004s
Total Speciated PCB-WHO12 _A	<0.007	-	<0.007	-	-				mg/kg	A-T-004s

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	<4	-	<2	-	-				µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2-Chlorophenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2-Methylphenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
2-Nitrophenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
4-Methylphenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
4-Nitrophenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	4	-	<8	-	-				µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Carbazole (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Dibenzofuran (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Diethyl phthalate (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
n-Diethylphthalate (leachable) _A	<10	-	<10	-	-				µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
Hexachlorocyclopentadiene (leachable) _A	<2	-	<2	-	-					
Hexachloroethane (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Isophorone (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Nitrobenzene (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Pentachlorophenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Perylene (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w
Phenol (leachable) _A	<2	-	<2	-	-				µg/l	A-T-052w

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16					
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
									Units	Method ref
SVOC										
Hexachlorobenzene _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Diethyl phthalate _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Dimethyl phthalate _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Dibenzofuran _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Carbazole _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Butylbenzyl phthalate _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<500	<500	<500	<500	<500				µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
4-Nitrophenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
4-Methylphenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2-Nitrophenol _A	<200	<200	<200	<200	<200				µg/kg	A-T-052s
2-Methylphenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2-Chlorophenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2,6-Dinitrotoluene _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2,4-Dinitrotoluene _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2,4-Dimethylphenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2,4-Dichlorophenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2-Chloronaphthalene _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
2-Methylnaphthalene _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Phenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Pentachlorophenol _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
n-Diethylphthalate _A	<500	<500	<500	<500	<500				µg/kg	A-T-052s
n-Dibutylphthalate _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Nitrobenzene _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Isophorone _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Hexachloroethane _A	<200	<200	<200	<200	<200				µg/kg	A-T-052s

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
Hexachlorocyclopentadiene _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s
Perylene _A	<100	<100	<100	<100	<100				µg/kg	A-T-052s

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
VOC										
Dichlorodifluoromethane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Chloromethane _A [#]	<10	<10	<10	<10	<10				µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Bromomethane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Chloroethane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Carbon Disulphide _A [#]	4	<1	3	2	<1				µg/kg	A-T-006s
Dichloromethane _A	<5	<5	<5	<5	<5				µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Bromochloromethane _A [#]	<5	<5	<5	<5	<5				µg/kg	A-T-006s
Chloroform _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2				µg/kg	A-T-006s
Benzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Trichloroethene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Dibromomethane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10				µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Toluene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3				µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
Chlorobenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
m & p Xylene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
o-Xylene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Styrene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Bromoform _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
Bromobenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2				µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2	<2	<2	<2	<2				µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3	<3	<3	<3	<3				µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1				µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3	<3	<3	<3	<3				µg/kg	A-T-006s

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Aro >C12-C16 _A [#]	1.2	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Aro >C16-C21 _A [#]	5.2	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Aro >C21-C35 _A [#]	11.8	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
Total Aromatics _A	18.2	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
TPH (Ali & Aro) _A	18.2	<0.1	<0.1	<0.1	<0.1				mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s

Envirolab Job Number: 18/02053

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02053/6	18/02053/7	18/02053/8	18/02053/9	18/02053/16				Units	Method ref
Client Sample No	10	15	18	22	17					
Client Sample ID	BH10	BH10A	BH10A	BH10A	BH10 (jar only)					
Depth to Top	2.50	2.90	3.90	4.90	4.50					
Depth To Bottom		3.00	4.00	5.00						
Date Sampled	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18	20-Feb-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	6A	4A	6A	4A	4A					
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Total Aliphatics (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
Total Aromatics (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	<10	-	<10	-	-				µg/l	A-T-023w
BTEX - Benzene (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
BTEX - Toluene (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w
MTBE (leachable) _A	<1	-	<1	-	-				µg/l	A-T-022w

REPORT NOTES

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If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 18/02053
Issue Number: 1 Date: 4-Apr-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt. Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 584856

Date Samples Received: 23-Feb-18
Date Instructions Received: 21-Mar-18
Date Analysis Completed: 4-Apr-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:

Melanie Marshall
Laboratory Coordinator

Gill Walker
Laboratory Manager



Sample Details							Landfill Waste Acceptance Criteria Limits			
Lab Sample ID	Method	ISO17025	MCERTS	18/02053/7						
Client Sample Number				15			Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill	
Client Sample ID				BH10A						
Depth to Top				2.9						
Depth to Bottom				3.00						
Date Sampled				20/02/2018						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	11.62			-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	<0.01			-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	<0.01			-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	<0.5			-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	<0.03			3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08			100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10			500	-	-	
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007			1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01			6	-	-	
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	Y	N	0.006	0.004	0.016	0.040	0.5	2	25
Barium	A-T-025	Y	N	0.008	0.002	0.023	0.020	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	0.001	<0.001	0.004	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.006	0.001	0.016	0.020	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.004	<0.001	0.010	0.010	0.5	10	30
Nickel	A-T-025	Y	N	0.002	<0.001	0.005	<0.01	0.4	10	40
Lead	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	50
Antimony	A-T-025	Y	N	0.001	<0.001	0.003	<0.01	0.06	0.7	5
Selenium	A-T-025	Y	N	0.001	<0.001	0.003	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.006	<0.001	0.016	<0.01	4	50	200
Chloride	A-T-026	Y	N	9	2	26	32	800	15000	25000
Fluoride	A-T-026	Y	N	<0.10	0.2	<0.2	<1	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	5	2	13	24	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	200	84	541	1028	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	29	<20.0	78	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	10.9	10.4					
Conductivity (µS/cm)	A-T-037	N	N	399	167					
Mass Sample (kg)				0.150						
Dry Matter (%)	A-T-044	N	N	89.9						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.080						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

**Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication
as to whether a waste may be hazardous or non-hazardous.**

Sample Details								Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/02053/9				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				22									
Client Sample ID				BH10A									
Depth to Top				4.9									
Depth to Bottom				5.00									
Date Sampled				20/02/2018									
Sample Type				Soil - ES									
Sample Matrix Code				4A									
Solid Waste Analysis													
pH (pH Units) _D	A-T-031	Y	Y	9.11				-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.07				-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	<0.01				-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	<0.5				-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	<0.03				3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-			
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)					
				mg/l		mg/kg							
Arsenic	A-T-025	Y	N	0.005	0.005	0.014	0.050	0.5	2	25			
Barium	A-T-025	Y	N	0.007	<0.001	0.019	0.020	20	100	300			
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5			
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70			
Copper	A-T-025	Y	N	0.002	<0.001	0.004	<0.01	2	50	100			
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2			
Molybdenum	A-T-025	Y	N	0.010	0.001	0.025	0.020	0.5	10	30			
Nickel	A-T-025	Y	N	0.002	<0.001	0.004	<0.01	0.4	10	40			
Lead	A-T-025	Y	N	0.003	<0.001	0.007	<0.01	0.5	10	50			
Antimony	A-T-025	Y	N	0.003	<0.001	0.007	<0.01	0.06	0.7	5			
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7			
Zinc	A-T-025	Y	N	0.009	<0.001	0.025	0.010	4	50	200			
Chloride	A-T-026	Y	N	12	1	33	26	800	15000	25000			
Fluoride	A-T-026	Y	N	0.2	<0.10	0.4	<1	10	150	500			
Sulphate as SO ₄	A-T-026	Y	N	17	7	45	82	1000	20000	50000			
Total Dissolved Solids	A-T-035	N	N	82	30	216	376	4000	60000	100000			
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-			
Dissolved Organic Carbon	A-T-032	N	N	26.6	<20.0	70	<200	500	800	1000			
Leach Test Information													
pH (pH Units)	A-T-031	N	Y	7.9	6.4								
Conductivity (µS/cm)	A-T-037	N	N	165	60								
Mass Sample (kg)				0.150									
Dry Matter (%)	A-T-044	N	N	91.6									
Stage 1													
Volume Leachant, L ₂ (l)	A-T-046			0.350									
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150									
Stage 2													
Volume Leachant, L ₈ (l)	A-T-046			1.100									
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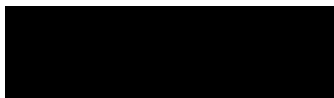
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/01819
Issue Number: 1 **Date:** 19 March, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

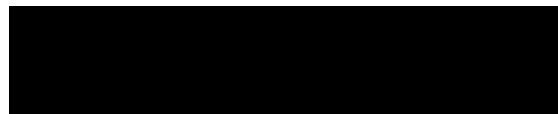
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 584179
Date Samples Received: 13/03/18
Date Instructions Received: 13/03/18
Date Analysis Completed: 19/03/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 18/01819

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01819/1	18/01819/2	18/01819/3	18/01819/4	18/01819/5	18/01819/6			Units	Method ref
Client Sample No	14	65	89	104	114	119				
Client Sample ID	BH11	BH11	BH11	BH11	BH11	BH11				
Depth to Top	3.50	23.50	33.50	43.50	47.45	49.45				
Depth To Bottom	4.10	23.95	33.95	43.95	47.55	49.55				
Date Sampled	12-Feb-18	14-Feb-18	15-Feb-18	16-Feb-18	16-Feb-18	16-Feb-18				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	5	5	5	3	3				
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	A-T-044
pH BRE _D	-	8.82	8.30	8.66	8.81	8.89			pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	-	<1.00	<1.00	<1.00	6.22	6.84			mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	-	1110	1180	809	1660	889			mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	-	<0.4	<0.4	<0.4	<0.4	<0.4			mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	134	206	137	379	239			mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	-	0.06	0.14	0.11	0.17	0.11			% w/w	A-T-028s
Sulphur BRE (total) _D	-	0.12	0.32	0.28	0.41	0.21			% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	74	68	51	101	75			mg/l	A-T-SOLMETS
Organic matter _D ^{M#}	1.0	-	-	-	-	-			% w/w	A-T-032 OM

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For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

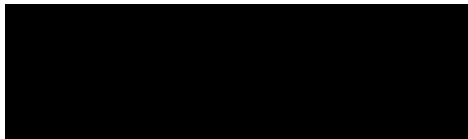
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/01967
Issue Number: 1 **Date:** 26 March, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 584843
Date Samples Received: 19/02/18
Date Instructions Received: 16/03/18
Date Analysis Completed: 26/03/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/01967

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01967/1	18/01967/2	18/01967/3	18/01967/4					Units	Method ref
Client Sample No	9	13	15	21						
Client Sample ID	BH11	BH11	BH11a	BH11a						
Depth to Top	2.50	3.50	2.90	4.90						
Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
Chromium (leachable) _A [#]	<1	-	<1	-					µg/l	A-T-025w
Chromium (hexavalent) (leachable) _A	<0.05	-	<0.05	-					mg/l	A-T-040w
Lead (leachable) _A [#]	35	-	7	-					µg/l	A-T-025w
Mercury (leachable) _A [#]	<0.1	-	<0.1	-					µg/l	A-T-025w
Nickel (leachable) _A [#]	2	-	<1	-					µg/l	A-T-025w
Selenium (leachable) _A [#]	2	-	<1	-					µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	<0.1	-	<0.1	-					mg/l	A-T-029w
Zinc (leachable) _A [#]	13	-	2	-					µg/l	A-T-025w

Envirolab Job Number: 18/01967

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01967/1	18/01967/2	18/01967/3	18/01967/4					Units	Method ref
Client Sample No	9	13	15	21						
Client Sample ID	BH11	BH11	BH11a	BH11a						
Depth to Top	2.50	3.50	2.90	4.90						
Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	-	NAD	-						A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	-	N/A	-						

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Lab Sample ID	18/01967/1	18/01967/2	18/01967/3	18/01967/4					Units	Method ref
Client Sample No	9	13	15	21						
Client Sample ID	BH11	BH11	BH11a	BH11a						
Depth to Top	2.50	3.50	2.90	4.90						
Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
PAH-16MS										
Acenaphthene _A ^{M#}	0.18	0.01	0.01	<0.01					mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	0.15	0.01	<0.01	<0.01					mg/kg	A-T-019s
Anthracene _A ^{M#}	0.41	0.04	0.02	<0.02					mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	2.42	0.19	0.23	<0.04					mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	2.57	0.22	0.24	<0.04					mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	2.68	0.17	0.20	<0.05					mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	1.32	0.10	0.11	<0.05					mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	1.03	0.11	0.11	<0.07					mg/kg	A-T-019s
Chrysene _A ^{M#}	2.60	0.20	0.27	<0.06					mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	0.29	<0.04	<0.04	<0.04					mg/kg	A-T-019s
Fluoranthene _A ^{M#}	5.00	0.35	0.23	<0.08					mg/kg	A-T-019s
Fluorene _A ^{M#}	0.13	<0.01	0.02	<0.01					mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	1.87	0.16	0.17	<0.03					mg/kg	A-T-019s
Naphthalene _A ^{M#}	0.17	<0.03	<0.03	<0.03					mg/kg	A-T-019s
Phenanthrene _A ^{M#}	1.93	0.17	0.12	<0.03					mg/kg	A-T-019s
Pyrene _A ^{M#}	4.40	0.29	0.23	<0.07					mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	27.1	2.01	1.96	<0.08					mg/kg	A-T-019s

Envirolab Job Number: 18/01967

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Client Project Ref: PZ1522D1

Lab Sample ID	18/01967/1	18/01967/2	18/01967/3	18/01967/4					Units	Method ref
Client Sample No	9	13	15	21						
Client Sample ID	BH11	BH11	BH11a	BH11a						
Depth to Top	2.50	3.50	2.90	4.90						
Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	<0.02	-	0.12	-					µg/l	A-T-019w
Acenaphthylene (leachable) _A	<0.02	-	0.10	-					µg/l	A-T-019w
Anthracene (leachable) _A	<0.02	-	0.05	-					µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	<0.02	-	<0.02	-					µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	<0.02	-	<0.02	-					µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	<0.02	-	<0.02	-					µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	<0.02	-	<0.02	-					µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	<0.02	-	<0.02	-					µg/l	A-T-019w
Chrysene (leachable) _A	0.02	-	<0.02	-					µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	<0.02	-	<0.02	-					µg/l	A-T-019w
Fluoranthene (leachable) _A	0.05	-	<0.02	-					µg/l	A-T-019w
Fluorene (leachable) _A	<0.02	-	0.16	-					µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	<0.02	-	<0.02	-					µg/l	A-T-019w
Naphthalene (leachable) _A	0.04	-	0.23	-					µg/l	A-T-019w
Phenanthrene (leachable) _A	<0.02	-	0.24	-					µg/l	A-T-019w
Pyrene (leachable) _A	0.04	-	<0.02	-					µg/l	A-T-019w
PAH (total 16) (leachable) _A	0.15	-	0.90	-					µg/l	A-T-019w

Envirolab Job Number: 18/01967

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01967/1	18/01967/2	18/01967/3	18/01967/4					Units	Method ref
Client Sample No	9	13	15	21						
Client Sample ID	BH11	BH11	BH11a	BH11a						
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Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	<0.002	-	<0.002	-					mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	<0.002	-	<0.002	-					mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	<0.004	-	<0.004	-					mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	-	<0.007	-					mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	<0.006	-	<0.006	-					mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	<0.004	-	<0.004	-					mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	<0.004	-	<0.004	-					mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	<0.007	-	<0.007	-					mg/kg	A-T-004s

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Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2-Chlorophenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2-Methylphenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
2-Nitrophenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
4-Methylphenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
4-Nitrophenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	<4	-	<4	-					µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Carbazole (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Dibenzofuran (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Diethyl phthalate (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	<10	-	<10	-					µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	<2	-	<2	-					µg/l	A-T-052w

Envirolab Job Number: 18/01967

Client Project Name: Gt Yarmouth 3rd River Crossing

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Lab Sample ID	18/01967/1	18/01967/2	18/01967/3	18/01967/4					Units	Method ref
Client Sample No	9	13	15	21						
Client Sample ID	BH11	BH11	BH11a	BH11a						
Depth to Top	2.50	3.50	2.90	4.90						
Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
Hexachlorocyclopentadiene (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Hexachloroethane (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Isophorone (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Nitrobenzene (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Pentachlorophenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Perylene (leachable) _A	<2	-	<2	-					µg/l	A-T-052w
Phenol (leachable) _A	<2	-	<2	-					µg/l	A-T-052w

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Client Sample No	9	13	15	21						
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Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
SVOC										
Hexachlorobenzene _A	<100	<100	<100	<100					µg/kg	A-T-052s
Diethyl phthalate _A	<100	<100	<100	<100					µg/kg	A-T-052s
Dimethyl phthalate _A	<100	<100	<100	<100					µg/kg	A-T-052s
Dibenzofuran _A	<100	<100	<100	<100					µg/kg	A-T-052s
Carbazole _A	<100	<100	<100	<100					µg/kg	A-T-052s
Butylbenzyl phthalate _A	<100	<100	<100	<100					µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<500	<500	<500	<500					µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	<100	<100	<100	<100					µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	<100	<100	<100	<100					µg/kg	A-T-052s
4-Nitrophenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
4-Methylphenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
2-Nitrophenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
2-Methylphenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
2-Chlorophenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
2,6-Dinitrotoluene _A	<100	<100	<100	<100					µg/kg	A-T-052s
2,4-Dinitrotoluene _A	<100	<100	<100	<100					µg/kg	A-T-052s
2,4-Dimethylphenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
2,4-Dichlorophenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
2-Chloronaphthalene _A	<100	<100	<100	<100					µg/kg	A-T-052s
2-Methylnaphthalene _A	<100	<100	<100	<100					µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100	<100	<100	<100					µg/kg	A-T-052s
Phenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
Pentachlorophenol _A	<100	<100	<100	<100					µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	<100	<100	<100	<100					µg/kg	A-T-052s
n-Diethylphthalate _A	<500	<500	<500	<500					µg/kg	A-T-052s
n-Dibutylphthalate _A	<100	<100	<100	<100					µg/kg	A-T-052s
Nitrobenzene _A	<100	<100	<100	<100					µg/kg	A-T-052s
Isophorone _A	<100	<100	<100	<100					µg/kg	A-T-052s
Hexachloroethane _A	<100	<100	<100	<100					µg/kg	A-T-052s

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Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
Hexachlorocyclopentadiene _A	<100	<100	<100	<100					µg/kg	A-T-052s
Perylene _A	<100	326	<100	<100					µg/kg	A-T-052s

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Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
VOC										
Dichlorodifluoromethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Chloromethane _A [#]	<10	<10	<10	<10					µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromomethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Chloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Carbon Disulphide _A [#]	<1	<1	<1	7					µg/kg	A-T-006s
Dichloromethane _A	<20	<20	<20	<20					µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromochloromethane _A [#]	<5	<5	<5	<5					µg/kg	A-T-006s
Chloroform _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2	<2	<2	<2					µg/kg	A-T-006s
Benzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Trichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Dibromomethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10	<10	<10	<10					µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Toluene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3	<3	<3	<3					µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s

Envirolab Job Number: 18/01967

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01967/1	18/01967/2	18/01967/3	18/01967/4						
Client Sample No	9	13	15	21						
Client Sample ID	BH11	BH11	BH11a	BH11a						
Depth to Top	2.50	3.50	2.90	4.90						
Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C10-C12 _A [#]	0.5	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C12-C16 _A [#]	1.8	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C16-C21 _A [#]	10.1	2.2	1.1	0.1					mg/kg	A-T-023s
Aro >C21-C35 _A [#]	23.3	1.6	1.9	8.1					mg/kg	A-T-023s
Aro >C35-C44 _A	1.2	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Total Aromatics _A	37.0	3.7	3.0	8.3					mg/kg	A-T-023s
TPH (Ali & Aro) _A	37.0	3.7	3.0	8.3					mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s

Envirolab Job Number: 18/01967

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01967/1	18/01967/2	18/01967/3	18/01967/4					Units	Method ref
Client Sample No	9	13	15	21						
Client Sample ID	BH11	BH11	BH11a	BH11a						
Depth to Top	2.50	3.50	2.90	4.90						
Depth To Bottom	2.60	3.60	3.00	5.00						
Date Sampled	12-Feb-18	12-Feb-18	12-Feb-18	12-Feb-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	5A	5A	4A	6A						
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Total Aliphatics (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
Total Aromatics (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	<10	-	<10	-					µg/l	A-T-023w
BTEX - Benzene (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
BTEX - Toluene (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	<1	-	<1	-					µg/l	A-T-022w
MTBE (leachable) _A	<1	-	<1	-					µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 18/01967
Issue Number: 1 Date: 26-Mar-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 584843

Date Samples Received: 19-Feb-18
Date Instructions Received: 16-Mar-18
Date Analysis Completed: 26-Mar-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:

Holly Neary-King
Administrative Assistant

Richard Wong
Client Manager



Sample Details						Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/01967/1		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				9							
Client Sample ID				BH11							
Depth to Top				2.5							
Depth to Bottom				2.60							
Date Sampled				12/02/2018							
Sample Type				Soil - ES							
Sample Matrix Code				5A							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	8.38			-	>6			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.6			-	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.07			-	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	2.1			-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.77			3	5			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	27.4			100	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	23			500	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007			1	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01			6	-			
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
				mg/l		mg/kg					
Arsenic	A-T-025	Y	N	0.004	0.004	0.008	0.050	0.5	2		
Barium	A-T-025	Y	N	0.022	0.021	0.049	0.220	20	100		
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1		
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10		
Copper	A-T-025	Y	N	0.015	0.013	0.034	0.130	2	50		
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2		
Molybdenum	A-T-025	Y	N	0.011	0.003	0.026	0.030	0.5	10		
Nickel	A-T-025	Y	N	0.002	0.002	0.005	0.020	0.4	10		
Lead	A-T-025	Y	N	0.040	0.054	0.091	0.540	0.5	10		
Antimony	A-T-025	Y	N	0.001	<0.001	0.003	<0.01	0.06	0.7		
Selenium	A-T-025	Y	N	0.002	0.002	0.005	0.020	0.1	0.5		
Zinc	A-T-025	Y	N	0.022	0.013	0.050	0.140	4	50		
Chloride	A-T-026	Y	N	20	3	45	46	800	15000		
Fluoride	A-T-026	Y	N	0.6	0.3	1.3	3.0	10	150		
Sulphate as SO ₄	A-T-026	Y	N	39	9	88	117	1000	20000		
Total Dissolved Solids	A-T-035	N	N	203	63	464	773	4000	60000		
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-		
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800		
Leach Test Information											
pH (pH Units)	A-T-031	N	Y	7.9	7.8						
Conductivity (µS/cm)	A-T-037	N	N	406	125						
Mass Sample (kg)				0.200							
Dry Matter (%)	A-T-044	N	N	83.6							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.340							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/01967/3						
Client Sample Number				15		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill		
Client Sample ID				BH11a						
Depth to Top				2.9						
Depth to Bottom				3.00						
Date Sampled				12/02/2018						
Sample Type				Soil - ES						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	9.84				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.06				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	<0.01				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	1.3				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.07				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	1.98				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	13				500	-	-
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	Y	N	0.003	0.002	0.006	0.020	0.5	2	25
Barium	A-T-025	Y	N	0.021	0.004	0.042	0.060	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.002	0.002	0.005	0.020	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.011	0.002	0.022	0.030	0.5	10	30
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.4	10	40
Lead	A-T-025	Y	N	0.004	0.011	0.008	0.100	0.5	10	50
Antimony	A-T-025	Y	N	0.001	<0.001	0.003	<0.01	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.009	0.013	0.018	0.130	4	50	200
Chloride	A-T-026	Y	N	50	5	99	88	800	15000	25000
Fluoride	A-T-026	Y	N	0.2	<0.10	0.4	<1	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	14	2	28	31	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	170	35	339	460	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.8	8.5					
Conductivity (µS/cm)	A-T-037	N	N	340	69					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	91.8						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.470						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

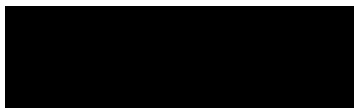
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/01391
Issue Number: 1
Date: 05 March, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 582339
Date Samples Received: 23/02/18
Date Instructions Received: 23/02/18
Date Analysis Completed: 01/03/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/01391

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01391/1	18/01391/2	18/01391/3	18/01391/4	18/01391/5	18/01391/6	18/01391/7	18/01391/8	Units	Method ref		
Client Sample No	19	22	68	77	92	104	115	119				
Client Sample ID	BH11A	BH11A	BH11A	BH11A	BH11A	BH11A	BH11A	BH11A				
Depth to Top	4.00	5.00	23.00	27.00	34.00	42.00	47.45	48.95				
Depth To Bottom	4.45	5.45	23.45	27.45	34.45	42.30	47.50	49.00				
Date Sampled	12-Feb-18	12-Feb-18	14-Feb-18	14-Feb-18	15-Feb-18	15-Feb-18	16-Feb-18	16-Feb-18				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5A	5A	5A	5A	5A	5A	3	3				
% Stones >10mm _A	7.9	15.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	A-T-044
pH BRE _D	-	-	8.67	8.52	8.46	8.59	8.27	8.26	pH	A-T-031s		
Ammonium NH ₄ BRE (water sol 2:1) _D	-	-	<1.00	<1.00	<1.00	<1.00	5.74	6.16	mg/l	A-T-033s		
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	-	-	1020	1360	394	708	1270	719	mg/l	A-T-026s		
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	-	-	0.6	0.5	0.5	0.5	0.5	0.5	mg/l	A-T-026s		
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	111	183	71	101	236	198	mg/l	A-T-026s		
Sulphate BRE (acid sol) _D ^{M#}	-	-	0.03	0.09	0.04	0.08	0.11	0.15	% w/w	A-T-028s		
Sulphur BRE (total) _D	-	-	0.04	0.21	0.21	0.14	0.30	0.31	% w/w	A-T-024s		
Magnesium BRE (water sol 2:1) _D	-	-	63	109	18	48	96	74	mg/l	A-T-SOLMET5		
Organic matter _D ^{M#}	0.3	0.6	-	-	-	-	-	-	% w/w	A-T-032 OM		

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

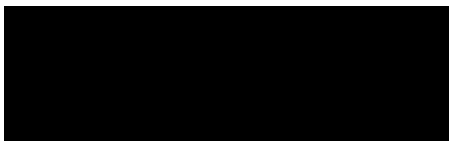
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/01838
Issue Number: 1 **Date:** 21 March, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt. Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 584366
Date Samples Received: 08/03/18
Date Instructions Received: 13/03/18
Date Analysis Completed: 21/03/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3						Units	Method ref
Client Sample No	11	8	10							
Client Sample ID	BH13	BH12	BH12							
Depth to Top	1.90	2.40	3.40							
Depth To Bottom	2.00	2.50	3.50							
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5A	5A	5							
Chromium (leachable) _A [#]	-	<1	-						µg/l	A-T-025w
Chromium (hexavalent) (leachable) _A	-	<0.05	-						mg/l	A-T-040w
Lead (leachable) _A [#]	-	27	-						µg/l	A-T-025w
Mercury (leachable) _A [#]	-	<0.1	-						µg/l	A-T-025w
Nickel (leachable) _A [#]	-	2	-						µg/l	A-T-025w
Selenium (leachable) _A [#]	-	<1	-						µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	-	<0.1	-						mg/l	A-T-029w
Zinc (leachable) _A [#]	-	22	-						µg/l	A-T-025w

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3						Units	Method ref		
Client Sample No	11	8	10									
Client Sample ID	BH13	BH12	BH12									
Depth to Top	1.90	2.40	3.40									
Depth To Bottom	2.00	2.50	3.50									
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18									
Sample Type	Soil - ES	Soil - ES	Soil - ES									
Sample Matrix Code	5A	5A	5									
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	-	NAD	-							A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	-	N/A	-									

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3							
Client Sample No	11	8	10							
Client Sample ID	BH13	BH12	BH12							
Depth to Top	1.90	2.40	3.40							
Depth To Bottom	2.00	2.50	3.50							
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5A	5A	5							
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01						mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01						mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	0.04	<0.02						mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.10	0.07	<0.04						mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.11	0.05	<0.04						mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.09	<0.05	<0.05						mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05						mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07						mg/kg	A-T-019s
Chrysene _A ^{M#}	0.12	0.08	<0.06						mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04						mg/kg	A-T-019s
Fluoranthene _A ^{M#}	0.11	0.12	<0.08						mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	0.01	<0.01						mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.06	<0.03	<0.03						mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03						mg/kg	A-T-019s
Phenanthrene _A ^{M#}	0.06	0.12	<0.03						mg/kg	A-T-019s
Pyrene _A ^{M#}	0.11	0.11	<0.07						mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	0.75	0.61	<0.08						mg/kg	A-T-019s

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3							
Client Sample No	11	8	10							
Client Sample ID	BH13	BH12	BH12							
Depth to Top	1.90	2.40	3.40							
Depth To Bottom	2.00	2.50	3.50							
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5A	5A	5							
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	-	0.14	-						µg/l	A-T-019w
Acenaphthylene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Anthracene (leachable) _A	-	0.03	-						µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Chrysene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Fluoranthene (leachable) _A	-	0.09	-						µg/l	A-T-019w
Fluorene (leachable) _A	-	0.07	-						µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Naphthalene (leachable) _A	-	<0.02	-						µg/l	A-T-019w
Phenanthrene (leachable) _A	-	0.10	-						µg/l	A-T-019w
Pyrene (leachable) _A	-	0.07	-						µg/l	A-T-019w
PAH (total 16) (leachable) _A	-	0.50	-						µg/l	A-T-019w

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3						Units	Method ref
Client Sample No	11	8	10							
Client Sample ID	BH13	BH12	BH12							
Depth to Top	1.90	2.40	3.40							
Depth To Bottom	2.00	2.50	3.50							
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5A	5A	5							
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	<0.002	-						mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	<0.002	-						mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	<0.004	-						mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	-	<0.007	-						mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	<0.006	-						mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	<0.004	-						mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	<0.004	-						mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	<0.007	-						mg/kg	A-T-004s

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3							Units	Method ref
Client Sample No	11	8	10								
Client Sample ID	BH13	BH12	BH12								
Depth to Top	1.90	2.40	3.40								
Depth To Bottom	2.00	2.50	3.50								
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18								
Sample Type	Soil - ES	Soil - ES	Soil - ES								
Sample Matrix Code	5A	5A	5								
Carbazole (leachable) _A	-	<2	-							µg/l	A-T-052w
Chrysene (leachable) _A	-	<2	-							µg/l	A-T-052w
Dibenzo(ah)anthracene (leachable) _A	-	<2	-							µg/l	A-T-052w
Dibenzofuran (leachable) _A	-	<2	-							µg/l	A-T-052w
Diethyl phthalate (leachable) _A	-	<2	-							µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	-	<2	-							µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	-	<2	-							µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	-	<10	-							µg/l	A-T-052w
Fluoranthene (leachable) _A	-	<2	-							µg/l	A-T-052w
Fluorene (leachable) _A	-	<2	-							µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	-	<2	-							µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	-	<2	-							µg/l	A-T-052w
Hexachlorocyclopentadiene (leachable) _A	-	<2	-							µg/l	A-T-052w
Hexachloroethane (leachable) _A	-	<2	-							µg/l	A-T-052w
Indeno(1,2,3-cd)pyrene (leachable) _A	-	<2	-							µg/l	A-T-052w
Isophorone (leachable) _A	-	<2	-							µg/l	A-T-052w
Naphthalene (leachable) _A	-	<2	-							µg/l	A-T-052w
Nitrobenzene (leachable) _A	-	<2	-							µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	-	<2	-							µg/l	A-T-052w
Pentachlorophenol (leachable) _A	-	<2	-							µg/l	A-T-052w
Perylene (leachable) _A	-	<2	-							µg/l	A-T-052w
Phenanthrene (leachable) _A	-	<2	-							µg/l	A-T-052w
Phenol (leachable) _A	-	<2	-							µg/l	A-T-052w
Pyrene (leachable) _A	-	<2	-							µg/l	A-T-052w

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3						Units	Method ref
Client Sample No	11	8	10							
Client Sample ID	BH13	BH12	BH12							
Depth to Top	1.90	2.40	3.40							
Depth To Bottom	2.00	2.50	3.50							
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5A	5A	5							
Hexachlorocyclopentadiene _A	<100	<100	<100						µg/kg	A-T-052s
Perylene _A	<100	<100	<100						µg/kg	A-T-052s

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3							Units	Method ref
Client Sample No	11	8	10								
Client Sample ID	BH13	BH12	BH12								
Depth to Top	1.90	2.40	3.40								
Depth To Bottom	2.00	2.50	3.50								
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18								
Sample Type	Soil - ES	Soil - ES	Soil - ES								
Sample Matrix Code	5A	5A	5								
Chlorobenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane _A	<1	<1	<1							µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
m & p Xylene _A [#]	<1	<1	<1							µg/kg	A-T-006s
o-Xylene _A [#]	<1	<1	<1							µg/kg	A-T-006s
Styrene _A [#]	<1	<1	<1							µg/kg	A-T-006s
Bromoform _A [#]	<1	<1	<1							µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	<1	<1							µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	<1	<1							µg/kg	A-T-006s
Bromobenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1	<1	<1							µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2	<2	<2							µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1	<1	<1							µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2	<2	<2							µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3	<3	<3							µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1	<1	<1							µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3	<3	<3							µg/kg	A-T-006s

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3							
Client Sample No	11	8	10							
Client Sample ID	BH13	BH12	BH12							
Depth to Top	1.90	2.40	3.40							
Depth To Bottom	2.00	2.50	3.50							
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5A	5A	5							
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.02	<0.02	<0.02						mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Aro >C16-C21 _A [#]	1.8	2.5	<0.1						mg/kg	A-T-023s
Aro >C21-C35 _A [#]	2.2	1.6	<0.1						mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1	<0.1	<0.1						mg/kg	A-T-023s
Total Aromatics _A	4.1	4.0	<0.1						mg/kg	A-T-023s
TPH (Ali & Aro) _A	4.1	4.1	<0.1						mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01						mg/kg	A-T-022s

Envirolab Job Number: 18/01838

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01838/1	18/01838/2	18/01838/3							Units	Method ref
Client Sample No	11	8	10								
Client Sample ID	BH13	BH12	BH12								
Depth to Top	1.90	2.40	3.40								
Depth To Bottom	2.00	2.50	3.50								
Date Sampled	05-Mar-18	07-Mar-18	07-Mar-18								
Sample Type	Soil - ES	Soil - ES	Soil - ES								
Sample Matrix Code	5A	5A	5								
TPH UKCWG (leachable)											
Ali >C5-C6 (leachable) _A	-	<1	-							µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	-	<1	-							µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	-	<1	-							µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	-	<10	-							µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	-	<10	-							µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	-	<10	-							µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	-	<10	-							µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	-	<10	-							µg/l	A-T-023w
Total Aliphatics (leachable) _A	-	<10	-							µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	-	<1	-							µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	-	<1	-							µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	-	<1	-							µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	-	<1	-							µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	-	<10	-							µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	-	<10	-							µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	-	<10	-							µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	-	<10	-							µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	-	<10	-							µg/l	A-T-023w
Total Aromatics (leachable) _A	-	<10	-							µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	-	<10	-							µg/l	A-T-023w
BTEX - Benzene (leachable) _A	-	<1	-							µg/l	A-T-022w
BTEX - Toluene (leachable) _A	-	<1	-							µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	-	<1	-							µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	-	<1	-							µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	-	<1	-							µg/l	A-T-022w
MTBE (leachable) _A	-	<1	-							µg/l	A-T-022w

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02217
Issue Number: 1 **Date:** 05 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 585984
Date Samples Received: 23/03/18
Date Instructions Received: 26/03/18
Date Analysis Completed: 04/04/18

Prepared by:



Gill Walker
Laboratory Manager

Approved by:



Danielle Bescoby
Quality Manager

Envirolab Job Number: 18/02217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02217/1	18/02217/2	18/02217/3	18/02217/4	18/02217/5	18/02217/6	18/02217/7	18/02217/8	Units	Method ref
Client Sample No	19	27	33	41	69	75	82	88		
Client Sample ID	BH13	BH13	BH13	BH13	BH13	BH13	BH13	BH13		
Depth to Top	3.40	6.00	8.00	10.00	22.00	26.00	30.00	34.00		
Depth To Bottom	3.85	6.45	8.45	10.50	22.45	26.45	30.45	34.45		
Date Sampled	05-Mar-18	06-Mar-18	06-Mar-18	06-Mar-18	07-Mar-18	07-Mar-18	07-Mar-18	08-Mar-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5A	4A	4A	4A	4A	4A	5	5A		
% Stones >10mm _A	<0.1	12.9	2.4	26.5	0.6	<0.1	<0.1	<0.1		
pH BRE _D	-	-	-	-	8.52	8.41	8.28	8.27	pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	-	-	-	-	<1.00	<1.00	1.23	<1.00	mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	-	-	-	-	549	268	2400	652	mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	-	-	-	-	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	-	83	53	371	212	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	-	0.04	0.03	0.13	0.09	% w/w	A-T-028s
Sulphur BRE (total) _D	-	-	-	-	0.04	0.08	0.50	0.32	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	-	-	-	33	22	97	38	mg/l	A-T-SOLMETs
Organic matter _D ^{M#}	0.4	<0.1	<0.1	<0.1	-	-	-	-	% w/w	A-T-032 OM

Envirolab Job Number: 18/02217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02217/9	18/02217/10	18/02217/11						Units	Method ref
Client Sample No	100	107	116							
Client Sample ID	BH13	BH13	BH13							
Depth to Top	42.00	45.45	48.95							
Depth To Bottom	42.38	45.50	49.00							
Date Sampled	09-Mar-18	09-Mar-18	09-Mar-18							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	4	3	3							
% Stones >10mm _A	<0.1	<0.1	<0.1						% w/w	A-T-044
pH BRE _D	8.48	8.81	8.90						pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	<1.00	5.16	6.13						mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	537	1670	553						mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	<0.4	<0.4	<0.4						mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	79	374	228						mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.14	0.21	0.12						% w/w	A-T-028s
Sulphur BRE (total) _D	0.25	0.51	0.31						% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	37	80	55						mg/l	A-T-SOLMET5

REPORT NOTES

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

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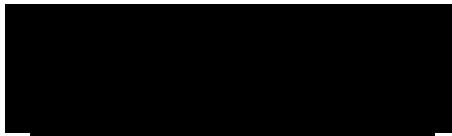
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02283
Issue Number: 1 **Date:** 09 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

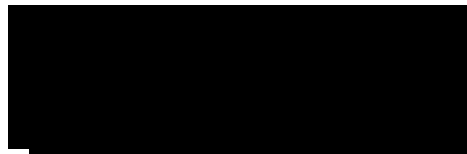
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 586294
Date Samples Received: 12/03/18
Date Instructions Received: 28/03/18
Date Analysis Completed: 09/04/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/02283

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02283/1	18/02283/2							Units	Method ref
Client Sample No	50	55								
Client Sample ID	BH13	BH13								
Depth to Top	13.90	15.90								
Depth To Bottom	14.00	16.00								
Date Sampled	07-Mar-18	07-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	5	5								
% Stones >10mm _A	<0.1	<0.1							% w/w	A-T-044

Envirolab Job Number: 18/02283

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02283/1	18/02283/2								
Client Sample No	50	55								
Client Sample ID	BH13	BH13								
Depth to Top	13.90	15.90								
Depth To Bottom	14.00	16.00								
Date Sampled	07-Mar-18	07-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	5	5								
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01							mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01							mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02							mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04							mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04							mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05							mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05							mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07							mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06							mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04							mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08							mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01							mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03							mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03							mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03							mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07							mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08	<0.08							mg/kg	A-T-019s

Envirolab Job Number: 18/02283

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02283/1	18/02283/2							Units	Method ref
Client Sample No	50	55								
Client Sample ID	BH13	BH13								
Depth to Top	13.90	15.90								
Depth To Bottom	14.00	16.00								
Date Sampled	07-Mar-18	07-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	5	5								
Hexachlorocyclopentadiene _A	<100	<100						µg/kg	A-T-052s	
Perylene _A	<100	<100						µg/kg	A-T-052s	

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For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

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Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

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Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02403
Issue Number: 1 **Date:** 10 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

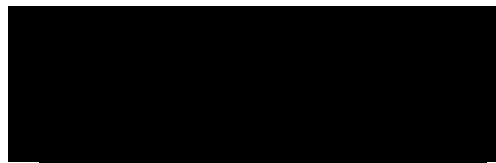
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 586952
Date Samples Received: 03/04/18
Date Instructions Received: 03/04/18
Date Analysis Completed: 09/04/18

Prepared by:



Gill Walker
Director/Laboratory Manager

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/02403

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02403/1	18/02403/2	18/02403/3	18/02403/4	18/02403/5	18/02403/6	18/02403/7	18/02403/8	Units	Method ref
Client Sample No	12	17	26	62	71	83	92	104		
Client Sample ID	BH12	BH12	BH12	BH12	BH12	BH12	BH12	BH12		
Depth to Top	3.50	5.50	8.50	22.50	28.50	36.50	42.50	48.95		
Depth To Bottom	4.00	5.95	8.95	22.91	28.95	36.90	42.95	49.00		
Date Sampled	07-Mar-18	07-Mar-18	09-Mar-18	12-Mar-18	12-Mar-18	13-Mar-18	13-Mar-18	13-Mar-18		
Sample Type	Soil - B	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	4A	5	5	5	5		
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
pH BRE _D	-	-	-	8.03	8.18	8.06	8.24	8.53	pH	A-T-031s
Ammonium NH4 BRE (water sol 2:1) _D	-	-	-	<1.00	<1.00	<1.00	<1.00	6.32	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	-	-	-	398	2220	385	210	402	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	-	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	112	425	69	44	169	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	0.06	0.17	0.06	0.07	0.10	% w/w	A-T-028s
Sulphur BRE (total) _D	-	-	-	0.14	0.60	0.12	0.10	0.17	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	-	-	34	111	19	10	31	mg/l	A-T-SOLMETs
Organic matter _D ^{M#}	0.5	<0.1	<0.1	-	-	-	-	-	% w/w	A-T-032 OM

REPORT NOTES

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All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

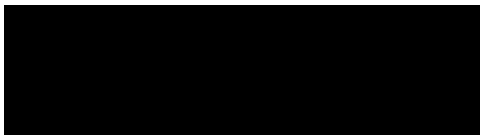
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02142
Issue Number: 1 **Date:** 03 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

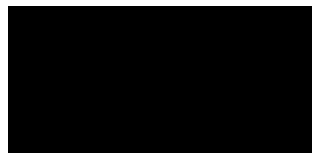
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 585493
Date Samples Received: 19/03/18
Date Instructions Received: 22/03/18
Date Analysis Completed: 03/04/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/02142

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02142/1	18/02142/2							Units	Method ref
Client Sample No	4	13								
Client Sample ID	BH12A	BH12A								
Depth to Top	1.40	4.40								
Depth To Bottom	1.50	4.50								
Date Sampled	15-Mar-18	15-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	1A								
Chromium (leachable) _A [#]	-	<1						µg/l		
Chromium (hexavalent) (leachable) _A	-	<0.05						mg/l	A-T-040w	
Lead (leachable) _A [#]	-	7						µg/l	A-T-025w	
Mercury (leachable) _A [#]	-	<0.1						µg/l	A-T-025w	
Nickel (leachable) _A [#]	-	<1						µg/l	A-T-025w	
Selenium (leachable) _A [#]	-	<1						µg/l	A-T-025w	
Sulphur (elemental/free) (leachable) _A	-	<0.1						mg/l	A-T-029w	
Zinc (leachable) _A [#]	-	3						µg/l	A-T-025w	

Envirolab Job Number: 18/02142

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02142/1	18/02142/2							Units	Method ref
Client Sample No	4	13								
Client Sample ID	BH12A	BH12A								
Depth to Top	1.40	4.40								
Depth To Bottom	1.50	4.50								
Date Sampled	15-Mar-18	15-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	1A								
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A								

Envirolab Job Number: 18/02142

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02142/1	18/02142/2								
Client Sample No	4	13								
Client Sample ID	BH12A	BH12A								
Depth to Top	1.40	4.40								
Depth To Bottom	1.50	4.50								
Date Sampled	15-Mar-18	15-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	1A								
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01							mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01							mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	0.02							mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	0.12							mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	0.12							mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	0.12							mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	0.06							mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07							mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	0.11							mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04							mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	0.17							mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	0.01							mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	0.10							mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03							mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	0.06							mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	0.14							mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08	1.03							mg/kg	A-T-019s

Envirolab Job Number: 18/02142

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02142/1	18/02142/2							Units	Method ref
Client Sample No	4	13								
Client Sample ID	BH12A	BH12A								
Depth to Top	1.40	4.40								
Depth To Bottom	1.50	4.50								
Date Sampled	15-Mar-18	15-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	1A								
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	<0.002							mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	<0.002							mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	<0.004							mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	-	<0.007							mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	<0.006							mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	<0.004							mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	<0.004							mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	<0.007							mg/kg	A-T-004s

Envirolab Job Number: 18/02142

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02142/1	18/02142/2							Units	Method ref
Client Sample No	4	13								
Client Sample ID	BH12A	BH12A								
Depth to Top	1.40	4.40								
Depth To Bottom	1.50	4.50								
Date Sampled	15-Mar-18	15-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	1A								
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 105 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 114 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 118 _A ^{MF}	<0.007	-							mg/kg	A-T-004s
PCB BZ 123 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 126 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 156 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 157 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 167 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 169 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 189 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 77 _A	<0.005	-							mg/kg	A-T-004s
Total Speciated PCB-WHO12_A	<0.007	-							mg/kg	A-T-004s

Envirolab Job Number: 18/02142

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02142/1	18/02142/2							Units	Method ref
Client Sample No	4	13								
Client Sample ID	BH12A	BH12A								
Depth to Top	1.40	4.40								
Depth To Bottom	1.50	4.50								
Date Sampled	15-Mar-18	15-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	1A								
Hexachlorocyclopentadiene (leachable) _A	-	<2							µg/l	A-T-052w
Hexachloroethane (leachable) _A	-	<2							µg/l	A-T-052w
Isophorone (leachable) _A	-	<2							µg/l	A-T-052w
Nitrobenzene (leachable) _A	-	<2							µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	-	<2							µg/l	A-T-052w
Pentachlorophenol (leachable) _A	-	<2							µg/l	A-T-052w
Perylene (leachable) _A	-	<2							µg/l	A-T-052w
Phenol (leachable) _A	-	<2							µg/l	A-T-052w

Envirolab Job Number: 18/02142

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02142/1	18/02142/2							Units	Method ref
Client Sample No	4	13								
Client Sample ID	BH12A	BH12A								
Depth to Top	1.40	4.40								
Depth To Bottom	1.50	4.50								
Date Sampled	15-Mar-18	15-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	1A	1A								
Hexachlorocyclopentadiene _A	<100	<100						µg/kg	A-T-052s	
Perylene _A	<100	146						µg/kg	A-T-052s	

REPORT NOTES

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A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 18/02142
Issue Number: 1 Date: 3-Apr-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 585493

Date Samples Received: 19-Mar-18
Date Instructions Received: 22-Mar-18
Date Analysis Completed: 3-Apr-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:



Holly Neary-King
Administrative Assistant

Georgia King
Admin & Client Services Supervisor



Sample Details					Landfill Waste Acceptance Criteria Limits								
Lab Sample ID	Method	ISO17025	MCERTS	18/02142/1				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				4									
Client Sample ID				BH12A									
Depth to Top				1.4									
Depth to Bottom				1.50									
Date Sampled				15/03/2018									
Sample Type				Soil - ES									
Sample Matrix Code				1A									
Solid Waste Analysis													
pH (pH Units) _D	A-T-031	Y	Y	8.43				-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.03				-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.03				-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	<0.5				-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	<0.03				3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-			
Eluate Analysis					2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)				
					mg/l		mg/kg						
Arsenic	A-T-025	Y	N	0.003	0.003	0.006	0.030	0.5	2	25			
Barium	A-T-025	Y	N	0.030	0.032	0.060	0.320	20	100	300			
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5			
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70			
Copper	A-T-025	Y	N	0.001	0.001	0.002	0.010	2	50	100			
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2			
Molybdenum	A-T-025	Y	N	0.011	0.001	0.023	0.020	0.5	10	30			
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.4	10	40			
Lead	A-T-025	Y	N	<0.001	0.002	<0.002	<0.01	0.5	10	50			
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5			
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7			
Zinc	A-T-025	Y	N	0.044	0.022	0.088	0.240	4	50	200			
Chloride	A-T-026	Y	N	105	10	211	177	800	15000	25000			
Fluoride	A-T-026	Y	N	0.5	<0.10	1.0	<1	10	150	500			
Sulphate as SO ₄	A-T-026	Y	N	11	<1.00	23	<10	1000	20000	50000			
Total Dissolved Solids	A-T-035	N	N	271	36	545	553	4000	60000	100000			
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-			
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000			
Leach Test Information													
pH (pH Units)	A-T-031	N	Y	7.1	6.9								
Conductivity (µS/cm)	A-T-037	N	N	542	72								
Mass Sample (kg)				0.201									
Dry Matter (%)	A-T-044	N	N	91.1									
Stage 1													
Volume Leachant, L ₂ (l)	A-T-046			0.350									
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150									
Stage 2													
Volume Leachant, L ₈ (l)	A-T-046			1.460									
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation													

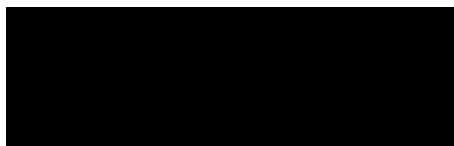
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02218
Issue Number: 1 **Date:** 06 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

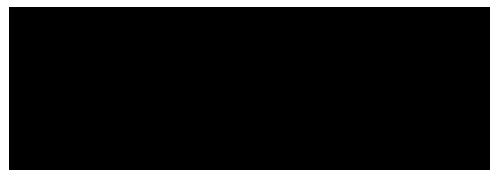
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 586162
Date Samples Received: 19/03/18
Date Instructions Received: 26/03/18
Date Analysis Completed: 06/04/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4					Units	Method ref
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
Chromium (leachable) _A [#]	<1	-	-	-					µg/l	A-T-025w
Chromium (hexavalent) (leachable) _A	<0.05	-	-	-					mg/l	A-T-040w
Lead (leachable) _A [#]	4	-	-	-					µg/l	A-T-025w
Mercury (leachable) _A [#]	<0.1	-	-	-					µg/l	A-T-025w
Nickel (leachable) _A [#]	<1	-	-	-					µg/l	A-T-025w
Selenium (leachable) _A [#]	<1	-	-	-					µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	<0.1	-	-	-					mg/l	A-T-029w
Zinc (leachable) _A [#]	72	-	-	-					µg/l	A-T-025w

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4					Units	Method ref		
Client Sample No	8	7	20	16								
Client Sample ID	BH13A	BH12B	BH13A	BH12B								
Depth to Top	1.90	2.40	4.90	5.40								
Depth To Bottom	2.00	2.50	5.00	5.50								
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18								
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES								
Sample Matrix Code	4A	1A	4A	5A								
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	NAD	NAD	-	-						A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	-	-								

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4					Units	Method ref
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	0.04	<0.01	<0.01	<0.01					mg/kg	A-T-019s
Anthracene _A ^{M#}	0.03	<0.02	<0.02	<0.02					mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.10	<0.04	<0.04	0.06					mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.19	<0.04	<0.04	<0.04					mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.23	<0.05	0.06	0.07					mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.15	<0.05	<0.05	<0.05					mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.08	<0.07	<0.07	<0.07					mg/kg	A-T-019s
Chrysene _A ^{M#}	0.12	<0.06	<0.06	0.07					mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04					mg/kg	A-T-019s
Fluoranthene _A ^{M#}	0.16	<0.08	<0.08	0.12					mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.16	<0.03	<0.03	<0.03					mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03					mg/kg	A-T-019s
Phenanthrene _A ^{M#}	0.05	<0.03	<0.03	0.04					mg/kg	A-T-019s
Pyrene _A ^{M#}	0.17	<0.07	<0.07	0.09					mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	1.48	<0.08	0.09	0.48					mg/kg	A-T-019s

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4					Units	Method ref
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	1.63	-	-	-					µg/l	A-T-019w
Acenaphthylene (leachable) _A	0.04	-	-	-					µg/l	A-T-019w
Anthracene (leachable) _A	0.05	-	-	-					µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	<0.02	-	-	-					µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	<0.02	-	-	-					µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	<0.02	-	-	-					µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	<0.02	-	-	-					µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	<0.02	-	-	-					µg/l	A-T-019w
Chrysene (leachable) _A	<0.02	-	-	-					µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	<0.02	-	-	-					µg/l	A-T-019w
Fluoranthene (leachable) _A	0.03	-	-	-					µg/l	A-T-019w
Fluorene (leachable) _A	0.40	-	-	-					µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	<0.02	-	-	-					µg/l	A-T-019w
Naphthalene (leachable) _A	0.17	-	-	-					µg/l	A-T-019w
Phenanthrene (leachable) _A	0.18	-	-	-					µg/l	A-T-019w
Pyrene (leachable) _A	0.02	-	-	-					µg/l	A-T-019w
PAH (total 16) (leachable) _A	2.52	-	-	-					µg/l	A-T-019w

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4					Units	Method ref
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	<0.002	<0.002	-					mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	<0.002	<0.002	-					mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	<0.004	<0.004	-					mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	<0.007	<0.007	<0.007					mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	<0.006	<0.006	-					mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	<0.004	<0.004	-					mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	<0.004	<0.004	-					mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	<0.007	<0.007	-					mg/kg	A-T-004s

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4					Units	Method ref
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 105 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 114 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 123 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 126 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 156 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 157 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 167 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 169 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 189 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
PCB BZ 77 _A	<0.005	-	-	<0.005					mg/kg	A-T-004s
Total Speciated PCB-WHO12 _A	<0.007	-	-	<0.007					mg/kg	A-T-004s

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4						
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	<2	-	-	-					µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	<2	-	-	-					µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	<2	-	-	-					µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2-Chlorophenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2-Methylphenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
2-Nitrophenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	<2	-	-	-					µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
4-Methylphenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
4-Nitrophenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	<4	-	-	-					µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Carbazole (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Dibenzofuran (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Diethyl phthalate (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	<2	-	-	-					µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	<2	-	-	-					µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	<10	-	-	-					µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	<2	-	-	-					µg/l	A-T-052w

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4					Units	Method ref
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
Hexachlorocyclopentadiene (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Hexachloroethane (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Isophorone (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Nitrobenzene (leachable) _A	<2	-	-	-					µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Pentachlorophenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Perylene (leachable) _A	<2	-	-	-					µg/l	A-T-052w
Phenol (leachable) _A	<2	-	-	-					µg/l	A-T-052w

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4					Units	Method ref
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
Hexachlorocyclopentadiene _A	<100	<100	<100	<100					µg/kg	A-T-052s
Perylene _A	<100	<100	<100	<100					µg/kg	A-T-052s

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4						
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
VOC										
Dichlorodifluoromethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Chloromethane _A [#]	<10	<10	<10	<10					µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromomethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Chloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Carbon Disulphide _A [#]	<1	<1	2	2					µg/kg	A-T-006s
Dichloromethane _A	<5	<5	<5	<5					µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromochloromethane _A [#]	<5	<5	<5	<5					µg/kg	A-T-006s
Chloroform _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2	<2	<2	<2					µg/kg	A-T-006s
Benzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Trichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Dibromomethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10	<10	<10	<10					µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Toluene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3	<3	<3	<3					µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4					Units	Method ref
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
Chlorobenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1					µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
m & p Xylene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
o-Xylene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Styrene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromoform _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1					µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromobenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2	<2	<2	<2					µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1	<1	<1	<1					µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2	<2	<2	<2					µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3	<3	<3	<3					µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3	<3	<3	<3					µg/kg	A-T-006s

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4						
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C21-C35 _A [#]	0.6	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Total Aliphatics _A	0.6	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C16-C21 _A [#]	1.3	1.3	<0.1	3.3					mg/kg	A-T-023s
Aro >C21-C35 _A [#]	4.8	2.6	<0.1	6.2					mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Total Aromatics _A	6.2	3.9	<0.1	9.6					mg/kg	A-T-023s
TPH (Ali & Aro) _A	6.8	3.9	<0.1	9.6					mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s

Envirolab Job Number: 18/02218

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02218/1	18/02218/2	18/02218/3	18/02218/4						
Client Sample No	8	7	20	16						
Client Sample ID	BH13A	BH12B	BH13A	BH12B						
Depth to Top	1.90	2.40	4.90	5.40						
Depth To Bottom	2.00	2.50	5.00	5.50						
Date Sampled	15-Mar-18	20-Mar-18	15-Mar-18	20-Mar-18						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4A	1A	4A	5A						
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	<1	-	-	-					µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	<1	-	-	-					µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	<1	-	-	-					µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Total Aliphatics (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	<1	-	-	-					µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	<1	-	-	-					µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	<1	-	-	-					µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	<1	-	-	-					µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	<10	-	-	-					µg/l	A-T-023w
Total Aromatics (leachable) _A	<10	-	-	-					µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	<10	-	-	-					µg/l	A-T-023w
BTEX - Benzene (leachable) _A	<1	-	-	-					µg/l	A-T-022w
BTEX - Toluene (leachable) _A	<1	-	-	-					µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	<1	-	-	-					µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	<1	-	-	-					µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	<1	-	-	-					µg/l	A-T-022w
MTBE (leachable) _A	<1	-	-	-					µg/l	A-T-022w

REPORT NOTES

General:

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Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

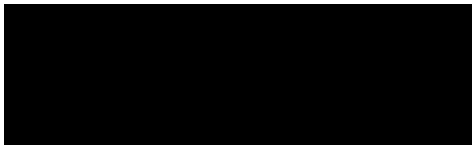
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02545
Issue Number: 1 **Date:** 16 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

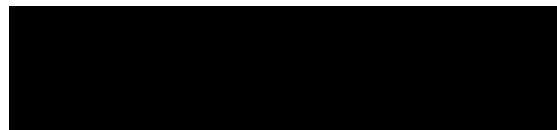
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 587599
Date Samples Received: 06/04/18
Date Instructions Received: 06/04/18
Date Analysis Completed: 16/04/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 18/02545

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02545/1	18/02545/2	18/02545/3	18/02545/4	18/02545/5	18/02545/6	18/02545/7	18/02545/8	Units	Method ref		
Client Sample No	14	26	33	64	82	94	100	104				
Client Sample ID	BH12B	BH12B	BH12B	BH12B	BH12B	BH12B	BH12B	BH12B				
Depth to Top	4.50	8.50	10.50	23.50	35.50	43.50	46.95	48.95				
Depth To Bottom	4.95	8.95	10.95	23.95	35.92	43.89	47.00	49.00				
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	21-Mar-18	22-Mar-18	23-Mar-18	23-Mar-18	23-Mar-18				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5A	5	5A	5	5	5	3	5				
% Stones >10mm _A	15.5	<0.1	12.4	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	A-T-044
pH BRE _D ^{M#}	-	-	-	8.26	8.11	8.24	8.23	8.28	pH	A-T-031s		
Ammonium NH ₄ BRE (water sol 2:1) _D	-	-	-	<1.00	<1.00	<1.00	4.77	4.39	mg/l	A-T-033s		
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	-	-	-	505	504	445	1150	504	mg/l	A-T-026s		
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	-	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s		
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	84	83	76	222	221	mg/l	A-T-026s		
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	0.04	0.07	0.07	0.09	0.13	% w/w	A-T-028s		
Sulphur BRE (total) _D	-	-	-	0.12	0.15	0.17	0.17	0.16	% w/w	A-T-024s		
Magnesium BRE (water sol 2:1) _D	-	-	-	34	28	25	62	48	mg/l	A-T-SOLMETs		
Organic matter _D ^{M#}	3.0	0.3	<0.1	-	-	-	-	-	% w/w	A-T-032 OM		

REPORT NOTES

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A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

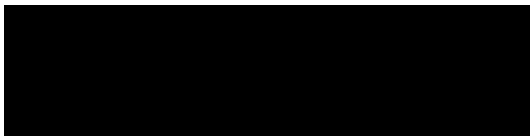
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02547
Issue Number: 1 **Date:** 16 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

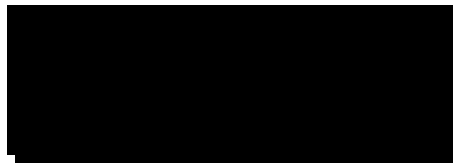
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt. Yarmouth
Project Ref: PZ1522D1
Order No: 587552
Date Samples Received: 05/04/18
Date Instructions Received: 06/04/18
Date Analysis Completed: 16/04/18

Prepared by:



Danielle Brierley
Client Manager

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/02547

Client Project Name: Gt. Yarmouth

Client Project Ref: PZ1522D1

Lab Sample ID	18/02547/1	18/02547/2	18/02547/3	18/02547/4	18/02547/5	18/02547/6	18/02547/7	18/02547/8	Units	Method ref		
Client Sample No	14	19	35	68	77	95	106	116				
Client Sample ID	BH13A	BH13A	BH13A	BH13A	BH13A	BH13A	BH13A	BH13A				
Depth to Top	3.25	4.60	9.00	24.00	28.60	40.00	46.45	49.95				
Depth To Bottom	3.70	4.90	9.50	24.45	29.05	40.45	46.50	50.00				
Date Sampled	15-Mar-18	15-Mar-18	16-Mar-18	19-Mar-18	19-Mar-18	20-Mar-18	21-Mar-18	21-Mar-18				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5A	5	5	5	5	5	3	5				
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	A-T-044
pH BRE _D ^{M#}	-	-	-	8.40	8.41	8.24	8.50	8.35	pH	A-T-031s		
Ammonium NH4 BRE (water sol 2:1) _D	-	-	-	<1.00	1.29	<1.00	4.64	5.48	mg/l	A-T-033s		
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	-	-	-	324	2340	480	1720	419	mg/l	A-T-026s		
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	-	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s		
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	52	418	83	466	231	mg/l	A-T-026s		
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	0.03	0.14	0.07	0.24	0.11	% w/w	A-T-028s		
Sulphur BRE (total) _D	-	-	-	0.06	0.53	0.18	0.82	0.19	% w/w	A-T-024s		
Magnesium BRE (water sol 2:1) _D	-	-	-	17	79	27	62	48	mg/l	A-T-SOLMET5		
Organic matter _D ^{M#}	0.6	1.6	<0.1	-	-	-	-	-	% w/w	A-T-032 OM		

REPORT NOTES

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If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 18/02218
Issue Number: 1
Date: 6-Apr-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 586162

Date Samples Received: 19-Mar-18
Date Instructions Received: 26-Mar-18
Date Analysis Completed: 6-Apr-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.


Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

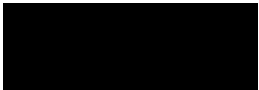
Please contact us if you need any further information.

Prepared by:

Approved by:



Holly Neary-King
Administrative Assistant



Richard Wong
Client Manager



Sample Details						Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/02218/1		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				8							
Client Sample ID				BH13A							
Depth to Top				1.9							
Depth to Bottom				2.00							
Date Sampled				15/03/2018							
Sample Type				Soil - ES							
Sample Matrix Code				4A							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	9.78		-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.07		-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.02		-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	<0.5		-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.14		3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	1.5		100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	20		500	-	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007		1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01		6	-	-			
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
				mg/l		mg/kg					
Arsenic	A-T-025	Y	N	0.011	0.004	0.022	0.040	0.5	2	25	
Barium	A-T-025	Y	N	0.024	0.006	0.050	0.070	20	100	300	
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5	
Chromium	A-T-025	Y	N	0.001	<0.001	0.003	<0.01	0.5	10	70	
Copper	A-T-025	Y	N	0.013	0.002	0.026	0.030	2	50	100	
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2	
Molybdenum	A-T-025	Y	N	0.003	<0.001	0.007	<0.01	0.5	10	30	
Nickel	A-T-025	Y	N	0.002	<0.001	0.004	<0.01	0.4	10	40	
Lead	A-T-025	Y	N	0.020	0.002	0.041	0.040	0.5	10	50	
Antimony	A-T-025	Y	N	0.001	<0.001	0.002	<0.01	0.06	0.7	5	
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7	
Zinc	A-T-025	Y	N	0.031	0.003	0.063	0.050	4	50	200	
Chloride	A-T-026	Y	N	16	2	33	29	800	15000	25000	
Fluoride	A-T-026	Y	N	0.2	<0.10	0.5	<1	10	150	500	
Sulphate as SO ₄	A-T-026	Y	N	16	2	32	30	1000	20000	50000	
Total Dissolved Solids	A-T-035	N	N	94	31	191	363	4000	60000	100000	
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-	
Dissolved Organic Carbon	A-T-032	N	N	25.2	<20.0	51	<200	500	800	1000	
Leach Test Information											
pH (pH Units)	A-T-031	N	Y	7.0	7.0						
Conductivity (µS/cm)	A-T-037	N	N	189	62						
Mass Sample (kg)				0.201							
Dry Matter (%)	A-T-044	N	N	90.5							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.450							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

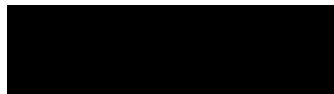
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/00116
Issue Number: 1 **Date:** 12 January, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 576692
Date Samples Received: 08/01/18
Date Instructions Received: 08/01/18
Date Analysis Completed: 12/01/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/00116

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/00116/1	18/00116/2	18/00116/3	18/00116/4	18/00116/5	18/00116/6	18/00116/7	18/00116/8	Units	Method ref
Client Sample No	5	16	31	36	45	54	63	71		
Client Sample ID	BH15	BH15	BH15	BH15	BH15	BH15	BH15	BH15		
Depth to Top	1.20	5.00	10.00	12.00	15.00	19.00	24.00	28.00		
Depth To Bottom	1.65	5.45	10.45	12.45	15.45	19.45	24.45	28.45		
Date Sampled	18-Dec-17	18-Dec-17	20-Dec-17	18-Dec-17	19-Dec-17	19-Dec-17	19-Dec-17	20-Dec-17		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1A	1A	4A	4A	5A	5	5	5		
% Stones >10mm _A	<0.1	13.8	11.5	22.3	3.0	<0.1	<0.1	<0.1		
pH BRE _D	8.69	8.68	8.66	9.00	8.63	8.53	8.47	8.55	pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	98	42	18	24	368	517	488	1300	mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	47	<10	12	<10	60	141	92	223	mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.06	0.09	% w/w	A-T-028s
Sulphur BRE (total) _D	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.25	0.30	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	2	3	4	3	8	25	31	61	mg/l	A-T-SOLMETs
Organic matter _D ^{M#}	-	-	<0.1	-	-	-	-	-	% w/w	A-T-032 OM

REPORT NOTES

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

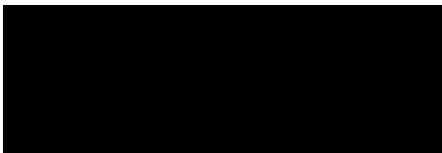
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02571
Issue Number: 1
Date: 17 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

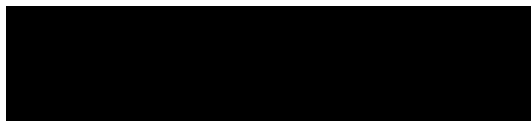
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 587433
Date Samples Received: 09/04/18
Date Instructions Received: 09/04/18
Date Analysis Completed: 17/04/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 18/02571

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02571/1	18/02571/2	18/02571/3	18/02571/4	18/02571/5	18/02571/6	18/02571/7	18/02571/8	Units	Method ref
Client Sample No	9	68	13	13	17	27	40	37		
Client Sample ID	BH8	BH10A	BH11A	BH13	BH6	BH2	BH15	BH1		
Depth to Top	0.80	1.00	1.18	1.62	1.66	2.00	2.00	2.20		
Depth To Bottom										
Date Sampled	23-Jan-18	21-Feb-18	12-Feb-18	06-Mar-18	23-Nov-17	07-Dec-17	18-Dec-17	08-Dec-17		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
pH BRE (w) _A [#]	7.77	6.75	6.59	7.17	7.41	6.97	7.84	7.30	pH	A-T-031w
Ammonium / Ammoniacal N as NH ₄ BRE (w) _A [#]	0.120	0.040	<0.026	<0.026	6.650	39.33	0.090	13	mg/l	A-T-033w
Chloride BRE (w) _A [#]	989	2340	322	382	254	2500	1340	1190	mg/l	A-T-026w
Nitrate BRE (w) _A [#]	<0.10	0.61	0.12	<0.10	<0.10	-0.020	<0.10	<0.10	mg/l	A-T-026w
Sulphate BRE (w) _A [#]	214	391	128	157	<1	<1	240	20	mg/l	A-T-026w
Magnesium BRE (dissolved) _A [#]	56.3	108	37.5	25.3	36.5	76.4	70.6	29.5	mg/l	A-T-049w
Sulphur (elemental/free) (w) _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	A-T-029w

Envirolab Job Number: 18/02571

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02571/9	18/02571/10	18/02571/11	18/02571/12	18/02571/13	18/02571/14	18/02571/15	18/02571/16	Units	Method ref
Client Sample No	15	11	19	30	16	42	28	19		
Client Sample ID	BH4	BH11	BH5A	BH12B	BH4A	BH12	BH4	BH7		
Depth to Top	2.24	2.50	2.60	3.00	3.20	3.20	3.50	3.60		
Depth To Bottom										
Date Sampled	28-Nov-17	12-Feb-18	13-Dec-17	20-Mar-18	05-Dec-17	07-Mar-18	29-Nov-17	30-Nov-17		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
pH BRE (w) _A [#]	7.40	7.25	7.64	8.62	7.22	7.93	7.15	7.50	pH	A-T-031w
Ammonium / Ammoniacal N as NH ₄ BRE (w) _A [#]	2.980	1.070	0.380	11.77	4.980	3.650	7.140	25.29	mg/l	A-T-033w
Chloride BRE (w) _A [#]	309	1600	3620	496	899	628	743	7690	mg/l	A-T-026w
Nitrate BRE (w) _A [#]	<0.10	<0.10	-0.020	<0.10	<0.10	<0.10	<0.10	<0.10	mg/l	A-T-026w
Sulphate BRE (w) _A [#]	<1	269	518	143	202	103	<1	755	mg/l	A-T-026w
Magnesium BRE (dissolved) _A [#]	29.8	92.0	195	10.0	69.0	18.5	78.8	396	mg/l	A-T-049w
Sulphur (elemental/free) (w) _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	A-T-029w

Envirolab Job Number: 18/02571

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02571/17								Units	Method ref
Client Sample No	40									
Client Sample ID	BH1									
Depth to Top	7.00									
Depth To Bottom										
Date Sampled	08-Dec-17									
Sample Type	Water - EW									
Sample Matrix Code	N/A									
pH BRE (w) _A [#]	7.22								pH	A-T-031w
Ammonium / Ammoniacal N as NH4 BRE (w) _A [#]	14.16								mg/l	A-T-033w
Chloride BRE (w) _A [#]	1150								mg/l	A-T-026w
Nitrate BRE (w) _A [#]	<0.10								mg/l	A-T-026w
Sulphate BRE (w) _A [#]	220								mg/l	A-T-026w
Magnesium BRE (dissolved) _A [#]	34.6								mg/l	A-T-049w
Sulphur (elemental/free) (w) _A	<0.1								mg/l	A-T-029w

REPORT NOTES

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A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02216
Issue Number: 1 **Date:** 06 April, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 585985
Date Samples Received: 23/03/18
Date Instructions Received: 26/03/18
Date Analysis Completed: 06/04/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/02216

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4						
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
									Units	Method ref
% Stones >10mm _A	18.4	<0.1	12.2	<0.1					% w/w	A-T-044
pH _D	9.10	8.08	9.05	8.58					pH	A-T-031s
Ammoniacal nitrogen _D	4.9	0.9	3.3	0.6					mg/kg	A-T-033s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	0.09	<0.01	0.02					g/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	<200	720	<200	650					mg/kg	A-T-028s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1					mg/kg	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2					mg/kg	A-T-050s
Sulphide _A	<5	<5	<5	<5					mg/kg	A-T-S2-s
Sulphur (elemental) _D ^{M#}	<5	14	<5	<5					mg/kg	A-T-029s
Organic matter _D ^{M#}	<0.1	3.2	<0.1	1.5					% w/w	A-T-032 OM
Arsenic _D ^{M#}	2	8	2	1					mg/kg	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0	2.5	<1.0	1.7					mg/kg	A-T-027s
Cadmium _D ^{M#}	<0.5	0.6	<0.5	<0.5					mg/kg	A-T-024s
Copper _D ^{M#}	3	23	<1	5					mg/kg	A-T-024s
Chromium _D ^{M#}	2	10	2	2					mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1					mg/kg	A-T-040s
Lead _D ^{M#}	11	141	3	25					mg/kg	A-T-024s
Mercury _D	<0.17	0.46	<0.17	<0.17					mg/kg	A-T-024s
Nickel _D ^{M#}	2	11	<1	2					mg/kg	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1					mg/kg	A-T-024s
Zinc _D ^{M#}	9	183	5	51					mg/kg	A-T-024s

Envirolab Job Number: 18/02216

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Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4						
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
Leachate Prep NRA (10:1) _A	-	*	-	-						A-T-001
pH (leachable) _A [#]	-	7.23	-	-						pH A-T-031w
Ammoniacal nitrogen (leachable) _A	-	<0.02	-	-						mg/l A-T-033w
Sulphate (leachable) _A [#]	-	33.42	-	-						mg/l A-T-026w
Cyanide (total) (leachable) _A	-	<0.005	-	-						mg/l A-T-042wTCN
Phenols (total by HPLC) (leachable) _A	-	<0.01	-	-						mg/l A-T-050w
Sulphide (leachable) _A	-	<0.1	-	-						mg/l A-T-S2-w
DOC (leachable) _A [#]	-	7.8	-	-						mg/l A-T-032w
Arsenic (leachable) _A [#]	-	15	-	-						µg/l A-T-025w
Boron (leachable) _A [#]	-	153	-	-						µg/l A-T-025w
Cadmium (leachable) _A [#]	-	<1	-	-						µg/l A-T-025w
Copper (leachable) _A [#]	-	17	-	-						µg/l A-T-025w
Chromium (leachable) _A [#]	-	<1	-	-						µg/l A-T-025w
Chromium (hexavalent) (leachable) _A	-	<0.05	-	-						mg/l A-T-040w
Lead (leachable) _A [#]	-	29	-	-						µg/l A-T-025w
Mercury (leachable) _A [#]	-	<0.1	-	-						µg/l A-T-025w
Nickel (leachable) _A [#]	-	3	-	-						µg/l A-T-025w
Selenium (leachable) _A [#]	-	<1	-	-						µg/l A-T-025w
Sulphur (elemental/free) (leachable) _A	-	<0.1	-	-						mg/l A-T-029w
Zinc (leachable) _A [#]	-	26	-	-						µg/l A-T-025w

Envirolab Job Number: 18/02216

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4					Units	Method ref		
Client Sample No	003	004	004	005								
Client Sample ID	CPT5	CPT3	CPT5	CPT3								
Depth to Top	0.50	0.50	1.00	1.00								
Depth To Bottom												
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18								
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D								
Sample Matrix Code	1A	6A	1A	6A								
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	NAD	Chrysotile	NAD	Chrysotile						A-T-045		
Asbestos Matrix (microscope) _A	-	Loose Fibres	-	Loose Fibres						A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A								

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Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4					Units	Method ref
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	0.82	<0.01	0.06					mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	0.08	<0.01	0.09					mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	2.87	<0.02	0.30					mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.05	2.77	<0.04	1.12					mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.08	1.93	<0.04	1.02					mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.10	2.46	<0.05	1.34					mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	0.80	<0.05	0.53					mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.93	<0.07	0.54					mg/kg	A-T-019s
Chrysene _A ^{M#}	0.07	2.76	<0.06	1.34					mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	0.22	<0.04	0.14					mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	9.18	<0.08	2.81					mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	1.32	<0.01	0.10					mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.05	1.02	<0.03	0.66					mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	0.64	<0.03	0.10					mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	9.50	<0.03	1.33					mg/kg	A-T-019s
Pyrene _A ^{M#}	0.08	7.14	<0.07	2.26					mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	0.56	44.5	<0.08	13.8					mg/kg	A-T-019s

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Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4					Units	Method ref
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	-	0.29	-	-					µg/l	A-T-019w
Acenaphthylene (leachable) _A	-	0.03	-	-					µg/l	A-T-019w
Anthracene (leachable) _A	-	0.05	-	-					µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	-	<0.02	-	-					µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	-	<0.02	-	-					µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	-	<0.02	-	-					µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	-	<0.02	-	-					µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	-	<0.02	-	-					µg/l	A-T-019w
Chrysene (leachable) _A	-	<0.02	-	-					µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	-	<0.02	-	-					µg/l	A-T-019w
Fluoranthene (leachable) _A	-	0.05	-	-					µg/l	A-T-019w
Fluorene (leachable) _A	-	0.14	-	-					µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	-	<0.02	-	-					µg/l	A-T-019w
Naphthalene (leachable) _A	-	0.19	-	-					µg/l	A-T-019w
Phenanthrene (leachable) _A	-	0.16	-	-					µg/l	A-T-019w
Pyrene (leachable) _A	-	0.04	-	-					µg/l	A-T-019w
PAH (total 16) (leachable) _A	-	0.95	-	-					µg/l	A-T-019w

Envirolab Job Number: 18/02216

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4					Units	Method ref
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	<0.002	<0.002	-	-					mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	<0.002	<0.002	-	-					mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	<0.004	<0.004	-	-					mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	<0.007	<0.007	<0.007					mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	<0.006	<0.006	-	-					mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	<0.004	<0.004	-	-					mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	<0.004	<0.004	-	-					mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	<0.007	-	-					mg/kg	A-T-004s

Envirolab Job Number: 18/02216

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Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4					Units	Method ref
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
Speciated PCB-WHO12										
PCB BZ 81 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 105 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 114 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 123 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 126 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 156 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 157 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 167 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 169 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 189 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
PCB BZ 77 _A	-	-	<0.005	<0.005					mg/kg	A-T-004s
Total Speciated PCB-WHO12 _A	-	-	<0.007	<0.007					mg/kg	A-T-004s

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Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4						
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	-	<2	-	-					µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	-	<2	-	-					µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	-	<2	-	-					µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2-Chlorophenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2-Methylphenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
2-Nitrophenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	-	<2	-	-					µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
4-Methylphenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
4-Nitrophenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	-	<4	-	-					µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Carbazole (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Dibenzofuran (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Diethyl phthalate (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	-	<2	-	-					µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	-	<2	-	-					µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	-	<10	-	-					µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	-	<2	-	-					µg/l	A-T-052w

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Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4					Units	Method ref
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
Hexachlorocyclopentadiene (leachable) _A	-	<2	-	-						
Hexachloroethane (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Isophorone (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Nitrobenzene (leachable) _A	-	<2	-	-					µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Pentachlorophenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Perylene (leachable) _A	-	<2	-	-					µg/l	A-T-052w
Phenol (leachable) _A	-	<2	-	-					µg/l	A-T-052w

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4					Units	Method ref
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
Hexachlorocyclopentadiene _A	<100	<100	<100	<100					µg/kg	A-T-052s
Perylene _A	<100	1500	<100	740					µg/kg	A-T-052s

Envirolab Job Number: 18/02216

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4						
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
VOC										
Dichlorodifluoromethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Chloromethane _A [#]	<10	<10	<10	<10					µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromomethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Chloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Carbon Disulphide _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Dichloromethane _A	<5	<5	<5	<5					µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromochloromethane _A [#]	<5	<5	<5	<5					µg/kg	A-T-006s
Chloroform _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2	<2	<2	<2					µg/kg	A-T-006s
Benzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Trichloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Dibromomethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10	<10	<10	<10					µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Toluene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3	<3	<3	<3					µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s

Envirolab Job Number: 18/02216

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4					Units	Method ref
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
Chlorobenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1					µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
m & p Xylene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
o-Xylene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Styrene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromoform _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1					µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
Bromobenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2	<2	<2	<2					µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1	<1	<1	<1					µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2	<2	<2	<2					µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3	<3	<3	<3					µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1	<1	<1	<1					µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3	<3	<3	<3					µg/kg	A-T-006s

Envirolab Job Number: 18/02216

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4						
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	1.5	<0.1					mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	4.6	<0.1					mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	3.2	0.7	<0.1					mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Total Aliphatics _A	<0.1	3.2	6.6	<0.1					mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	0.9	<0.1	<0.1					mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	3.7	<0.1	<0.1					mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1	13.7	<0.1	5.2					mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1	33.4	<0.1	4.6					mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1	0.8	<0.1	<0.1					mg/kg	A-T-023s
Total Aromatics _A	<0.1	52.4	<0.1	9.8					mg/kg	A-T-023s
TPH (Ali & Aro) _A	<0.1	55.6	6.6	9.8					mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s

Envirolab Job Number: 18/02216

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/02216/1	18/02216/2	18/02216/3	18/02216/4					Units	Method ref
Client Sample No	003	004	004	005						
Client Sample ID	CPT5	CPT3	CPT5	CPT3						
Depth to Top	0.50	0.50	1.00	1.00						
Depth To Bottom										
Date Sampled	20-Mar-18	20-Mar-18	20-Mar-18	20-Mar-18						
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D						
Sample Matrix Code	1A	6A	1A	6A						
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	-	<1	-	-					µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	-	<1	-	-					µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	-	<1	-	-					µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Total Aliphatics (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	-	<1	-	-					µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	-	<1	-	-					µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	-	<1	-	-					µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	-	<1	-	-					µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	-	<10	-	-					µg/l	A-T-023w
Total Aromatics (leachable) _A	-	<10	-	-					µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	-	<10	-	-					µg/l	A-T-023w
BTEX - Benzene (leachable) _A	-	<1	-	-					µg/l	A-T-022w
BTEX - Toluene (leachable) _A	-	<1	-	-					µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	-	<1	-	-					µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	-	<1	-	-					µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	-	<1	-	-					µg/l	A-T-022w
MTBE (leachable) _A	-	<1	-	-					µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 18/02216
Issue Number: 1 Date: 6-Apr-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 585985

Date Samples Received: 23-Mar-18
Date Instructions Received: 26-Mar-18
Date Analysis Completed: 6-Apr-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:

Melanie Marshall
Laboratory Coordinator

Iain Haslock
Analytical Consultant



Sample Details							Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/02216/1			Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				3								
Client Sample ID				CPT5								
Depth to Top				0.5								
Depth to Bottom												
Date Sampled				20/03/2018								
Sample Type				Soil - D								
Sample Matrix Code				1A								
Solid Waste Analysis												
pH (pH Units) _D	A-T-031	Y	Y	9.10			-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.03			-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.03			-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	<0.5			-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	<0.03			3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	0.57			100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	16			500	-	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007			1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01			6	-	-			
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)				
				mg/l		mg/kg						
Arsenic	A-T-025	Y	N	0.009	0.003	0.017	0.040	0.5	2	25		
Barium	A-T-025	Y	N	0.025	0.002	0.047	0.040	20	100	300		
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5		
Chromium	A-T-025	Y	N	0.001	<0.001	0.003	<0.01	0.5	10	70		
Copper	A-T-025	Y	N	0.010	<0.001	0.020	0.010	2	50	100		
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2		
Molybdenum	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	30		
Nickel	A-T-025	Y	N	0.001	<0.001	0.002	<0.01	0.4	10	40		
Lead	A-T-025	Y	N	0.053	0.001	0.101	0.050	0.5	10	50		
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5		
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7		
Zinc	A-T-025	Y	N	0.024	0.001	0.046	0.030	4	50	200		
Chloride	A-T-026	Y	N	6	<1.00	11	<10	800	15000	25000		
Fluoride	A-T-026	Y	N	0.1	<0.10	<0.2	<1	10	150	500		
Sulphate as SO ₄	A-T-026	Y	N	3	<1.00	5	<10	1000	20000	50000		
Total Dissolved Solids	A-T-035	N	N	47	20	90	219	4000	60000	100000		
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-		
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000		
Leach Test Information												
pH (pH Units)	A-T-031	N	Y	7.0	7.3							
Conductivity (µS/cm)	A-T-037	N	N	95	40							
Mass Sample (kg)				0.200								
Dry Matter (%)	A-T-044	N	N	94.5								
Stage 1												
Volume Leachant, L ₂ (l)	A-T-046			0.350								
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150								
Stage 2												
Volume Leachant, L ₈ (l)	A-T-046			1.520								
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation												

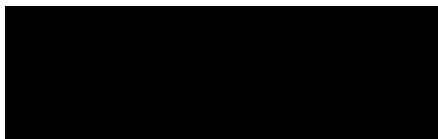
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 17/08502
Issue Number: 1
Date: 21 December, 2017

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

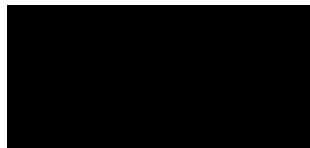
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 574728
Date Samples Received: 06/12/17
Date Instructions Received: 14/12/17
Date Analysis Completed: 21/12/17

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Georgia King
Admins & Client Services Supervisor

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
% Stones >10mm _A	13.7	<0.1	<0.1	30.3	<0.1	4.2	11.5	<0.1		
pH _D	9.33	8.02	7.51	8.79	8.36	8.03	8.25	8.29	pH	A-T-031s
Ammoniacal nitrogen _D	2.2	54.3	60.9	0.6	5.4	3.6	3.5	8.6	mg/kg	A-T-033s
Sulphate (water sol 2:1) _D ^{M#}	0.14	0.90	3.28	0.02	0.06	0.37	<0.01	0.03	g/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	310	3700	9300	550	610	1200	850	400	mg/kg	A-T-028s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	A-T-050s
Sulphide _A	<15	<15	490	<15	<15	<15	<15	<15	mg/kg	A-T-S2-s
Sulphur (elemental) _D ^{M#}	<5	40	<5	<5	<5	12	<5	<5	mg/kg	A-T-029s
Organic matter _D ^{M#}	<0.1	4.7	54.0	5.4	6.5	3.9	4.3	1.7	% w/w	A-T-032 OM
Arsenic _D ^{M#}	2	13	24	7	10	8	9	7	mg/kg	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0	10.8	43.9	<1.0	1.3	2.9	4.2	3.8	mg/kg	A-T-027s
Cadmium _D ^{M#}	<0.5	0.8	<0.5	<0.5	0.5	<0.5	1.9	<0.5	mg/kg	A-T-024s
Copper _D ^{M#}	8	11	2	68	44	22	19	13	mg/kg	A-T-024s
Chromium _D ^{M#}	9	34	1	13	25	10	10	19	mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-040s
Lead _D ^{M#}	6	17	1	187	77	94	101	41	mg/kg	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	A-T-024s
Nickel _D ^{M#}	10	29	8	16	22	11	12	16	mg/kg	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-024s
Zinc _D ^{M#}	14	67	<5	191	105	76	1900	57	mg/kg	A-T-024s
Leachate Prep NRA (10:1) _A	-	-	*	-	*	-	*	-		A-T-001
pH (leachable) _A [#]	-	-	7.63	-	7.18	-	7.28	-	pH	A-T-031w
Ammoniacal nitrogen (leachable) _A	-	-	0.60	-	<0.02	-	0.03	-	mg/l	A-T-033w
Sulphate (leachable) _A [#]	-	-	106.11	-	8.04	-	14.99	-	mg/l	A-T-026w
Cyanide (total) (leachable) _A	-	-	0.010	-	<0.005	-	<0.005	-	mg/l	A-T-042wTCN
Phenols (total by HPLC) (leachable) _A	-	-	<0.01	-	<0.01	-	<0.01	-	mg/l	A-T-050w
Sulphide (leachable) _A	-	-	<0.1	-	<0.1	-	<0.1	-	mg/l	A-T-S2-w
DOC (leachable) _A [#]	-	-	4.7	-	4.8	-	11.4	-	mg/l	A-T-032w
Arsenic (leachable) _A [#]	-	-	<1	-	2	-	4	-	µg/l	A-T-025w
Boron (leachable) _A [#]	-	-	388	-	31	-	102	-	µg/l	A-T-025w
Cadmium (leachable) _A [#]	-	-	<1	-	<1	-	<1	-	µg/l	A-T-025w
Copper (leachable) _A [#]	-	-	<1	-	7	-	8	-	µg/l	A-T-025w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
Chromium (leachable) _A [#]	-	-	<1	-	1	-	<1	-		
Chromium (hexavalent) (leachable) _A	-	-	<0.05	-	<0.05	-	<0.05	-	mg/l	A-T-040w
Lead (leachable) _A [#]	-	-	<1	-	7	-	25	-	µg/l	A-T-025w
Mercury (leachable) _A [#]	-	-	<0.1	-	<0.1	-	<0.1	-	µg/l	A-T-025w
Nickel (leachable) _A [#]	-	-	<1	-	2	-	3	-	µg/l	A-T-025w
Selenium (leachable) _A [#]	-	-	<1	-	<1	-	<1	-	µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	-	-	<0.1	-	<0.1	-	<0.1	-	mg/l	A-T-029w
Zinc (leachable) _A [#]	-	-	5	-	6	-	644	-	µg/l	A-T-025w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref		
Client Sample No	10	14	8	3	6	1	2	5				
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6				
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0				
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10				
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES				
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5				
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	-	-	NAD	NAD	-	NAD	NAD	-		A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	-	-	N/A	N/A	-	N/A	N/A	-				

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

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Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
PAH 16										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	0.06	0.03	0.02	<0.01	<0.01	mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	0.07	0.03	0.08	<0.02	<0.02	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	0.91	0.16	0.54	0.09	<0.04	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	1.06	0.21	0.58	0.09	<0.04	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	1.30	0.27	0.74	0.12	<0.05	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	0.85	0.32	0.48	0.08	<0.05	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	0.48	0.09	0.26	<0.07	<0.07	mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	0.90	0.21	0.55	0.11	<0.06	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	0.19	0.05	0.11	<0.04	<0.04	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	1.24	0.33	0.88	0.22	<0.08	mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	0.96	0.31	0.54	0.09	<0.03	mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	0.16	0.20	0.25	0.10	<0.03	mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	1.22	0.33	0.78	0.18	<0.07	mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08	<0.08	<0.08	9.39	2.58	5.88	1.07	<0.08	mg/kg	A-T-019s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Acenaphthylene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Anthracene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Chrysene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Fluoranthene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Fluorene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Naphthalene (leachable) _A	-	-	0.06	-	0.05	-	0.10	-	µg/l	A-T-019w
Phenanthrene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
Pyrene (leachable) _A	-	-	<0.02	-	<0.02	-	<0.02	-	µg/l	A-T-019w
PAH (total 16) (leachable) _A	-	-	0.06	-	0.05	-	0.10	-	µg/l	A-T-019w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	-	-	<0.002	-	-	<0.002	-	mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	-	-	<0.002	-	-	<0.002	-	mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	-	-	<0.004	-	-	<0.004	-	mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	-	-	<0.007	<0.007	-	<0.007	<0.007	-	mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	-	-	<0.006	-	-	<0.006	-	mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	-	-	<0.004	-	-	<0.004	-	mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	-	-	<0.004	-	-	<0.004	-	mg/kg	A-T-004s
PCB Total of EC7 _A ^{M#}	-	-	-	<0.007	-	-	<0.007	-	mg/kg	A-T-004s

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Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
Speciated PCB-WHO12										
PCB BZ 81 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 105 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 114 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 123 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 126 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 156 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 157 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 167 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 169 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 189 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 77 _A	-	-	<0.005	-	-	<0.005	-	-	mg/kg	A-T-004s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
SVOC (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2-Chlorophenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2-Methylphenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
2-Nitrophenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
4-Methylphenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
4-Nitrophenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Acenaphthene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Acenaphthylene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Anthracene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Benzo(a)anthracene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Benzo(a)pyrene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Benzo(b)fluoranthene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Benzo(ghi)perylene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Benzo(k)fluoranthene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	-	-	<4	-	<4	-	<4	-	µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
Carbazole (leachable) _A	-	-	<2	-	<2	-	<2	-		
Chrysene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Dibenzo(ah)anthracene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Dibenzofuran (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Diethyl phthalate (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	-	-	<2	-	<2	-	15	-	µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-052w
Fluoranthene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Fluorene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Hexachlorocyclopentadiene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Hexachloroethane (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Indeno(1,2,3-cd)pyrene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Isophorone (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Naphthalene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Nitrobenzene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Pentachlorophenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Perylene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Phenanthrene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Phenol (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w
Pyrene (leachable) _A	-	-	<2	-	<2	-	<2	-	µg/l	A-T-052w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
SVOC										
Hexachlorobenzene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Diethyl phthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Dimethyl phthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Dibenzofuran _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Carbazole _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Butylbenzyl phthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<500	<500	<500	<500	<500	<500	<500	<500	µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
4-Nitrophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
4-Methylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Nitrophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Methylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Chlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,6-Dinitrotoluene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4-Dinitrotoluene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4-Dimethylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4-Dichlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Chloronaphthalene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Methylnaphthalene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Phenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Pentachlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
n-Diethylphthalate _A	<500	<500	<500	<500	<500	<500	<500	<500	µg/kg	A-T-052s
n-Dibutylphthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Nitrobenzene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Isophorone _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Hexachloroethane _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
Hexachlorocyclopentadiene _A	<100	<100	<100	<100	<100	<100	<100	<100		
Perylene _A	<100	<100	603	226	230	573	<100	<100	µg/kg	A-T-052s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
VOC										
Dichlorodifluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Chloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	<10	µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Carbon Disulphide _A [#]	<1	21	29	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Dichloromethane _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/kg	A-T-006s
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/kg	A-T-006s
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Trichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	<10	µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref		
Client Sample No	10	14	8	3	6	1	2	5				
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6				
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0				
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10				
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES				
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5				
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1			µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
n-Propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/kg	A-T-006s		
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
1,3-Dichlorobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
n-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
1,2-Dibromo-3-chloropropane _A	<2	<2	<2	<2	<2	<2	<2	<2	µg/kg	A-T-006s		
1,2,4-Trichlorobenzene _A	<3	<3	<3	<3	<3	<3	<3	<3	µg/kg	A-T-006s		
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s		
1,2,3-Trichlorobenzene _A	<3	<3	<3	<3	<3	<3	<3	<3	µg/kg	A-T-006s		

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	0.8	1.7	<0.1	1.4	<0.1	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1	13.9	29.3	10.3	13.8	<0.1	mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	<0.1	<0.1	0.6	6.1	0.8	<0.1	<0.1	mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1	15.4	37.1	11.1	15.3	<0.1	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1	<0.1	0.2	<0.1	0.8	<0.1	<0.1	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	3.1	<0.1	<0.1	1.7	2.4	3.7	0.4	<0.1	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	1.0	<0.1	<0.1	18.5	27.1	12.7	1.6	<0.1	mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1	<0.1	<0.1	3.4	8.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aromatics _A	4.0	<0.1	<0.1	23.8	37.6	17.2	1.9	<0.1	mg/kg	A-T-023s
TPH (Ali & Aro) _A	4.0	<0.1	<0.1	39.2	74.7	28.3	17.2	<0.1	mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/1	17/08502/2	17/08502/3	17/08502/4	17/08502/5	17/08502/6	17/08502/7	17/08502/8	Units	Method ref
Client Sample No	10	14	8	3	6	1	2	5		
Client Sample ID	BH1	BH2	BH4A	BH5	BH5	TP1	WS3	WS6		
Depth to Top	2.0	4.00	2.10	0.50	1.20	1.00	0.30	1.0		
Depth To Bottom	2.10		2.20	0.60	1.30	1.10	0.40	1.10		
Date Sampled	06-Dec-17	06-Dec-17	04-Dec-17	01-Dec-17	01-Dec-17	07-Dec-17	06-Dec-17	05-Dec-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - B	Soil - ES	Soil - ES		
Sample Matrix Code	5A	3	6E	4A	6A	4A	6AE	5		
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	-	-	<1	-	<1	-	3	-	µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	-	-	<1	-	<1	-	1	-	µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
Total Aliphatics (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Aro >C7-C8 (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
Total Aromatics (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	-	-	<10	-	<10	-	<10	-	µg/l	A-T-023w
BTEX - Benzene (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
BTEX - Toluene (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	-	-	<1	-	<1	-	<1	-	µg/l	A-T-022w
MTBE (leachable) _A	-	-	<1	-	<1	-	1	-	µg/l	A-T-022w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9									Units	Method ref
Client Sample No	7										
Client Sample ID	WS7										
Depth to Top	1.0										
Depth To Bottom	1.10										
Date Sampled	06-Dec-17										
Sample Type	Soil - ES										
Sample Matrix Code	1										
% Stones >10mm _A	<0.1									% w/w	A-T-044
pH _D	9.12									pH	A-T-031s
Ammoniacal nitrogen _D	0.6									mg/kg	A-T-033s
Sulphate (water sol 2:1) _D ^{M#}	<0.01									g/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	<200									mg/kg	A-T-028s
Cyanide (total) _A ^{M#}	<1									mg/kg	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2									mg/kg	A-T-050s
Sulphide _A	<15									mg/kg	A-T-S2-s
Sulphur (elemental) _D ^{M#}	<5									mg/kg	A-T-029s
Organic matter _D ^{M#}	0.3									% w/w	A-T-032 OM
Arsenic _D ^{M#}	3									mg/kg	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0									mg/kg	A-T-027s
Cadmium _D ^{M#}	<0.5									mg/kg	A-T-024s
Copper _D ^{M#}	3									mg/kg	A-T-024s
Chromium _D ^{M#}	5									mg/kg	A-T-024s
Chromium (hexavalent) _D	<1									mg/kg	A-T-040s
Lead _D ^{M#}	7									mg/kg	A-T-024s
Mercury _D	<0.17									mg/kg	A-T-024s
Nickel _D ^{M#}	4									mg/kg	A-T-024s
Selenium _D ^{M#}	<1									mg/kg	A-T-024s
Zinc _D ^{M#}	15									mg/kg	A-T-024s
Leachate Prep NRA (10:1) _A	*										A-T-001
pH (leachable) _A [#]	7.02									pH	A-T-031w
Ammoniacal nitrogen (leachable) _A	<0.02									mg/l	A-T-033w
Sulphate (leachable) _A [#]	1.39									mg/l	A-T-026w
Cyanide (total) (leachable) _A	<0.005									mg/l	A-T-042wTCN
Phenols (total by HPLC) (leachable) _A	<0.01									mg/l	A-T-050w
Sulphide (leachable) _A	<0.1									mg/l	A-T-S2-w
DOC (leachable) _A [#]	4.6									mg/l	A-T-032w
Arsenic (leachable) _A [#]	5									µg/l	A-T-025w
Boron (leachable) _A [#]	23									µg/l	A-T-025w
Cadmium (leachable) _A [#]	<1									µg/l	A-T-025w
Copper (leachable) _A [#]	3									µg/l	A-T-025w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9								Units	Method ref
Client Sample No	7									
Client Sample ID	WS7									
Depth to Top	1.0									
Depth To Bottom	1.10									
Date Sampled	06-Dec-17									
Sample Type	Soil - ES									
Sample Matrix Code	1									
Chromium (leachable) _A [#]	<1								µg/l	A-T-025w
Chromium (hexavalent) (leachable) _A	<0.05								mg/l	A-T-040w
Lead (leachable) _A [#]	4								µg/l	A-T-025w
Mercury (leachable) _A [#]	<0.1								µg/l	A-T-025w
Nickel (leachable) _A [#]	<1								µg/l	A-T-025w
Selenium (leachable) _A [#]	<1								µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	<0.1								mg/l	A-T-029w
Zinc (leachable) _A [#]	6								µg/l	A-T-025w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9								Units	Method ref
Client Sample No	7									
Client Sample ID	WS7									
Depth to Top	1.0									
Depth To Bottom	1.10									
Date Sampled	06-Dec-17									
Sample Type	Soil - ES									
Sample Matrix Code	1									
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD									A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A									

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9								Units	Method ref
Client Sample No	7									
Client Sample ID	WS7									
Depth to Top	1.0									
Depth To Bottom	1.10									
Date Sampled	06-Dec-17									
Sample Type	Soil - ES									
Sample Matrix Code	1									
PAH 16										
Acenaphthene _A ^{M#}	<0.01								mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01								mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02								mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04								mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04								mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05								mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05								mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07								mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06								mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04								mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08								mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01								mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03								mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03								mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03								mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07								mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08								mg/kg	A-T-019s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9								Units	Method ref
Client Sample No	7									
Client Sample ID	WS7									
Depth to Top	1.0									
Depth To Bottom	1.10									
Date Sampled	06-Dec-17									
Sample Type	Soil - ES									
Sample Matrix Code	1									
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	<0.02								µg/l	A-T-019w
Acenaphthylene (leachable) _A	<0.02								µg/l	A-T-019w
Anthracene (leachable) _A	<0.02								µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	<0.02								µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	<0.02								µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	<0.02								µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	<0.02								µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	<0.02								µg/l	A-T-019w
Chrysene (leachable) _A	<0.02								µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	<0.02								µg/l	A-T-019w
Fluoranthene (leachable) _A	<0.02								µg/l	A-T-019w
Fluorene (leachable) _A	<0.02								µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	<0.02								µg/l	A-T-019w
Naphthalene (leachable) _A	0.10								µg/l	A-T-019w
Phenanthrene (leachable) _A	<0.02								µg/l	A-T-019w
Pyrene (leachable) _A	<0.02								µg/l	A-T-019w
PAH (total 16) (leachable) _A	0.10								µg/l	A-T-019w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9								Units	Method ref
Client Sample No	7									
Client Sample ID	WS7									
Depth to Top	1.0									
Depth To Bottom	1.10									
Date Sampled	06-Dec-17									
Sample Type	Soil - ES									
Sample Matrix Code	1									
Speciated PCB-EC7										
PCB BZ 118 _A ^{MS}	<0.007								mg/kg	A-T-004s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9								Units	Method ref
Client Sample No	7									
Client Sample ID	WS7									
Depth to Top	1.0									
Depth To Bottom	1.10									
Date Sampled	06-Dec-17									
Sample Type	Soil - ES									
Sample Matrix Code	1									
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 105 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 114 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 123 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 126 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 156 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 157 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 167 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 169 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 189 _A	<0.005							mg/kg	A-T-004s	
PCB BZ 77 _A	<0.005							mg/kg	A-T-004s	

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9									Units	Method ref
Client Sample No	7										
Client Sample ID	WS7										
Depth to Top	1.0										
Depth To Bottom	1.10										
Date Sampled	06-Dec-17										
Sample Type	Soil - ES										
Sample Matrix Code	1										
Carbazole (leachable) _A	<2									µg/l	A-T-052w
Chrysene (leachable) _A	<2									µg/l	A-T-052w
Dibenzo(ah)anthracene (leachable) _A	<2									µg/l	A-T-052w
Dibenzofuran (leachable) _A	<2									µg/l	A-T-052w
Diethyl phthalate (leachable) _A	<2									µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	<2									µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	13									µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	<10									µg/l	A-T-052w
Fluoranthene (leachable) _A	<2									µg/l	A-T-052w
Fluorene (leachable) _A	<2									µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	<2									µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	<2									µg/l	A-T-052w
Hexachlorocyclopentadiene (leachable) _A	<2									µg/l	A-T-052w
Hexachloroethane (leachable) _A	<2									µg/l	A-T-052w
Indeno(1,2,3-cd)pyrene (leachable) _A	<2									µg/l	A-T-052w
Isophorone (leachable) _A	<2									µg/l	A-T-052w
Naphthalene (leachable) _A	<2									µg/l	A-T-052w
Nitrobenzene (leachable) _A	<2									µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	<2									µg/l	A-T-052w
Pentachlorophenol (leachable) _A	<2									µg/l	A-T-052w
Perylene (leachable) _A	<2									µg/l	A-T-052w
Phenanthrene (leachable) _A	<2									µg/l	A-T-052w
Phenol (leachable) _A	<2									µg/l	A-T-052w
Pyrene (leachable) _A	<2									µg/l	A-T-052w

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9									Units	Method ref
Client Sample No	7										
Client Sample ID	WS7										
Depth to Top	1.0										
Depth To Bottom	1.10										
Date Sampled	06-Dec-17										
Sample Type	Soil - ES										
Sample Matrix Code	1										
SVOC											
Hexachlorobenzene _A	<100									µg/kg	A-T-052s
Diethyl phthalate _A	<100									µg/kg	A-T-052s
Dimethyl phthalate _A	<100									µg/kg	A-T-052s
Dibenzofuran _A	<100									µg/kg	A-T-052s
Carbazole _A	<100									µg/kg	A-T-052s
Butylbenzyl phthalate _A	<100									µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<500									µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	<100									µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	<100									µg/kg	A-T-052s
4-Nitrophenol _A	<100									µg/kg	A-T-052s
4-Methylphenol _A	<100									µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	<100									µg/kg	A-T-052s
2-Nitrophenol _A	<100									µg/kg	A-T-052s
2-Methylphenol _A	<100									µg/kg	A-T-052s
2-Chlorophenol _A	<100									µg/kg	A-T-052s
2,6-Dinitrotoluene _A	<100									µg/kg	A-T-052s
2,4-Dinitrotoluene _A	<100									µg/kg	A-T-052s
2,4-Dimethylphenol _A	<100									µg/kg	A-T-052s
2,4-Dichlorophenol _A	<100									µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	<100									µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	<100									µg/kg	A-T-052s
2-Chloronaphthalene _A	<100									µg/kg	A-T-052s
2-Methylnaphthalene _A	<100									µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100									µg/kg	A-T-052s
Phenol _A	<100									µg/kg	A-T-052s
Pentachlorophenol _A	<100									µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	<100									µg/kg	A-T-052s
n-Dioctylphthalate _A	<500									µg/kg	A-T-052s
n-Dibutylphthalate _A	<100									µg/kg	A-T-052s
Nitrobenzene _A	<100									µg/kg	A-T-052s
Isophorone _A	<100									µg/kg	A-T-052s
Hexachloroethane _A	<100									µg/kg	A-T-052s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9								Units	Method ref
Client Sample No	7									
Client Sample ID	WS7									
Depth to Top	1.0									
Depth To Bottom	1.10									
Date Sampled	06-Dec-17									
Sample Type	Soil - ES									
Sample Matrix Code	1									
Hexachlorocyclopentadiene _A	<100								µg/kg	A-T-052s
Perylene _A	<100								µg/kg	A-T-052s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9									Units	Method ref
Client Sample No	7										
Client Sample ID	WS7										
Depth to Top	1.0										
Depth To Bottom	1.10										
Date Sampled	06-Dec-17										
Sample Type	Soil - ES										
Sample Matrix Code	1										
VOC											
Dichlorodifluoromethane _A [#]	<1									µg/kg	A-T-006s
Chloromethane _A [#]	<10									µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1									µg/kg	A-T-006s
Bromomethane _A [#]	<1									µg/kg	A-T-006s
Chloroethane _A [#]	<1									µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1									µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1									µg/kg	A-T-006s
Carbon Disulphide _A [#]	<1									µg/kg	A-T-006s
Dichloromethane _A	<10									µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1									µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1									µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1									µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1									µg/kg	A-T-006s
Bromochloromethane _A [#]	<5									µg/kg	A-T-006s
Chloroform _A [#]	<1									µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1									µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1									µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1									µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2									µg/kg	A-T-006s
Benzene _A [#]	<1									µg/kg	A-T-006s
Trichloroethene _A [#]	<1									µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1									µg/kg	A-T-006s
Dibromomethane _A [#]	<1									µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10									µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1									µg/kg	A-T-006s
Toluene _A [#]	<1									µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1									µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1									µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1									µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1									µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3									µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1									µg/kg	A-T-006s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9									Units	Method ref
Client Sample No	7										
Client Sample ID	WS7										
Depth to Top	1.0										
Depth To Bottom	1.10										
Date Sampled	06-Dec-17										
Sample Type	Soil - ES										
Sample Matrix Code	1										
Chlorobenzene _A [#]	<1									µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane _A	<1									µg/kg	A-T-006s
Ethylbenzene _A [#]	<1									µg/kg	A-T-006s
m & p Xylene _A [#]	<1									µg/kg	A-T-006s
o-Xylene _A [#]	<1									µg/kg	A-T-006s
Styrene _A [#]	<1									µg/kg	A-T-006s
Bromoform _A [#]	<1									µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1									µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1									µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1									µg/kg	A-T-006s
Bromobenzene _A [#]	<1									µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1									µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1									µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1									µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1									µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2									µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1									µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1									µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1									µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1									µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1									µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1									µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1									µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2									µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3									µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1									µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3									µg/kg	A-T-006s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9									Units	Method ref
Client Sample No	7										
Client Sample ID	WS7										
Depth to Top	1.0										
Depth To Bottom	1.10										
Date Sampled	06-Dec-17										
Sample Type	Soil - ES										
Sample Matrix Code	1										
TPH UKCWG											
Ali >C5-C6 _A [#]	<0.01									mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01									mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01									mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1									mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1									mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1									mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1									mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1									mg/kg	A-T-023s
Total Aliphatics _A	<0.1									mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01									mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01									mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01									mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01									mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1									mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1									mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1									mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1									mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1									mg/kg	A-T-023s
Total Aromatics _A	<0.1									mg/kg	A-T-023s
TPH (Ali & Aro) _A	<0.1									mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01									mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01									mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01									mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01									mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01									mg/kg	A-T-022s
MTBE _A [#]	<0.01									mg/kg	A-T-022s

Envirolab Job Number: 17/08502

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	17/08502/9									Units	Method ref
Client Sample No	7										
Client Sample ID	WS7										
Depth to Top	1.0										
Depth To Bottom	1.10										
Date Sampled	06-Dec-17										
Sample Type	Soil - ES										
Sample Matrix Code	1										
TPH UKCWG (leachable)											
Ali >C5-C6 (leachable) _A	1								µg/l	A-T-022w	
Ali >C6-C8 (leachable) _A	1								µg/l	A-T-022w	
Ali >C8-C10 (leachable) _A	<1								µg/l	A-T-022w	
Ali >C10-C12 (leachable) _A	<10								µg/l	A-T-023w	
Ali >C12-C16 (leachable) _A	<10								µg/l	A-T-023w	
Ali >C16-C21 (leachable) _A	<10								µg/l	A-T-023w	
Ali >C21-C35 (leachable) _A	<10								µg/l	A-T-023w	
Ali >C35-C44 (leachable) _A	<10								µg/l	A-T-023w	
Aro >C5-C7 (leachable) _A	<1								µg/l	A-T-022w	
Total Aliphatics (leachable) _A	<10								µg/l	A-T-023w	
Aro >C7-C8 (leachable) _A	<1								µg/l	A-T-022w	
Aro >C8-C9 (leachable) _A	<1								µg/l	A-T-022w	
Aro >C9-C10 (leachable) _A	<1								µg/l	A-T-022w	
Aro >C10-C12 (leachable) _A	<10								µg/l	A-T-023w	
Aro >C12-C16 (leachable) _A	<10								µg/l	A-T-023w	
Aro >C16-C21 (leachable) _A	<10								µg/l	A-T-023w	
Aro >C21-C35 (leachable) _A	<10								µg/l	A-T-023w	
Aro >C35-C44 (leachable) _A	<10								µg/l	A-T-023w	
Total Aromatics (leachable) _A	<10								µg/l	A-T-023w	
TPH (Ali & Aro) (leachable) _A	<10								µg/l	A-T-023w	
BTEX - Benzene (leachable) _A	<1								µg/l	A-T-022w	
BTEX - Toluene (leachable) _A	<1								µg/l	A-T-022w	
BTEX - Ethyl Benzene (leachable) _A	<1								µg/l	A-T-022w	
BTEX - o Xylene (leachable) _A	<1								µg/l	A-T-022w	
BTEX - m & p Xylene (leachable) _A	<1								µg/l	A-T-022w	
MTBE (leachable) _A	<1								µg/l	A-T-022w	

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

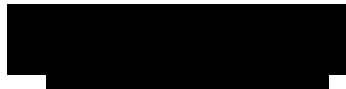
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/01112
Issue Number: 1
Date: 22 February, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 581299
Date Samples Received: 14/02/18
Date Instructions Received: 14/02/18
Date Analysis Completed: 22/02/18

Prepared by:



Gill Walker
Laboratory Manager

Approved by:



Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/01112

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01112/1	18/01112/2	18/01112/3	18/01112/4	18/01112/5	18/01112/6	18/01112/7	18/01112/8	Units	Method ref
Client Sample No	7	9	4	5	8	10	10	12		
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7		
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50		
Depth To Bottom										
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	3	6	5A	4A	5	6	6E	6		
% Stones >10mm _A	<0.1	<0.1	2.2	10.6	<0.1	<0.1	<0.1	<0.1		
pH _D	-	-	7.30	7.99	-	-	-	-	pH	A-T-031s
pH BRE _D	-	-	-	-	7.21	-	6.43	5.94	pH	A-T-031s
Ammoniacal nitrogen _D	-	-	<0.2	12.2	-	-	-	-	mg/kg	A-T-033s
Ammonium NH4 BRE (water sol 2:1) _D	-	-	-	-	71.5	-	80.1	86.2	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	-	-	-	-	290	-	502	398	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	-	-	-	-	<0.4	-	<0.4	<0.4	mg/l	A-T-026s
Sulphate (water sol 2:1) _D ^{M#}	-	-	<0.05	0.06	-	-	-	-	g/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	-	<10	-	1790	510	mg/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	-	-	<200	360	-	-	-	-	mg/kg	A-T-028s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	-	0.09	-	1.21	0.81	% w/w	A-T-028s
Sulphur BRE (total) _D	-	-	-	-	0.18	-	3.71	2.03	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	-	-	-	28	-	395	157	mg/l	A-T-SOLMETS
Cyanide (total) _A ^{M#}	-	-	<1	<1	-	-	-	-	mg/kg	A-T-042sTCN
Phenols - Total by HPLC _A	-	-	<0.2	<0.2	-	-	-	-	mg/kg	A-T-050s
Sulphide _A	-	-	<5	<5	-	-	-	-	mg/kg	A-T-S2-s
Sulphur (elemental) _D ^{M#}	-	-	<5	21	-	-	-	-	mg/kg	A-T-029s
Organic matter _D ^{M#}	3.7	1.9	<0.1	0.7	6.7	20.1	-	-	% w/w	A-T-032 OM
Arsenic _D ^{M#}	-	-	4	5	-	-	-	-	mg/kg	A-T-024s
Boron (water soluble) _D ^{M#}	-	-	<1.0	1.4	-	-	-	-	mg/kg	A-T-027s
Cadmium _D ^{M#}	-	-	<0.5	<0.5	-	-	-	-	mg/kg	A-T-024s
Copper _D ^{M#}	-	-	7	13	-	-	-	-	mg/kg	A-T-024s
Chromium _D ^{M#}	-	-	9	9	-	-	-	-	mg/kg	A-T-024s
Chromium (hexavalent) _D	-	-	<1	<1	-	-	-	-	mg/kg	A-T-040s
Lead _D ^{M#}	-	-	8	111	-	-	-	-	mg/kg	A-T-024s
Mercury _D	-	-	<0.17	0.20	-	-	-	-	mg/kg	A-T-024s
Nickel _D ^{M#}	-	-	12	8	-	-	-	-	mg/kg	A-T-024s
Selenium _D ^{M#}	-	-	<1	<1	-	-	-	-	mg/kg	A-T-024s
Zinc _D ^{M#}	-	-	28	111	-	-	-	-	mg/kg	A-T-024s

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01112/1	18/01112/2	18/01112/3	18/01112/4	18/01112/5	18/01112/6	18/01112/7	18/01112/8	Units	Method ref		
Client Sample No	7	9	4	5	8	10	10	12				
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7				
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50				
Depth To Bottom												
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	3	6	5A	4A	5	6	6E	6				
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	-	-	NAD	NAD	-	-	-	-		A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	-	-	N/A	N/A	-	-	-	-				

Envirolab Job Number: 18/01112

Client Project Name: Gt Yarmouth 3rd River Crossing

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Lab Sample ID	18/01112/1	18/01112/2	18/01112/3	18/01112/4	18/01112/5	18/01112/6	18/01112/7	18/01112/8	Units	Method ref
Client Sample No	7	9	4	5	8	10	10	12		
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7		
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50		
Depth To Bottom										
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	3	6	5A	4A	5	6	6E	6		
PAH 16										
Acenaphthene _A ^{M#}	-	-	<0.01	0.06	-	-	-	-	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	-	-	<0.01	0.03	-	-	-	-	mg/kg	A-T-019s
Anthracene _A ^{M#}	-	-	<0.02	0.13	-	-	-	-	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	-	<0.04	0.43	-	-	-	-	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	-	<0.04	0.42	-	-	-	-	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	-	<0.05	0.53	-	-	-	-	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	-	<0.05	0.22	-	-	-	-	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	-	<0.07	0.24	-	-	-	-	mg/kg	A-T-019s
Chrysene _A ^{M#}	-	-	<0.06	0.48	-	-	-	-	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	-	<0.04	0.05	-	-	-	-	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	-	-	<0.08	1.05	-	-	-	-	mg/kg	A-T-019s
Fluorene _A ^{M#}	-	-	<0.01	0.04	-	-	-	-	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	-	<0.03	0.26	-	-	-	-	mg/kg	A-T-019s
Naphthalene _A ^{M#}	-	-	<0.03	<0.03	-	-	-	-	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	-	-	<0.03	0.41	-	-	-	-	mg/kg	A-T-019s
Pyrene _A ^{M#}	-	-	<0.07	0.90	-	-	-	-	mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	-	-	<0.08	5.27	-	-	-	-	mg/kg	A-T-019s

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01112/1	18/01112/2	18/01112/3	18/01112/4	18/01112/5	18/01112/6	18/01112/7	18/01112/8	Units	Method ref
Client Sample No	7	9	4	5	8	10	10	12		
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7		
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50		
Depth To Bottom										
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	3	6	5A	4A	5	6	6E	6		
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	-	<0.002	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	-	<0.002	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	-	<0.004	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	-	-	<0.007	<0.007	-	-	-	-	mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	-	<0.006	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	-	<0.004	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	-	<0.004	-	-	-	-	-	mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	-	<0.007	-	-	-	-	-	mg/kg	A-T-004s

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Client Project Ref: PZ1522D1

Lab Sample ID	18/01112/1	18/01112/2	18/01112/3	18/01112/4	18/01112/5	18/01112/6	18/01112/7	18/01112/8	Units	Method ref
Client Sample No	7	9	4	5	8	10	10	12		
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7		
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50		
Depth To Bottom										
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	3	6	5A	4A	5	6	6E	6		
Speciated PCB-WHO12										
PCB BZ 81 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 105 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 114 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 123 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 126 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 156 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 157 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 167 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 169 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 189 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
PCB BZ 77 _A	-	-	-	<0.005	-	-	-	-	mg/kg	A-T-004s
Total Speciated PCB-WHO12 _A	-	-	-	<0.007	-	-	-	-	mg/kg	A-T-004s

Envirolab Job Number: 18/01112

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Client Project Ref: PZ1522D1

Lab Sample ID	18/01112/1	18/01112/2	18/01112/3	18/01112/4	18/01112/5	18/01112/6	18/01112/7	18/01112/8	Units	Method ref
Client Sample No	7	9	4	5	8	10	10	12		
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7		
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50		
Depth To Bottom										
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	3	6	5A	4A	5	6	6E	6		
SVOC										
Hexachlorobenzene _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Diethyl phthalate _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Dimethyl phthalate _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Dibenzofuran _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Carbazole _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Butylbenzyl phthalate _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	-	-	<500	<500	-	-	-	-	µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
4-Nitrophenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
4-Methylphenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2-Nitrophenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2-Methylphenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2-Chlorophenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2,6-Dinitrotoluene _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2,4-Dinitrotoluene _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2,4-Dimethylphenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2,4-Dichlorophenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2-Chloronaphthalene _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
2-Methylnaphthalene _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Phenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Pentachlorophenol _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
n-Diethylphthalate _A	-	-	<500	<500	-	-	-	-	µg/kg	A-T-052s
n-Dibutylphthalate _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Nitrobenzene _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Isophorone _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s
Hexachloroethane _A	-	-	<100	<100	-	-	-	-	µg/kg	A-T-052s

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01112/1	18/01112/2	18/01112/3	18/01112/4	18/01112/5	18/01112/6	18/01112/7	18/01112/8	Units	Method ref
Client Sample No	7	9	4	5	8	10	10	12		
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7		
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50		
Depth To Bottom										
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	3	6	5A	4A	5	6	6E	6		
Hexachlorocyclopentadiene _A	-	-	<100	<100	-	-	-	-		
Perylene _A	-	-	<100	119	-	-	-	-	µg/kg	A-T-052s

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Client Sample No	7	9	4	5	8	10	10	12		
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7		
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50		
Depth To Bottom										
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	3	6	5A	4A	5	6	6E	6		
VOC										
Dichlorodifluoromethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Chloromethane _A [#]	-	-	<10	<10	-	-	-	-	µg/kg	A-T-006s
Vinyl Chloride _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromomethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Chloroethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Carbon Disulphide _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Dichloromethane _A	-	-	<5	<5	-	-	-	-	µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromochloromethane _A [#]	-	-	<5	<5	-	-	-	-	µg/kg	A-T-006s
Chloroform _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	-	-	<2	<2	-	-	-	-	µg/kg	A-T-006s
Benzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Trichloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Dibromomethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromodichloromethane _A [#]	-	-	<10	<10	-	-	-	-	µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Toluene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Tetrachloroethene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Dibromochloromethane _A [#]	-	-	<3	<3	-	-	-	-	µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01112/1	18/01112/2	18/01112/3	18/01112/4	18/01112/5	18/01112/6	18/01112/7	18/01112/8	Units	Method ref
Client Sample No	7	9	4	5	8	10	10	12		
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7		
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50		
Depth To Bottom										
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	3	6	5A	4A	5	6	6E	6		
Chlorobenzene _A [#]	-	-	<1	<1	-	-	-	-		
1,1,1,2-Tetrachloroethane _A	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Ethylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
m & p Xylene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
o-Xylene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Styrene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromoform _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Isopropylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,1,1,2,2-Tetrachloroethane _A	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
Bromobenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
n-Propylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
2-Chlorotoluene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
4-Chlorotoluene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
tert-Butylbenzene _A [#]	-	-	<2	<2	-	-	-	-	µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
sec-Butylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,3-Dichlorobenzene _A	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
n-Butylbenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	-	-	<2	<2	-	-	-	-	µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	-	-	<3	<3	-	-	-	-	µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	-	-	<1	<1	-	-	-	-	µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	-	-	<3	<3	-	-	-	-	µg/kg	A-T-006s

Envirolab Job Number: 18/01112

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01112/1	18/01112/2	18/01112/3	18/01112/4	18/01112/5	18/01112/6	18/01112/7	18/01112/8	Units	Method ref
Client Sample No	7	9	4	5	8	10	10	12		
Client Sample ID	WS3	WS3	WS7	WS7	WS7	WS7	WS7	WS7		
Depth to Top	2.50	4.50	1.50	2.90	3.50	5.60	5.80	7.50		
Depth To Bottom										
Date Sampled	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17	08-Dec-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	3	6	5A	4A	5	6	6E	6		
TPH UKCWG										
Ali >C5-C6 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	-	-	<0.1	<0.1	-	-	-	-	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	-	-	<0.1	0.2	-	-	-	-	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	-	-	<0.1	2.9	-	-	-	-	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	-	-	<0.1	16.6	-	-	-	-	mg/kg	A-T-023s
Ali >C35-C44 _A	-	-	<0.1	0.6	-	-	-	-	mg/kg	A-T-023s
Total Aliphatics _A	-	-	<0.1	20.4	-	-	-	-	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	-	-	<0.1	<0.1	-	-	-	-	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	-	-	<0.1	0.5	-	-	-	-	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	-	-	<0.1	3.6	-	-	-	-	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	-	-	<0.1	14.9	-	-	-	-	mg/kg	A-T-023s
Aro >C35-C44 _A	-	-	<0.1	1.1	-	-	-	-	mg/kg	A-T-023s
Total Aromatics _A	-	-	<0.1	20.1	-	-	-	-	mg/kg	A-T-023s
TPH (Ali & Aro) _A	-	-	<0.1	40.4	-	-	-	-	mg/kg	A-T-023s
BTEX - Benzene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
BTEX - Toluene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s
MTBE _A [#]	-	-	<0.01	<0.01	-	-	-	-	mg/kg	A-T-022s

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

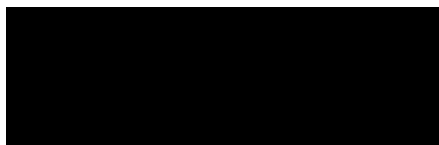
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/01160
Issue Number: 1 **Date:** 28 February, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

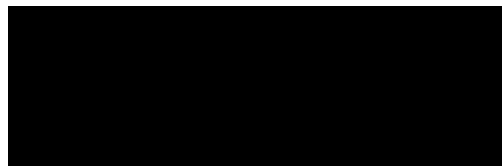
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 581534
Date Samples Received: 15/02/18
Date Instructions Received: 16/02/18
Date Analysis Completed: 27/02/18

Prepared by:



Holly Neary-King
Administrative Assistant

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
% Stones >10mm _A	0.9	35.1	<0.1	<0.1	<0.1	11.4	<0.1	<0.1		
pH _D	7.10	-	7.54	-	-	8.00	7.63	-	pH	A-T-031s
pH BRE _D	-	-	-	6.38	6.69	-	-	6.19	pH	A-T-031s
Ammoniacal nitrogen _D	71.2	-	23.4	-	-	0.8	7.6	-	mg/kg	A-T-033s
Ammonium NH4 BRE (water sol 2:1) _D	-	-	-	62.8	57.1	-	-	84.7	mg/l	A-T-033s
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	-	-	-	182	264	-	-	818	mg/l	A-T-026s
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	-	-	-	4.0	<0.4	-	-	<0.4	mg/l	A-T-026s
Sulphate (water sol 2:1) _D ^{M#}	0.25	-	0.17	-	-	<0.01	0.15	-	g/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	-	-	-	1680	183	-	-	1470	mg/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	1600	-	2800	-	-	<200	760	-	mg/kg	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	-	-	-	1.31	0.36	-	-	1.75	% w/w	A-T-028s
Sulphur BRE (total) _D	-	-	-	3.62	2.82	-	-	6.26	% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	-	-	-	652	68	-	-	1350	mg/l	A-T-SOLMETS
Cyanide (total) _A ^{M#}	<1	-	<1	-	-	2	<1	-	mg/kg	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	-	<0.2	-	-	<0.2	<0.2	-	mg/kg	A-T-050s
Sulphide _A	<5	-	<5	-	-	<5	<5	-	mg/kg	A-T-S2-s
Sulphur (elemental) _D ^{M#}	110	-	<5	-	-	<5	55	-	mg/kg	A-T-029s
Organic matter _D ^{M#}	9.8	0.9	6.1	-	-	0.7	2.1	-	% w/w	A-T-032 OM
Arsenic _D ^{M#}	25	-	<1	-	-	4	3	-	mg/kg	A-T-024s
Boron (water soluble) _D ^{M#}	7.1	-	6.8	-	-	<1.0	3.8	-	mg/kg	A-T-027s
Cadmium _D ^{M#}	1.9	-	1.3	-	-	<0.5	0.7	-	mg/kg	A-T-024s
Copper _D ^{M#}	79	-	13	-	-	14	8	-	mg/kg	A-T-024s
Chromium _D ^{M#}	30	-	34	-	-	6	17	-	mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	-	<1	-	-	<1	<1	-	mg/kg	A-T-040s
Lead _D ^{M#}	261	-	14	-	-	62	22	-	mg/kg	A-T-024s
Mercury _D	0.55	-	0.52	-	-	<0.17	0.27	-	mg/kg	A-T-024s
Nickel _D ^{M#}	31	-	24	-	-	6	14	-	mg/kg	A-T-024s
Selenium _D ^{M#}	<1	-	<1	-	-	<1	<1	-	mg/kg	A-T-024s
Zinc _D ^{M#}	227	-	58	-	-	57	31	-	mg/kg	A-T-024s
Leachate Prep NRA (10:1) _A	*	-	-	-	-	*	-	-		A-T-001
pH (leachable) _A [#]	7.36	-	-	-	-	7.04	-	-	pH	A-T-031w
Ammoniacal nitrogen (leachable) _A	5.08	-	-	-	-	<0.02	-	-	mg/l	A-T-033w
Sulphate (leachable) _A [#]	122	-	-	-	-	<1.00	-	-	mg/l	A-T-026w

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
Cyanide (total) (leachable) _A	<0.005	-	-	-	-	0.021	-	-		
Phenols (total by HPLC) (leachable) _A	<0.01	-	-	-	-	<0.01	-	-	mg/l	A-T-050w
Sulphide (leachable) _A	<0.1	-	-	-	-	<0.1	-	-	mg/l	A-T-S2-w
DOC (leachable) _A [#]	8.8	-	-	-	-	22.5	-	-	mg/l	A-T-032w
Arsenic (leachable) _A [#]	7	-	-	-	-	8	-	-	µg/l	A-T-025w
Boron (leachable) _A [#]	419	-	-	-	-	20	-	-	µg/l	A-T-025w
Cadmium (leachable) _A [#]	<1	-	-	-	-	<1	-	-	µg/l	A-T-025w
Copper (leachable) _A [#]	2	-	-	-	-	9	-	-	µg/l	A-T-025w
Chromium (leachable) _A [#]	<1	-	-	-	-	<1	-	-	µg/l	A-T-025w
Chromium (hexavalent) (leachable) _A	<0.05	-	-	-	-	<0.05	-	-	mg/l	A-T-040w
Lead (leachable) _A [#]	4	-	-	-	-	17	-	-	µg/l	A-T-025w
Mercury (leachable) _A [#]	<0.1	-	-	-	-	<0.1	-	-	µg/l	A-T-025w
Nickel (leachable) _A [#]	6	-	-	-	-	1	-	-	µg/l	A-T-025w
Selenium (leachable) _A [#]	<1	-	-	-	-	<1	-	-	µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	<0.1	-	-	-	-	<0.1	-	-	mg/l	A-T-029w
Zinc (leachable) _A [#]	2	-	-	-	-	10	-	-	µg/l	A-T-025w

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref		
Client Sample No	6	6	7	8	9	6	7	8				
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS				
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50				
Depth To Bottom		2.00										
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E				
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	NAD	-	NAD	-	-	NAD	NAD	-		A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	N/A	-	N/A	-	-	N/A	N/A	-				

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
PAH 16										
Acenaphthene _A ^{M#}	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	-	<0.01	-	-	0.03	<0.01	-	mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	-	<0.02	-	-	0.05	<0.02	-	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.05	-	<0.04	-	-	0.39	<0.04	-	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.07	-	<0.04	-	-	0.58	<0.04	-	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	-	<0.05	-	-	0.50	<0.05	-	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	-	<0.05	-	-	0.37	<0.05	-	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	-	<0.07	-	-	0.27	<0.07	-	mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	-	<0.06	-	-	0.48	<0.06	-	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	-	<0.04	-	-	0.10	<0.04	-	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	0.20	-	<0.08	-	-	0.74	<0.08	-	mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.05	-	<0.03	-	-	0.46	<0.03	-	mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	-	<0.03	-	-	<0.03	<0.03	-	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	0.07	-	<0.03	-	-	0.25	<0.03	-	mg/kg	A-T-019s
Pyrene _A ^{M#}	0.09	-	<0.07	-	-	0.65	<0.07	-	mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	0.55	-	<0.08	-	-	4.87	<0.08	-	mg/kg	A-T-019s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	0.43	-	-	-	-	0.03	-	-	µg/l	A-T-019w
Acenaphthylene (leachable) _A	<0.02	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Anthracene (leachable) _A	0.03	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	<0.02	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	<0.02	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	<0.02	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	<0.02	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	<0.02	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Chrysene (leachable) _A	<0.02	-	-	-	-	0.02	-	-	µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	<0.02	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Fluoranthene (leachable) _A	0.04	-	-	-	-	0.05	-	-	µg/l	A-T-019w
Fluorene (leachable) _A	0.19	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	<0.02	-	-	-	-	<0.02	-	-	µg/l	A-T-019w
Naphthalene (leachable) _A	0.11	-	-	-	-	0.11	-	-	µg/l	A-T-019w
Phenanthrene (leachable) _A	0.13	-	-	-	-	0.06	-	-	µg/l	A-T-019w
Pyrene (leachable) _A	0.03	-	-	-	-	0.04	-	-	µg/l	A-T-019w
PAH (total 16) (leachable) _A	0.96	-	-	-	-	0.31	-	-	µg/l	A-T-019w

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
Speciated PCB-EC7 + PCB Total (WAC only)										
PCB BZ 28 _A ^{M#}	<0.002	-	-	-	-	<0.002	<0.002	-	mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	<0.002	-	-	-	-	<0.002	<0.002	-	mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	<0.004	-	-	-	-	<0.004	<0.004	-	mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	-	<0.007	-	-	<0.007	<0.007	-	mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	<0.006	-	-	-	-	<0.006	<0.006	-	mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	<0.004	-	-	-	-	<0.004	<0.004	-	mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	<0.004	-	-	-	-	<0.004	<0.004	-	mg/kg	A-T-004s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
Speciated PCB-WHO12										
PCB BZ 81 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 105 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 114 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 123 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 126 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 156 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 157 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 167 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 169 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 189 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 77 _A	-	-	<0.005	-	-	-	-	-	mg/kg	A-T-004s
Total Speciated PCB-WHO12 _A	-	-	<0.007	-	-	-	-	-	mg/kg	A-T-004s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2-Chlorophenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2-Methylphenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
2-Nitrophenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
4-Methylphenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
4-Nitrophenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	<4	-	-	-	-	<4	-	-	µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Carbazole (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Dibenzofuran (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Diethyl phthalate (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	<4	-	-	-	-	<4	-	-	µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
Hexachlorocyclopentadiene (leachable) _A	<2	-	-	-	-	<2	-	-		
Hexachloroethane (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Isophorone (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Nitrobenzene (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Pentachlorophenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Perylene (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w
Phenol (leachable) _A	<2	-	-	-	-	<2	-	-	µg/l	A-T-052w

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
SVOC										
Hexachlorobenzene _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Diethyl phthalate _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Dimethyl phthalate _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Dibenzofuran _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Carbazole _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Butylbenzyl phthalate _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<500	-	<500	-	-	<500	<500	-	µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
4-Nitrophenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
4-Methylphenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2-Nitrophenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2-Methylphenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2-Chlorophenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2,6-Dinitrotoluene _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2,4-Dinitrotoluene _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2,4-Dimethylphenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2,4-Dichlorophenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2-Chloronaphthalene _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
2-Methylnaphthalene _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Phenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Pentachlorophenol _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
n-Diethylphthalate _A	<500	-	<500	-	-	<500	<500	-	µg/kg	A-T-052s
n-Dibutylphthalate _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Nitrobenzene _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Isophorone _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s
Hexachloroethane _A	<100	-	<100	-	-	<100	<100	-	µg/kg	A-T-052s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
Hexachlorocyclopentadiene _A	<100	-	<100	-	-	<100	<100	-		
Perylene _A	<100	-	190	-	-	177	<100	-	µg/kg	A-T-052s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
VOC										
Dichlorodifluoromethane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Chloromethane _A [#]	<10	-	<10	-	-	<10	<10	-	µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Bromomethane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Chloroethane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Carbon Disulphide _A [#]	<1	-	5	-	-	<1	<1	-	µg/kg	A-T-006s
Dichloromethane _A	<15	-	<15	-	-	<15	<15	-	µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Bromochloromethane _A [#]	<5	-	<5	-	-	<5	<5	-	µg/kg	A-T-006s
Chloroform _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2	-	<2	-	-	<2	<2	-	µg/kg	A-T-006s
Benzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Trichloroethene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Dibromomethane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10	-	<10	-	-	<10	<10	-	µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Toluene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3	-	<3	-	-	<3	<3	-	µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
Chlorobenzene _A [#]	<1	-	<1	-	-	<1	<1	-		
1,1,1,2-Tetrachloroethane _A	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
m & p Xylene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
o-Xylene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Styrene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Bromoform _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
Bromobenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2	-	<2	-	-	<2	<2	-	µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2	-	<2	-	-	<2	<2	-	µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3	-	<3	-	-	<3	<3	-	µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1	-	<1	-	-	<1	<1	-	µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3	-	<3	-	-	<3	<3	-	µg/kg	A-T-006s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	-	<0.1	-	-	<0.1	<0.1	-	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	-	<0.1	-	-	1.9	<0.1	-	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	2.8	-	<0.1	-	-	12.4	<0.1	-	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	13.6	-	<0.1	-	-	33.8	<0.1	-	mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	-	<0.1	-	-	0.6	<0.1	-	mg/kg	A-T-023s
Total Aliphatics _A	16.5	-	<0.1	-	-	48.7	<0.1	-	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	-	<0.1	-	-	<0.1	<0.1	-	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	-	<0.1	-	-	2.2	0.9	-	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1	-	<0.1	-	-	18.7	3.0	-	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1	-	<0.1	-	-	54.4	14.1	-	mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1	-	<0.1	-	-	1.2	0.4	-	mg/kg	A-T-023s
Total Aromatics _A	<0.1	-	<0.1	-	-	76.5	18.3	-	mg/kg	A-T-023s
TPH (Ali & Aro) _A	16.5	-	<0.1	-	-	125	18.3	-	mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s
MTBE _A [#]	<0.01	-	<0.01	-	-	<0.01	<0.01	-	mg/kg	A-T-022s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/1	18/01160/2	18/01160/3	18/01160/4	18/01160/5	18/01160/6	18/01160/7	18/01160/8	Units	Method ref
Client Sample No	6	6	7	8	9	6	7	8		
Client Sample ID	WS9	WS2	WS9	WS9	WS9	BH4AS	BH4AS	BH4AS		
Depth to Top	1.40	1.55	2.30	3.10	4.70	1.50	2.30	3.50		
Depth To Bottom		2.00								
Date Sampled	04-Feb-17	06-Dec-17	04-Feb-17	04-Feb-17	04-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17		
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Matrix Code	6A	5A	6E	6E	6E	5A	5A	6E		
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	<1	-	-	-	-	2	-	-	µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Total Aliphatics (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
Total Aromatics (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	<10	-	-	-	-	<10	-	-	µg/l	A-T-023w
BTEX - Benzene (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
BTEX - Toluene (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	<1	-	-	-	-	<1	-	-	µg/l	A-T-022w
MTBE (leachable) _A	<1	-	-	-	-	1	-	-	µg/l	A-T-022w

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref
Client Sample No	9	10	6	8	10	1				
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6				
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10				
Depth To Bottom										
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5A	5	6A	6	1	5				
% Stones >10mm _A	15.7	<0.1	18.5	<0.1	<0.1	<0.1		% w/w		
pH _D	7.37	-	7.86	-	7.90	-		pH	A-T-031s	
pH BRE _D	-	7.56	-	6.56	-	8.30		pH	A-T-031s	
Ammoniacal nitrogen _D	5.1	-	21.5	-	0.9	-		mg/kg	A-T-033s	
Ammonium NH4 BRE (water sol 2:1) _D	-	9.51	-	51.4	-	29.2		mg/l	A-T-033s	
Chloride BRE, SO4 equiv. (water sol 2:1) _D ^{M#}	-	59	-	876	-	1050		mg/l	A-T-026s	
Nitrate BRE, SO4 equiv. (water sol 2:1) _D	-	<0.4	-	<0.4	-	<0.4		mg/l	A-T-026s	
Sulphate (water sol 2:1) _D ^{M#}	0.06	-	0.17	-	0.05	-		g/l	A-T-026s	
Sulphate BRE (water sol 2:1) _D ^{M#}	-	118	-	231	-	126		mg/l	A-T-026s	
Sulphate (acid soluble) _D ^{M#}	240	-	770	-	<200	-		mg/kg	A-T-028s	
Sulphate BRE (acid sol) _D ^{M#}	-	0.03	-	0.18	-	0.22		% w/w	A-T-028s	
Sulphur BRE (total) _D	-	0.48	-	0.54	-	1.40		% w/w	A-T-024s	
Magnesium BRE (water sol 2:1) _D	-	14	-	45	-	40		mg/l	A-T-SOLMETs	
Cyanide (total) _A ^{M#}	<1	-	<1	-	<1	-		mg/kg	A-T-042sTCN	
Phenols - Total by HPLC _A	<0.2	-	<0.2	-	<0.2	-		mg/kg	A-T-050s	
Sulphide _A	<5	-	<5	-	<5	-		mg/kg	A-T-S2-s	
Sulphur (elemental) _D ^{M#}	<5	-	20	-	<5	-		mg/kg	A-T-029s	
Organic matter _D ^{M#}	0.5	-	2.4	8.2	<0.1	1.7		% w/w	A-T-032 OM	
Arsenic _D ^{M#}	<1	-	10	-	<1	-		mg/kg	A-T-024s	
Boron (water soluble) _D ^{M#}	<1.0	-	1.4	-	<1.0	-		mg/kg	A-T-027s	
Cadmium _D ^{M#}	<0.5	-	0.7	-	<0.5	-		mg/kg	A-T-024s	
Copper _D ^{M#}	3	-	29	-	1	-		mg/kg	A-T-024s	
Chromium _D ^{M#}	8	-	13	-	2	-		mg/kg	A-T-024s	
Chromium (hexavalent) _D	<1	-	<1	-	<1	-		mg/kg	A-T-040s	
Lead _D ^{M#}	4	-	147	-	2	-		mg/kg	A-T-024s	
Mercury _D	<0.17	-	0.82	-	<0.17	-		mg/kg	A-T-024s	
Nickel _D ^{M#}	9	-	13	-	4	-		mg/kg	A-T-024s	
Selenium _D ^{M#}	<1	-	<1	-	<1	-		mg/kg	A-T-024s	
Zinc _D ^{M#}	14	-	136	-	7	-		mg/kg	A-T-024s	

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref		
Client Sample No	9	10	6	8	10	1						
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6						
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10						
Depth To Bottom												
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil						
Sample Matrix Code	5A	5	6A	6	1	5						
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	NAD	-	NAD	-	NAD	-				A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	N/A	-	N/A	-	N/A	-						

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref
Client Sample No	9	10	6	8	10	1				
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6				
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10				
Depth To Bottom										
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5A	5	6A	6	1	5				
PAH 16										
Acenaphthene _A ^{M#}	<0.01	-	0.03	-	<0.01	-			mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	-	0.05	-	<0.01	-			mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	-	0.14	-	<0.02	-			mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	-	0.62	-	<0.04	-			mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	-	0.83	-	<0.04	-			mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	-	0.78	-	<0.05	-			mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	-	0.54	-	<0.05	-			mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	-	0.38	-	<0.07	-			mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	-	0.74	-	<0.06	-			mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	-	0.13	-	<0.04	-			mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	-	1.44	-	<0.08	-			mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	-	0.03	-	<0.01	-			mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	-	0.67	-	<0.03	-			mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	-	<0.03	-	<0.03	-			mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	-	0.51	-	<0.03	-			mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	-	1.11	-	<0.07	-			mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08	-	7.99	-	<0.08	-			mg/kg	A-T-019s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref
Client Sample No	9	10	6	8	10	1				
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6				
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10				
Depth To Bottom										
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5A	5	6A	6	1	5				
Speciated PCB-EC7 + PCB Total (WAC only)										
PCB BZ 28 _A ^{M#}	-	-	<0.002	-	-	-			mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	-	<0.002	-	-	-			mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	-	<0.004	-	-	-			mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	-	<0.007	-	<0.007	-			mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	-	<0.006	-	-	-			mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	-	<0.004	-	-	-			mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	-	<0.004	-	-	-			mg/kg	A-T-004s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref
Client Sample No	9	10	6	8	10	1				
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6				
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10				
Depth To Bottom										
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5A	5	6A	6	1	5				
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 105 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 114 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 123 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 126 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 156 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 157 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 167 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 169 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 189 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
PCB BZ 77 _A	<0.005	-	-	-	<0.005	-			mg/kg	A-T-004s
Total Speciated PCB-WHO12 _A	<0.007	-	-	-	<0.007	-			mg/kg	A-T-004s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref
Client Sample No	9	10	6	8	10	1				
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6				
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10				
Depth To Bottom										
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5A	5	6A	6	1	5				
SVOC										
Hexachlorobenzene _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Diethyl phthalate _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Dimethyl phthalate _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Dibenzofuran _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Carbazole _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Butylbenzyl phthalate _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<500	-	<500	-	<500	-			µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
4-Nitrophenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
4-Methylphenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2-Nitrophenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2-Methylphenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2-Chlorophenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2,6-Dinitrotoluene _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2,4-Dinitrotoluene _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2,4-Dimethylphenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2,4-Dichlorophenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2-Chloronaphthalene _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
2-Methylnaphthalene _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Phenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Pentachlorophenol _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
n-Diethylphthalate _A	<500	-	<500	-	<500	-			µg/kg	A-T-052s
n-Dibutylphthalate _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Nitrobenzene _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Isophorone _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Hexachloroethane _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref
Client Sample No	9	10	6	8	10	1				
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6				
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10				
Depth To Bottom										
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5A	5	6A	6	1	5				
Hexachlorocyclopentadiene _A	<100	-	<100	-	<100	-			µg/kg	A-T-052s
Perylene _A	3030	-	203	-	<100	-			µg/kg	A-T-052s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref
Client Sample No	9	10	6	8	10	1				
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6				
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10				
Depth To Bottom										
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5A	5	6A	6	1	5				
VOC										
Dichlorodifluoromethane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Chloromethane _A [#]	<10	-	<10	-	<10	-		µg/kg	A-T-006s	
Vinyl Chloride _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Bromomethane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Chloroethane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Trichlorofluoromethane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
1,1-Dichloroethene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Carbon Disulphide _A [#]	<1	-	2	-	<1	-		µg/kg	A-T-006s	
Dichloromethane _A	<15	-	<15	-	<15	-		µg/kg	A-T-006s	
trans 1,2-Dichloroethene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
1,1-Dichloroethane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
cis 1,2-Dichloroethene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
2,2-Dichloropropane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Bromochloromethane _A [#]	<5	-	<5	-	<5	-		µg/kg	A-T-006s	
Chloroform _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
1,1,1-Trichloroethane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
1,1-Dichloropropene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Carbon Tetrachloride _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
1,2-Dichloroethane _A [#]	<2	-	<2	-	<2	-		µg/kg	A-T-006s	
Benzene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Trichloroethene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
1,2-Dichloropropane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Dibromomethane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Bromodichloromethane _A [#]	<10	-	<10	-	<10	-		µg/kg	A-T-006s	
cis 1,3-Dichloropropene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Toluene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
trans 1,3-Dichloropropene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
1,1,2-Trichloroethane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
1,3-Dichloropropane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Tetrachloroethene _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	
Dibromochloromethane _A [#]	<3	-	<3	-	<3	-		µg/kg	A-T-006s	
1,2-Dibromoethane _A [#]	<1	-	<1	-	<1	-		µg/kg	A-T-006s	

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref
Client Sample No	9	10	6	8	10	1				
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6				
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10				
Depth To Bottom										
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5A	5	6A	6	1	5				
Chlorobenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
1,1,1,2-Tetrachloroethane _A	<1	-	<1	-	<1	-			µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
m & p Xylene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
o-Xylene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
Styrene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
Bromoform _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	-	<1	-	<1	-			µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
Bromobenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2	-	<2	-	<2	-			µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1	-	<1	-	<1	-			µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2	-	<2	-	<2	-			µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3	-	<3	-	<3	-			µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1	-	<1	-	<1	-			µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3	-	<3	-	<3	-			µg/kg	A-T-006s

Envirolab Job Number: 18/01160

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01160/9	18/01160/10	18/01160/11	18/01160/12	18/01160/13	18/01160/14			Units	Method ref
Client Sample No	9	10	6	8	10	1				
Client Sample ID	BH4AS	BH4AS	BH4B	BH4B	BH4B	WS6				
Depth to Top	4.40	5.60	1.90	2.50	4.50	3.10				
Depth To Bottom										
Date Sampled	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	13-Feb-17	05-Dec-17				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5A	5	6A	6	1	5				
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	-	<0.1	-	0.2	-			mg/kg	A-T-023s
Ali >C12-C16 _A [#]	0.7	-	<0.1	-	1.1	-			mg/kg	A-T-023s
Ali >C16-C21 _A [#]	5.2	-	2.5	-	8.0	-			mg/kg	A-T-023s
Ali >C21-C35 _A [#]	22.1	-	14.0	-	23.8	-			mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	-	<0.1	-	<0.1	-			mg/kg	A-T-023s
Total Aliphatics _A	27.9	-	16.4	-	33.2	-			mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	-	<0.1	-	<0.1	-			mg/kg	A-T-023s
Aro >C12-C16 _A [#]	0.5	-	1.1	-	<0.1	-			mg/kg	A-T-023s
Aro >C16-C21 _A [#]	2.7	-	4.0	-	<0.1	-			mg/kg	A-T-023s
Aro >C21-C35 _A [#]	22.9	-	17.1	-	<0.1	-			mg/kg	A-T-023s
Aro >C35-C44 _A	0.6	-	<0.1	-	<0.1	-			mg/kg	A-T-023s
Total Aromatics _A	26.7	-	22.2	-	<0.1	-			mg/kg	A-T-023s
TPH (Ali & Aro) _A	54.6	-	38.6	-	33.2	-			mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s
MTBE _A [#]	<0.01	-	<0.01	-	<0.01	-			mg/kg	A-T-022s

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

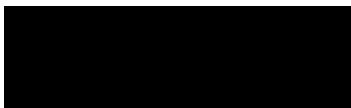
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/01393
Issue Number: 1
Date: 05 March, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

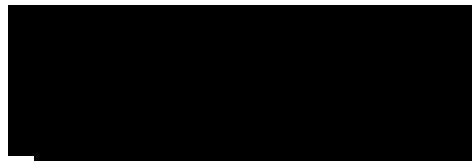
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt. Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 582355
Date Samples Received: 23/02/18
Date Instructions Received: 23/02/18
Date Analysis Completed: 02/03/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/01393/1

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01393/1								Units	Method ref
Client Sample No	10									
Client Sample ID	WS6									
Depth to Top	3.10									
Depth To Bottom										
Date Sampled	05-Dec-18									
Sample Type	Soil									
Sample Matrix Code	6									
% Stones >10mm _A	<0.1								% w/w	A-T-044
pH BRE _D	8.32								pH	A-T-031s
Ammonium NH ₄ BRE (water sol 2:1) _D	30.7								mg/l	A-T-033s
Chloride BRE, SO ₄ equiv. (water sol 2:1) _D ^{M#}	1290								mg/l	A-T-026s
Nitrate BRE, SO ₄ equiv. (water sol 2:1) _D	0.6								mg/l	A-T-026s
Sulphate BRE (water sol 2:1) _D ^{M#}	848								mg/l	A-T-026s
Sulphate BRE (acid sol) _D ^{M#}	0.30								% w/w	A-T-028s
Sulphur BRE (total) _D	0.94								% w/w	A-T-024s
Magnesium BRE (water sol 2:1) _D	150								mg/l	A-T-SOLMETs
Organic matter _D ^{M#}	2.0								% w/w	A-T-032 OM

REPORT NOTES

General:

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All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/01837
Issue Number: 1 **Date:** 21 March, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

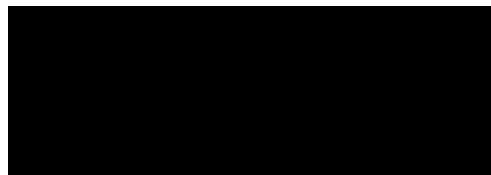
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 584433
Date Samples Received: 27/02/18
Date Instructions Received: 13/03/18
Date Analysis Completed: 21/03/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/01837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01837/1	18/01837/2							Units	Method ref
Client Sample No										
Client Sample ID	WS TP1B	WS TP01								
Depth to Top	1.75	1.85								
Depth To Bottom	1.90	2.90								
Date Sampled	14-Dec-17	07-Dec-17								
Sample Type	Soil	Soil								
Sample Matrix Code	6A	6E								
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	NAD								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	-	N/A								

Envirolab Job Number: 18/01837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01837/1	18/01837/2							Units	Method ref
Client Sample No										
Client Sample ID	WS TP1B	WS TP01								
Depth to Top	1.75	1.85								
Depth To Bottom	1.90	2.90								
Date Sampled	14-Dec-17	07-Dec-17								
Sample Type	Soil	Soil								
Sample Matrix Code	6A	6E								
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	<0.002							mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	<0.002							mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	<0.004							mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	-	<0.007							mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	<0.006							mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	<0.004							mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	<0.004							mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	<0.007							mg/kg	A-T-004s

Envirolab Job Number: 18/01837

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/01837/1	18/01837/2							Units	Method ref
Client Sample No										
Client Sample ID	WS TP1B	WS TP01								
Depth to Top	1.75	1.85								
Depth To Bottom	1.90	2.90								
Date Sampled	14-Dec-17	07-Dec-17								
Sample Type	Soil	Soil								
Sample Matrix Code	6A	6E								
Hexachlorocyclopentadiene _A	-	<100						µg/kg	A-T-052s	
Perylene _A	-	<100						µg/kg	A-T-052s	

REPORT NOTES

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A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 17/08502
Issue Number: 1
Date: 21-Dec-17

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 574728

Date Samples Received: 6-Dec-17
Date Instructions Received: 14-Dec-17
Date Analysis Completed: 21-Dec-17

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:

Holly Neary-King
Administrative Assistant

Georgia King
Admins & Client Services Supervisor



Sample Details					Landfill Waste Acceptance Criteria Limits								
Lab Sample ID	Method	ISO17025	MCERTS	17/08502/3				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				8									
Client Sample ID				BH4A									
Depth to Top				2.1									
Depth to Bottom				2.20									
Date Sampled				04/12/2017									
Sample Type				Soil - ES									
Sample Matrix Code				6E									
Solid Waste Analysis													
pH (pH Units) _D	A-T-031	Y	Y	7.51				-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.28				-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.03				-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	81.9				-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	31.3				3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-			
Eluate Analysis					2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)				
					mg/l		mg/kg						
Arsenic	A-T-025	Y	N	0.002	0.001	0.022	0.020	0.5	2	25			
Barium	A-T-025	Y	N	0.029	0.019	0.363	0.430	20	100	300			
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5			
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70			
Copper	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	2	50	100			
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2			
Molybdenum	A-T-025	Y	N	0.005	0.005	0.057	0.110	0.5	10	30			
Nickel	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.4	10	40			
Lead	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	50			
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5			
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7			
Zinc	A-T-025	Y	N	0.012	0.002	0.145	0.070	4	50	200			
Chloride	A-T-026	Y	N	40	17	497	436	800	15000	25000			
Fluoride	A-T-026	Y	N	0.2	0.3	3.0	5.0	10	150	500			
Sulphate as SO ₄	A-T-026	Y	N	539	305	6711	7095	1000	20000	50000			
Total Dissolved Solids	A-T-035	N	N	662	416	8249	9414	4000	60000	100000			
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-			
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000			
Leach Test Information													
pH (pH Units)	A-T-031	N	Y	7.5	7.5								
Conductivity (µS/cm)	A-T-037	N	N	1323	832								
Mass Sample (kg)				0.200									
Dry Matter (%)	A-T-044	N	N	20.4									
Stage 1													
Volume Leachant, L ₂ (l)	A-T-046			0.350									
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150									
Stage 2													
Volume Leachant, L ₈ (l)	A-T-046			0.330									
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation													

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits						
Lab Sample ID	Method	ISO17025	MCERTS	17/08502/5							
Client Sample Number				6		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample ID				BH5							
Depth to Top				1.2							
Depth to Bottom				1.30							
Date Sampled				01/12/2017							
Sample Type				Soil - ES							
Sample Matrix Code				6A							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	8.36				-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.66				-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.15				-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	3.8				-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	3.76				3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	2.66				100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	320				500	-	-	
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-	
Eluate Analysis				2:1		8:1		2:1		Cumulative 10:1	
				mg/l		mg/kg		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
Arsenic	A-T-025	Y	N	0.003	0.003	0.007	0.030	0.5	2	25	
Barium	A-T-025	Y	N	0.038	0.023	0.101	0.260	20	100	300	
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5	
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70	
Copper	A-T-025	Y	N	0.013	0.009	0.033	0.100	2	50	100	
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2	
Molybdenum	A-T-025	Y	N	0.026	0.008	0.070	0.100	0.5	10	30	
Nickel	A-T-025	Y	N	0.005	0.003	0.014	0.030	0.4	10	40	
Lead	A-T-025	Y	N	0.007	0.014	0.020	0.150	0.5	10	50	
Antimony	A-T-025	Y	N	0.005	0.002	0.013	0.020	0.06	0.7	5	
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7	
Zinc	A-T-025	Y	N	0.008	0.020	0.020	0.200	4	50	200	
Chloride	A-T-026	Y	N	19	2	49	37	800	15000	25000	
Fluoride	A-T-026	Y	N	1.6	0.7	4.3	8.0	10	150	500	
Sulphate as SO ₄	A-T-026	Y	N	39	8	103	111	1000	20000	50000	
Total Dissolved Solids	A-T-035	N	N	176	56	466	715	4000	60000	100000	
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-	
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000	
Leach Test Information											
pH (pH Units)	A-T-031	N	Y	7.5	7.6						
Conductivity (µS/cm)	A-T-037	N	N	351	112						
Mass Sample (kg)				0.201							
Dry Matter (%)	A-T-044	N	N	75.2							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.210							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	17/08502/6						
Client Sample Number				1	Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample ID				TP1						
Depth to Top				1						
Depth to Bottom				1.10						
Date Sampled				07/12/2017						
Sample Type				Soil - B						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	8.03				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.09				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.05				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	5.4				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	2.26				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	6.01				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	67				500	-	-
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	Y	N	0.002	0.002	0.004	0.020	0.5	2	25
Barium	A-T-025	Y	N	0.034	0.019	0.081	0.210	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.007	0.006	0.018	0.060	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.007	0.003	0.015	0.040	0.5	10	30
Nickel	A-T-025	Y	N	0.002	0.001	0.004	0.010	0.4	10	40
Lead	A-T-025	Y	N	0.001	0.019	0.003	0.180	0.5	10	50
Antimony	A-T-025	Y	N	0.002	0.001	0.005	0.010	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.005	0.009	0.012	0.090	4	50	200
Chloride	A-T-026	Y	N	4	<1.00	10	<10	800	15000	25000
Fluoride	A-T-026	Y	N	0.7	0.5	1.5	5.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	287	43	683	675	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	363	89	863	1176	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.4	7.5					
Conductivity (µS/cm)	A-T-037	N	N	725	178					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	81.3						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.300						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits						
Lab Sample ID	Method	ISO17025	MCERTS	17/08502/7							
Client Sample Number				2		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample ID				WS3							
Depth to Top				0.3							
Depth to Bottom				0.40							
Date Sampled				06/12/2017							
Sample Type				Soil - ES							
Sample Matrix Code				6AE							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	8.25				-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.35				-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.13				-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	5.6				-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	2.5				3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	1.1				100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-	
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-	
Eluate Analysis				2:1		8:1		2:1		Cumulative 10:1	
				mg/l		mg/kg		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
Arsenic	A-T-025	Y	N	0.006	0.006	0.014	0.070	0.5	2	25	
Barium	A-T-025	Y	N	0.056	0.035	0.138	0.390	20	100	300	
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5	
Chromium	A-T-025	Y	N	0.002	<0.001	0.004	<0.01	0.5	10	70	
Copper	A-T-025	Y	N	0.018	0.012	0.044	0.130	2	50	100	
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2	
Molybdenum	A-T-025	Y	N	0.012	0.005	0.029	0.060	0.5	10	30	
Nickel	A-T-025	Y	N	0.006	0.003	0.015	0.040	0.4	10	40	
Lead	A-T-025	Y	N	0.046	0.048	0.113	0.500	0.5	10	50	
Antimony	A-T-025	Y	N	0.003	0.002	0.007	0.020	0.06	0.7	5	
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7	
Zinc	A-T-025	Y	N	0.768	0.777	1.884	8.120	4	50	200	
Chloride	A-T-026	Y	N	273	42	669	652	800	15000	25000	
Fluoride	A-T-026	Y	N	1.3	0.8	3.2	9.0	10	150	500	
Sulphate as SO ₄	A-T-026	Y	N	51	15	125	190	1000	20000	50000	
Total Dissolved Solids	A-T-035	N	N	589	145	1446	1934	4000	60000	100000	
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-	
Dissolved Organic Carbon	A-T-032	N	N	26.2	<20.0	64	<200	500	800	1000	
Leach Test Information											
pH (pH Units)	A-T-031	N	Y	7.7	8.0						
Conductivity (µS/cm)	A-T-037	N	N	1178	290						
Mass Sample (kg)				0.201							
Dry Matter (%)	A-T-044	N	N	79.4							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.280							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	17/08502/9						
Client Sample Number				7		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill		
Client Sample ID				WS7						
Depth to Top				1						
Depth to Bottom				1.10						
Date Sampled				06/12/2017						
Sample Type				Soil - ES						
Sample Matrix Code				1						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	9.12				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.16				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.04				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	0.8				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.17				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	Y	N	0.013	0.004	0.025	0.050	0.5	2	25
Barium	A-T-025	Y	N	0.068	0.004	0.137	0.090	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	0.002	<0.001	0.003	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.015	0.002	0.030	0.030	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.004	0.001	0.008	0.010	0.5	10	30
Nickel	A-T-025	Y	N	0.003	<0.001	0.006	<0.01	0.4	10	40
Lead	A-T-025	Y	N	0.023	0.002	0.046	0.040	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5
Selenium	A-T-025	Y	N	0.002	<0.001	0.003	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.034	0.003	0.069	0.060	4	50	200
Chloride	A-T-026	Y	N	26	2	53	40	800	15000	25000
Fluoride	A-T-026	Y	N	0.9	0.2	1.7	3.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	19	1	38	29	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	118	31	238	382	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.6	8.4					
Conductivity (µS/cm)	A-T-037	N	N	236	62					
Mass Sample (kg)				0.201						
Dry Matter (%)	A-T-044	N	N	91						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.460						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Final Test Report

Envirolab Job Number: 18/01112
Issue Number: 1 Date: 22-Feb-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 581299

Date Samples Received: 14-Feb-18
Date Instructions Received: 14-Feb-18
Date Analysis Completed: 22-Feb-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:

Gill Walker
Laboratory Manager

Iain Haslock
Analytical Consultant



Sample Details						Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/01112/3		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				4							
Client Sample ID				WS7							
Depth to Top				1.5							
Depth to Bottom											
Date Sampled				08/12/2017							
Sample Type				Soil							
Sample Matrix Code				5A							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	7.30		-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	<0.01		-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	<0.01		-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	0.8		-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	<0.03		3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08		100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10		500	-	-			
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007		1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01		6	-	-			
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
				mg/l		mg/kg					
Arsenic	A-T-025	Y	N	0.006	0.002	0.012	0.020	0.5	2	25	
Barium	A-T-025	Y	N	0.182	0.034	0.382	0.460	20	100	300	
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5	
Chromium	A-T-025	Y	N	0.006	<0.001	0.012	0.010	0.5	10	70	
Copper	A-T-025	Y	N	0.015	0.003	0.031	0.040	2	50	100	
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2	
Molybdenum	A-T-025	Y	N	0.004	0.002	0.008	0.020	0.5	10	30	
Nickel	A-T-025	Y	N	0.007	0.001	0.015	0.020	0.4	10	40	
Lead	A-T-025	Y	N	0.019	0.004	0.040	0.060	0.5	10	50	
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5	
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7	
Zinc	A-T-025	Y	N	0.052	0.020	0.108	0.230	4	50	200	
Chloride	A-T-026	Y	N	36	4	76	66	800	15000	25000	
Fluoride	A-T-026	Y	N	0.7	0.4	1.4	4.0	10	150	500	
Sulphate as SO ₄	A-T-026	Y	N	19	3	40	48	1000	20000	50000	
Total Dissolved Solids	A-T-035	N	N	175	46	369	574	4000	60000	100000	
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-	
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000	
Leach Test Information											
pH (pH Units)	A-T-031	N	Y	7.8	8.0						
Conductivity (µS/cm)	A-T-037	N	N	350	93						
Mass Sample (kg)				0.200							
Dry Matter (%)	A-T-044	N	N	88.6							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.420							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

Final Test Report

Envirolab Job Number: 18/01160
Issue Number: 1 Date: 26-Feb-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 581534

Date Samples Received: 15-Feb-18
Date Instructions Received: 16-Feb-18
Date Analysis Completed: 26-Feb-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

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Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:

Melanie Marshall
Laboratory Coordinator

Richard Wong
Client Manager



Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/01160/1						
Client Sample Number				6						
Client Sample ID				WS9						
Depth to Top				1.4						
Depth to Bottom										
Date Sampled				04/02/2017						
Sample Type				Soil						
Sample Matrix Code				6A						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	7.10				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.09				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.04				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	11.9				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	5.7				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	0.55				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	Y	N	0.013	0.010	0.037	0.110	0.5	2	25
Barium	A-T-025	Y	N	0.059	0.045	0.162	0.500	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	0.002	0.001	0.004	0.010	0.5	10	70
Copper	A-T-025	Y	N	0.011	0.017	0.030	0.170	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.073	0.040	0.199	0.460	0.5	10	30
Nickel	A-T-025	Y	N	0.011	0.009	0.031	0.100	0.4	10	40
Lead	A-T-025	Y	N	0.025	0.040	0.068	0.410	0.5	10	50
Antimony	A-T-025	Y	N	0.005	0.004	0.013	0.040	0.06	0.7	5
Selenium	A-T-025	Y	N	0.001	<0.001	0.003	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.024	0.037	0.067	0.380	4	50	200
Chloride	A-T-026	Y	N	100	16	274	259	800	15000	25000
Fluoride	A-T-026	Y	N	0.7	0.5	1.8	6.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	141	75	387	872	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	486	219	1334	2626	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	40.6	22.30	111	258	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.3	7.5					
Conductivity (µS/cm)	A-T-037	N	N	972	438					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	73.4						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.170						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/01160/6						
Client Sample Number				6		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill		
Client Sample ID				BH4AS						
Depth to Top				1.5						
Depth to Bottom										
Date Sampled				13/02/2017						
Sample Type				Soil						
Sample Matrix Code				5A						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	8.00				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.13				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.04				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	1.3				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.43				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	4.96				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	12				500	-	-
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	Y	N	0.016	0.007	0.034	0.080	0.5	2	25
Barium	A-T-025	Y	N	0.139	0.033	0.285	0.420	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	0.003	<0.001	0.006	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.085	0.019	0.174	0.240	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.004	<0.001	0.008	0.010	0.5	10	30
Nickel	A-T-025	Y	N	0.009	0.002	0.019	0.020	0.4	10	40
Lead	A-T-025	Y	N	0.341	0.072	0.698	0.950	0.5	10	50
Antimony	A-T-025	Y	N	0.003	<0.001	0.007	<0.01	0.06	0.7	5
Selenium	A-T-025	Y	N	0.002	<0.001	0.003	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.439	0.103	0.900	1.310	4	50	200
Chloride	A-T-026	Y	N	39	4	80	66	800	15000	25000
Fluoride	A-T-026	Y	N	0.7	0.2	1.3	2.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	9	1	19	18	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	161	33	330	438	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.6	8.2					
Conductivity (µS/cm)	A-T-037	N	N	322	65					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	90.2						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.440						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/01160/7						
Client Sample Number				7		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill		
Client Sample ID				BH4AS						
Depth to Top				2.3						
Depth to Bottom										
Date Sampled				13/02/2017						
Sample Type				Soil						
Sample Matrix Code				5A						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	7.63				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.09				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.03				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	3.7				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	1.22				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	Y	N	0.005	0.004	0.014	0.040	0.5	2	25
Barium	A-T-025	Y	N	0.042	0.020	0.109	0.230	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.002	0.007	0.007	0.070	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.015	0.003	0.039	0.040	0.5	10	30
Nickel	A-T-025	Y	N	0.003	0.003	0.009	0.030	0.4	10	40
Lead	A-T-025	Y	N	0.004	0.013	0.011	0.130	0.5	10	50
Antimony	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.007	0.016	0.018	0.160	4	50	200
Chloride	A-T-026	Y	N	117	7	303	182	800	15000	25000
Fluoride	A-T-026	Y	N	1.1	0.5	2.9	6.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	77	13	199	197	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	426	73	1103	1119	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.5	7.5					
Conductivity (µS/cm)	A-T-037	N	N	851	146					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	76.6						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.230						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Landfill WAC analysis must not be used for hazardous waste classification purposes.
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Sample Details							Landfill Waste Acceptance Criteria Limits			
Lab Sample ID	Method	ISO17025	MCERTS	18/01160/11						
Client Sample Number				6			Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill	
Client Sample ID				BH4B						
Depth to Top				1.9						
Depth to Bottom										
Date Sampled				13/02/2017						
Sample Type				Soil						
Sample Matrix Code				6A						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	7.86			-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.24			-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.03			-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	3.3			-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	1.4			3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	8.11			100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	16			500	-	-	
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007			1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01			6	-	-	
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	Y	N	0.010	0.010	0.024	0.100	0.5	2	25
Barium	A-T-025	Y	N	0.043	0.034	0.099	0.360	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	0.002	<0.001	0.004	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.014	0.014	0.032	0.140	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.068	0.039	0.158	0.430	0.5	10	30
Nickel	A-T-025	Y	N	0.008	0.007	0.019	0.070	0.4	10	40
Lead	A-T-025	Y	N	0.032	0.033	0.074	0.340	0.5	10	50
Antimony	A-T-025	Y	N	0.004	0.003	0.010	0.030	0.06	0.7	5
Selenium	A-T-025	Y	N	0.001	<0.001	0.003	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.025	0.030	0.058	0.310	4	50	200
Chloride	A-T-026	Y	N	202	33	467	492	800	15000	25000
Fluoride	A-T-026	Y	N	0.6	0.4	1.4	5.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	99	43	229	495	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	613	228	1419	2699	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	45.2	26.20	105	287	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	Y	7.5	7.5					
Conductivity (µS/cm)	A-T-037	N	N	1225	456					
Mass Sample (kg)					0.200					
Dry Matter (%)	A-T-044	N	N		82.9					
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046				0.350					
Filtered Eluate Volume, VE ₁ (l)	A-T-046				0.150					
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046				1.330					
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

FINAL ANALYTICAL TEST REPORT

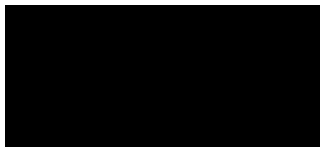
Envirolab Job Number: 18/07384
Issue Number: 1

Date: 25 September, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

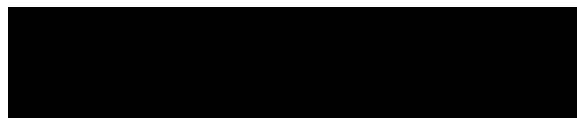
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 605028
Date Samples Received: 13/09/18
Date Instructions Received: 14/09/18
Date Analysis Completed: 25/09/18

Prepared by:



Georgia King
Admin & Client Services Supervisor

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 18/07384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
% Stones >10mm _A	<0.1	15.6	10.5	<0.1	<0.1	2.6	<0.1	<0.1		
pH _D ^{M#}	8.72	11.01	10.31	8.64	8.29	8.82	8.25	9.02	pH	A-T-031s
Ammoniacal nitrogen _D	1.0	0.5	2.1	17.0	12.3	22.9	16.4	18.9	mg/kg	A-T-033s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	0.24	0.07	<0.01	0.02	<0.01	0.02	<0.01	g/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	<200	2300	680	360	290	330	350	280	mg/kg	A-T-028s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	A-T-050s
Sulphide _A	<5	7	7	54	8	<5	9	<5	mg/kg	A-T-S2-s
Sulphur (elemental) _D ^{M#}	<5	<5	<5	<5	130	45	30	35	mg/kg	A-T-029s
Organic matter _D ^{M#}	<0.1	0.3	0.9	1.3	1.1	0.7	1.3	0.9	% w/w	A-T-032 OM
Arsenic _D ^{M#}	4	3	4	8	7	5	8	10	mg/kg	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0	1.5	<1.0	1.9	1.8	<1.0	1.5	2.1	mg/kg	A-T-027s
Cadmium _D ^{M#}	<0.5	<0.5	<0.5	0.6	0.5	<0.5	<0.5	0.7	mg/kg	A-T-024s
Copper _D ^{M#}	1	59	13	6	7	5	8	6	mg/kg	A-T-024s
Chromium _D ^{M#}	2	8	9	22	13	14	16	23	mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-040s
Lead _D ^{M#}	5	18	70	14	29	20	31	10	mg/kg	A-T-024s
Mercury _D	<0.17	0.19	0.20	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	A-T-024s
Nickel _D ^{M#}	2	6	8	17	11	11	13	17	mg/kg	A-T-024s
Selenium _D [#]	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-024s
Zinc _D ^{M#}	11	72	24	38	31	26	36	40	mg/kg	A-T-024s
Leachate Prep NRA (10:1) _A	-	-	*	*	-	-	*	-		A-T-001
pH (leachable) _A [#]	-	-	11.18	8.12	-	-	7.84	-	pH	A-T-031w
Ammoniacal nitrogen (leachable) _A	-	-	0.04	0.84	-	-	0.03	-	mg/l	A-T-033w
Sulphate (leachable) _A [#]	-	-	11.28	10.94	-	-	14.51	-	mg/l	A-T-026w
Cyanide (total) (leachable) _A	-	-	0.006	<0.005	-	-	<0.005	-	mg/l	A-T-042wTCN
Phenols (total by HPLC) (leachable) _A	-	-	<0.01	<0.01	-	-	<0.01	-	mg/l	A-T-050w
Sulphide (leachable) _A	-	-	<0.1	<0.1	-	-	<0.1	-	mg/l	A-T-S2-w
DOC (leachable) _A [#]	-	-	2.5	2.2	-	-	2.9	-	mg/l	A-T-032w
Arsenic (leachable) _A [#]	-	-	7	23	-	-	16	-	µg/l	A-T-025w
Boron (leachable) _A [#]	-	-	25	115	-	-	86	-	µg/l	A-T-025w
Cadmium (leachable) _A [#]	-	-	<1	<1	-	-	<1	-	µg/l	A-T-025w
Copper (leachable) _A [#]	-	-	21	33	-	-	38	-	µg/l	A-T-025w

Envirolab Job Number: 18/07384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
Chromium (leachable) _A [#]	-	-	3	2	-	-	1	-		
Chromium (hexavalent) (leachable) _A	-	-	<0.05	<0.05	-	-	<0.05	-	mg/l	A-T-040w
Lead (leachable) _A [#]	-	-	<1	42	-	-	145	-	µg/l	A-T-025w
Mercury (leachable) _A [#]	-	-	<0.1	<0.1	-	-	<0.1	-	µg/l	A-T-025w
Nickel (leachable) _A [#]	-	-	3	11	-	-	6	-	µg/l	A-T-025w
Selenium (leachable) _A [#]	-	-	3	1	-	-	2	-	µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	-	-	<0.1	<0.1	-	-	<0.1	-	mg/l	A-T-029w
Zinc (leachable) _A [#]	-	-	2	24	-	-	34	-	µg/l	A-T-025w

Envirolab Job Number: 18/07384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	A-T-045	
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

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Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	0.07	<0.01	0.11	<0.01	0.06	<0.01	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	0.02	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	0.05	0.17	<0.02	0.13	<0.02	0.09	<0.02	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	0.28	1.14	<0.04	0.31	0.05	0.31	<0.04	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	0.33	1.47	<0.04	0.23	<0.04	0.37	<0.04	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	0.50	2.04	<0.05	0.34	<0.05	0.57	<0.05	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	0.22	0.84	<0.05	0.11	<0.05	0.25	<0.05	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.16	0.74	<0.07	0.13	<0.07	0.21	<0.07	mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	0.36	1.25	<0.06	0.34	<0.06	0.38	<0.06	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	0.05	0.25	<0.04	<0.04	<0.04	0.06	<0.04	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	0.39	1.36	<0.08	1.02	<0.08	0.67	<0.08	mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	0.05	<0.01	0.18	<0.01	0.09	<0.01	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	0.27	1.11	<0.03	0.15	<0.03	0.31	<0.03	mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	0.12	0.50	<0.03	0.52	<0.03	0.26	<0.03	mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	0.56	1.08	<0.07	0.86	<0.07	0.79	<0.07	mg/kg	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	3.31	12.1	<0.08	4.43	<0.08	4.42	<0.08	mg/kg	A-T-019s

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Client Project Ref: PZ1522D1

Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	-	-	0.79	0.45	-	-	<0.02	-	µg/l	A-T-019w
Acenaphthylene (leachable) _A	-	-	<0.02	<0.02	-	-	<0.02	-	µg/l	A-T-019w
Anthracene (leachable) _A	-	-	0.02	0.05	-	-	0.04	-	µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	-	-	0.02	<0.02	-	-	<0.02	-	µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	-	-	0.03	<0.02	-	-	0.13	-	µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	-	-	0.04	<0.02	-	-	0.19	-	µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	-	-	<0.02	<0.02	-	-	0.04	-	µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	-	-	<0.02	<0.02	-	-	0.06	-	µg/l	A-T-019w
Chrysene (leachable) _A	-	-	0.02	<0.02	-	-	0.12	-	µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	-	-	<0.02	<0.02	-	-	<0.02	-	µg/l	A-T-019w
Fluoranthene (leachable) _A	-	-	0.07	0.07	-	-	0.12	-	µg/l	A-T-019w
Fluorene (leachable) _A	-	-	0.14	0.27	-	-	<0.02	-	µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	-	-	<0.02	<0.02	-	-	0.05	-	µg/l	A-T-019w
Naphthalene (leachable) _A	-	-	0.08	<0.02	-	-	<0.02	-	µg/l	A-T-019w
Phenanthrene (leachable) _A	-	-	0.09	0.22	-	-	<0.02	-	µg/l	A-T-019w
Pyrene (leachable) _A	-	-	0.06	0.05	-	-	1.16	-	µg/l	A-T-019w
Total PAH 16MS (leachable)_A	-	-	1.36	1.11	-	-	1.91	-	µg/l	A-T-019w

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Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	<0.002	-	<0.002	-	<0.002	<0.002	-	mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	<0.002	-	<0.002	-	<0.002	<0.002	-	mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	<0.004	-	<0.004	-	<0.004	<0.004	-	mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	<0.006	-	<0.006	-	<0.006	<0.006	-	mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	<0.004	-	<0.004	-	<0.004	<0.004	-	mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	<0.004	-	<0.004	-	<0.004	<0.004	-	mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	<0.007	-	<0.007	-	<0.007	<0.007	-	mg/kg	A-T-004s

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Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 105 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 114 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 123 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 126 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 156 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 157 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 167 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 169 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 189 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
PCB BZ 77 _A	<0.005	-	<0.005	-	<0.005	-	-	<0.005	mg/kg	A-T-004s
Total Speciated PCB-WHO12 _A	<0.007	-	<0.007	-	<0.007	-	-	<0.007	mg/kg	A-T-004s

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Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
SVOC excluding PAH-16 (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2-Chlorophenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2-Methylphenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
2-Nitrophenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
4-Methylphenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
4-Nitrophenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	-	-	<4	<4	-	-	<4	-	µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Carbazole (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Dibenzofuran (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Diethyl phthalate (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w

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Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
Hexachlorocyclopentadiene (leachable) _A	-	-	<2	<2	-	-	<2	-		
Hexachloroethane (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Isophorone (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Nitrobenzene (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Pentachlorophenol (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Perylene (leachable) _A	-	-	<2	<2	-	-	<2	-	µg/l	A-T-052w
Phenol (leachable) _A	-	-	4	<2	-	-	<2	-	µg/l	A-T-052w

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Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
SVOC										
Hexachlorobenzene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Diethyl phthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Dimethyl phthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Dibenzofuran _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Carbazole _A	<100	<100	168	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Butylbenzyl phthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<500	<500	<500	<500	<500	<500	<500	<500	µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
4-Nitrophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
4-Methylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Nitrophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Methylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Chlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,6-Dinitrotoluene _A	<100	<100	<100	<100	<100	<100	161	<100	µg/kg	A-T-052s
2,4-Dinitrotoluene _A	<100	<100	<100	<100	<100	<100	344	<100	µg/kg	A-T-052s
2,4-Dimethylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4-Dichlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Chloronaphthalene _A	<200	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Methylnaphthalene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Phenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Pentachlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
n-Diethylphthalate _A	<500	<500	<500	<500	<500	<500	<500	<500	µg/kg	A-T-052s
n-Dibutylphthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Nitrobenzene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Isophorone _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Hexachloroethane _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s

Envirolab Job Number: 18/07384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
Hexachlorocyclopentadiene _A	<100	<100	<100	<100	<100	<100	<100	<100		
Perylene _A	<100	<100	711	<100	<100	<100	183	<100	µg/kg	A-T-052s

Envirolab Job Number: 18/07384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
VOC										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/kg	A-T-006s
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/kg	A-T-006s
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Trichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	<10	µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s

Envirolab Job Number: 18/07384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2	<2	<2	<2	<2	<2	<2	<2	µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3	<3	<3	<3	<3	<3	<3	<3	µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3	<3	<3	<3	<3	<3	<3	<3	µg/kg	A-T-006s

Envirolab Job Number: 18/07384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	0.02	<0.01	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	4.1	<0.1	4.7	<0.1	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	35.8	<0.1	46.4	<0.1	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1	29.8	<0.1	50.9	<0.1	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1	6.5	<0.1	45.4	<0.1	mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1	<0.1	76.3	<0.1	147	<0.1	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	1.0	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	9.1	<0.1	9.3	<0.1	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1	<0.1	2.9	<0.1	16.8	<0.1	25.6	<0.1	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1	<0.1	11.8	1.0	7.0	<0.1	20.4	<0.1	mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aromatics _A	<0.1	<0.1	14.7	1.0	33.8	<0.1	55.3	<0.1	mg/kg	A-T-023s
TPH (Ali & Aro) _A	<0.1	<0.1	14.7	1.0	110	<0.1	202	<0.1	mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 18/07384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07384/1	18/07384/2	18/07384/3	18/07384/4	18/07384/5	18/07384/6	18/07384/7	18/07384/8	Units	Method ref
Client Sample No	1	1	1	2	2	2	3	3		
Client Sample ID	WS22	WS21	WS20	WS22	WS21	WS20	WS21	WS22		
Depth to Top	0.35	0.45	0.80	0.80	0.90	1.20	1.20	1.20		
Depth To Bottom										
Date Sampled	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18	10-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	1	4A	4A	3	5	5A	5	5		
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Total Aliphatics (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
Total Aromatics (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	-	-	<10	<10	-	-	<10	-	µg/l	A-T-023w
BTEX - Benzene (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
BTEX - Toluene (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w
MTBE (leachable) _A	-	-	<1	<1	-	-	<1	-	µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/07536
Issue Number: 1
Date: 01 October, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

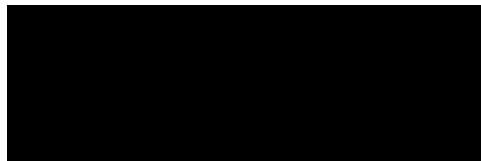
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 605482
Date Samples Received: 17/09/18
Date Instructions Received: 19/09/18
Date Analysis Completed: 01/10/18

Prepared by:



Gill Walker
Director/Laboratory Manager

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
pH _D ^{M#}	8.55	8.91	9.03	9.26	8.94	9.12	8.51	9.35	pH	A-T-031s
Ammoniacal nitrogen _D	10.9	8.6	18.3	1.3	34.3	8.7	10.1	2.6	mg/kg	A-T-033s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	<0.01	0.20	0.02	0.13	0.14	0.11	0.13	g/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	370	<200	1300	<200	1200	970	1300	2100	mg/kg	A-T-028s
Cyanide (total) _A ^{M#}	1	<1	<1	<1	<1	<1	1	<1	mg/kg	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	A-T-050s
Sulphide _A	<5	<5	<5	<5	200	<5	<5	120	mg/kg	A-T-S2-s
Sulphur (elemental) _D ^{M#}	<5	<5	62	<5	1600	<5	<5	380	mg/kg	A-T-029s
Organic matter _D ^{M#}	1.6	0.6	0.8	0.3	1.7	0.4	1.0	1.6	% w/w	A-T-032 OM
Arsenic _D ^{M#}	15	6	5	1	7	3	5	12	mg/kg	A-T-024s
Boron (water soluble) _D ^{M#}	3.0	<1.0	2.0	<1.0	2.6	1.4	1.2	1.3	mg/kg	A-T-027s
Cadmium _D ^{M#}	0.6	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	mg/kg	A-T-024s
Copper _D ^{M#}	10	4	4	2	7	3	3	5	mg/kg	A-T-024s
Chromium _D ^{M#}	31	13	10	5	23	8	11	15	mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-040s
Lead _D ^{M#}	19	15	8	6	16	7	8	10	mg/kg	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	A-T-024s
Nickel _D ^{M#}	22	9	10	5	19	7	9	13	mg/kg	A-T-024s
Selenium _D [#]	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-024s
Zinc _D ^{M#}	49	22	24	11	45	18	23	32	mg/kg	A-T-024s
Leachate Prep NRA (10:1) _A	-	*	-	-	-	*	*	*		A-T-001
pH (leachable) _A [#]	-	7.79	-	-	-	7.48	7.50	8.77	pH	A-T-031w
Ammoniacal nitrogen (leachable) _A	-	0.61	-	-	-	0.69	0.76	0.29	mg/l	A-T-033w
Sulphate (leachable) _A [#]	-	1.65	-	-	-	56.65	52.54	8.85	mg/l	A-T-026w
Cyanide (total) (leachable) _A	-	<0.005	-	-	-	<0.005	<0.005	<0.005	mg/l	A-T-042wTCN
Phenols (total by HPLC) (leachable) _A	-	<0.01	-	-	-	<0.01	<0.01	<0.01	mg/l	A-T-050w
Sulphide (leachable) _A	-	0.8	-	-	-	0.2	<0.1	<0.1	mg/l	A-T-S2-w
DOC (leachable) _A [#]	-	12.5	-	-	-	5.2	3.4	4.0	mg/l	A-T-032w
Arsenic (leachable) _A [#]	-	7	-	-	-	4	2	18	µg/l	A-T-025w
Boron (leachable) _A [#]	-	50	-	-	-	86	54	36	µg/l	A-T-025w
Cadmium (leachable) _A [#]	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-025w
Copper (leachable) _A [#]	-	22	-	-	-	4	2	2	µg/l	A-T-025w

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
Chromium (leachable) _A [#]	-	<1	-	-	-	<1	<1	<1		
Chromium (hexavalent) (leachable) _A	-	<0.05	-	-	-	<0.05	<0.05	<0.05	mg/l	A-T-040w
Lead (leachable) _A [#]	-	14	-	-	-	3	<1	2	µg/l	A-T-025w
Mercury (leachable) _A [#]	-	<0.1	-	-	-	<0.1	<0.1	<0.1	µg/l	A-T-025w
Nickel (leachable) _A [#]	-	2	-	-	-	3	2	2	µg/l	A-T-025w
Selenium (leachable) _A [#]	-	1	-	-	-	2	<1	3	µg/l	A-T-025w
Sulphur (elemental/free) (leachable) _A	-	<0.1	-	-	-	<0.1	<0.1	<0.1	mg/l	A-T-029w
Zinc (leachable) _A [#]	-	8	-	-	-	10	4	3	µg/l	A-T-025w

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref		
Client Sample No	3	4	4	5	4	5	6	5				
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20				
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10				
Depth To Bottom												
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	5	5	5	1	6	5	5	5				
Asbestos in Soil (inc. matrix)												
Asbestos in soil [#]	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD		A-T-045		
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
PAH-16MS										
Acenaphthene _A ^{M#}	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Anthracene _A ^{M#}	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.18	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.18	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	A-T-019s
Chrysene _A ^{M#}	0.22	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	0.37	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	mg/kg	A-T-019s
Fluorene _A ^{M#}	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.10	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	0.33	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Pyrene _A ^{M#}	0.31	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	A-T-019s
Total PAH-16MS _A ^{M#}	2.16	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	mg/kg	A-T-019s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
PAH 16MS (leachable)										
Acenaphthene (leachable) _A	-	0.06	-	-	-	<0.02	0.04	0.05	µg/l	A-T-019w
Acenaphthylene (leachable) _A	-	<0.02	-	-	-	<0.02	<0.02	<0.02	µg/l	A-T-019w
Anthracene (leachable) _A	-	0.03	-	-	-	<0.02	0.04	<0.02	µg/l	A-T-019w
Benzo(a)anthracene (leachable) _A	-	<0.02	-	-	-	<0.02	<0.02	<0.02	µg/l	A-T-019w
Benzo(a)pyrene (leachable) _A	-	<0.02	-	-	-	<0.02	<0.02	<0.02	µg/l	A-T-019w
Benzo(b)fluoranthene (leachable) _A	-	<0.02	-	-	-	<0.02	<0.02	<0.02	µg/l	A-T-019w
Benzo(ghi)perylene (leachable) _A	-	<0.02	-	-	-	<0.02	<0.02	<0.02	µg/l	A-T-019w
Benzo(k)fluoranthene (leachable) _A	-	<0.02	-	-	-	<0.02	<0.02	<0.02	µg/l	A-T-019w
Chrysene (leachable) _A	-	<0.02	-	-	-	<0.02	<0.02	<0.02	µg/l	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	-	<0.02	-	-	-	<0.02	<0.02	<0.02	µg/l	A-T-019w
Fluoranthene (leachable) _A	-	0.06	-	-	-	0.02	0.06	<0.02	µg/l	A-T-019w
Fluorene (leachable) _A	-	0.05	-	-	-	<0.02	0.04	<0.02	µg/l	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	-	<0.02	-	-	-	<0.02	<0.02	<0.02	µg/l	A-T-019w
Naphthalene (leachable) _A	-	<0.02	-	-	-	<0.02	0.22	0.42	µg/l	A-T-019w
Phenanthrene (leachable) _A	-	0.06	-	-	-	<0.02	0.11	<0.02	µg/l	A-T-019w
Pyrene (leachable) _A	-	0.04	-	-	-	0.02	0.04	<0.02	µg/l	A-T-019w
Total PAH 16MS (leachable) _A	-	0.30	-	-	-	0.04	0.55	0.47	µg/l	A-T-019w

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	<0.002	-	-	<0.002	-	<0.002	<0.002	mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	<0.002	-	-	<0.002	-	<0.002	<0.002	mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	<0.004	-	-	<0.004	-	<0.004	<0.004	mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	<0.006	-	-	<0.006	-	<0.006	<0.006	mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	<0.004	-	-	<0.004	-	<0.004	<0.004	mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	<0.004	-	-	<0.004	-	<0.004	<0.004	mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	<0.007	-	-	<0.007	-	<0.007	<0.007	mg/kg	A-T-004s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 105 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 114 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 123 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 126 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 156 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 157 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 167 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 169 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 189 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 77 _A	<0.005	-	<0.005	<0.005	-	<0.005	-	-	mg/kg	A-T-004s
Total Speciated PCB-WHO12 _A	<0.007	-	<0.007	<0.007	-	<0.007	-	-	mg/kg	A-T-004s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
SVOC (leachable)										
1,2,4-Trichlorobenzene SVOC (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
1,2-Dichlorobenzene SVOC (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
1,3-Dichlorobenzene SVOC (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
1,4-Dichlorobenzene SVOC (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2,4,5-Trichlorophenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2,4,6-Trichlorophenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2,4-Dichlorophenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2,4-Dimethylphenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2,4-Dinitrotoluene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2,6-Dinitrotoluene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2-Chloronaphthalene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2-Chlorophenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2-Methylnaphthalene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2-Methylphenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
2-Nitrophenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
4-Bromophenyl phenyl ether (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
4-Chloro-3-methylphenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
4-Methylphenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
4-Nitrophenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Acenaphthene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Acenaphthylene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Anthracene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Benzo(a)anthracene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Benzo(a)pyrene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Benzo(b)fluoranthene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Benzo(ghi)perylene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Benzo(k)fluoranthene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Bis(2-chloroethoxy)methane (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Bis(2-chloroethyl)ether (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate (leachable) _A	-	<4	-	-	-	<8	<16	<4	µg/l	A-T-052w
Butylbenzyl phthalate (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
Carbazole (leachable) _A	-	<2	-	-	-	<4	<8	<2		
Chrysene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Dibenzo(ah)anthracene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Dibenzofuran (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Diethyl phthalate (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Dimethyl phthalate (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
n-Dibutylphthalate (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
n-Dioctylphthalate (leachable) _A	-	<10	-	-	-	<20	<40	<10	µg/l	A-T-052w
Fluoranthene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Fluorene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Hexachlorobenzene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Hexachlorobutadiene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Hexachlorocyclopentadiene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Hexachloroethane (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Indeno(1,2,3-cd)pyrene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Isophorone (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Naphthalene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Nitrobenzene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
n-Nitroso-n-dipropylamine (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Pentachlorophenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Perylene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Phenanthrene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Phenol (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w
Pyrene (leachable) _A	-	<2	-	-	-	<4	<8	<2	µg/l	A-T-052w

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
SVOC										
Hexachlorobenzene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Diethyl phthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Dimethyl phthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Dibenzofuran _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Carbazole _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Butylbenzyl phthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<500	<500	<500	<500	<500	<500	<500	<500	µg/kg	A-T-052s
Bis(2-chloroethoxy)methane _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Bis(2-chloroethyl)ether _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
4-Nitrophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
4-Methylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
4-Chloro-3-methylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Nitrophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Methylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Chlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,6-Dinitrotoluene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4-Dinitrotoluene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4-Dimethylphenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4-Dichlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4,6-Trichlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2,4,5-Trichlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Chloronaphthalene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
2-Methylnaphthalene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Phenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Pentachlorophenol _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
n-Nitroso-n-dipropylamine _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
n-Diethylphthalate _A	<500	<500	<500	<500	<500	<500	<500	<500	µg/kg	A-T-052s
n-Dibutylphthalate _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Nitrobenzene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Isophorone _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s
Hexachloroethane _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
Hexachlorocyclopentadiene _A	<100	<100	<100	<100	<100	<100	<100	<100		
Perylene _A	<100	<100	<100	<100	<100	<100	<100	<100	µg/kg	A-T-052s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
VOC										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/kg	A-T-006s
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	2	<1	5	µg/kg	A-T-006s
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/kg	A-T-006s
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/kg	A-T-006s
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/kg	A-T-006s
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Trichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	<10	µg/kg	A-T-006s
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Tetrachloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/kg	A-T-006s
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1		
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
n-Propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/kg	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,3-Dichlorobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	7	µg/kg	A-T-006s
n-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2-Dibromo-3-chloropropane _A	<2	<2	<2	<2	<2	<2	<2	<2	µg/kg	A-T-006s
1,2,4-Trichlorobenzene _A	<3	<3	<3	<3	<3	<3	<3	<3	µg/kg	A-T-006s
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/kg	A-T-006s
1,2,3-Trichlorobenzene _A	<3	<3	<3	<3	<3	<3	<3	<3	µg/kg	A-T-006s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C35-C44 _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C35-C44 _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aromatics _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
TPH (Ali & Aro) _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/1	18/07536/2	18/07536/3	18/07536/4	18/07536/5	18/07536/6	18/07536/7	18/07536/8	Units	Method ref
Client Sample No	3	4	4	5	4	5	6	5		
Client Sample ID	WS20	WS21	WS22	WS21	WS20	WS22	WS21	WS20		
Depth to Top	1.60	1.80	1.90	2.20	2.40	2.60	2.75	3.10		
Depth To Bottom										
Date Sampled	11-Sep-18	12-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18	10-Sep-18	12-Sep-18	11-Sep-18		
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	5	5	5	1	6	5	5	5		
TPH UKCWG (leachable)										
Ali >C5-C6 (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
Ali >C6-C8 (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
Ali >C8-C10 (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
Ali >C10-C12 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Ali >C12-C16 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Ali >C16-C21 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Ali >C21-C35 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Ali >C35-C44 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Total Aliphatics (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Aro >C5-C7 (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
Aro >C7-C8 (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
Aro >C8-C9 (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
Aro >C9-C10 (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
Aro >C10-C12 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Aro >C12-C16 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Aro >C16-C21 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Aro >C21-C35 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Aro >C35-C44 (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
Total Aromatics (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
TPH (Ali & Aro) (leachable) _A	-	<10	-	-	-	<10	<10	<10	µg/l	A-T-023w
BTEX - Benzene (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
BTEX - Toluene (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
BTEX - Ethyl Benzene (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
BTEX - o Xylene (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
BTEX - m & p Xylene (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w
MTBE (leachable) _A	-	<1	-	-	-	<1	<1	<1	µg/l	A-T-022w

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/9	18/07536/10							Units	Method ref
Client Sample No	6	7								
Client Sample ID	WS22	WS21								
Depth to Top	3.60	4.20								
Depth To Bottom										
Date Sampled	10-Sep-18	12-Sep-18								
Sample Type	Soil - D	Soil - D								
Sample Matrix Code	1	1								
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A								

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/9	18/07536/10								
Client Sample No	6	7								
Client Sample ID	WS22	WS21								
Depth to Top	3.60	4.20								
Depth To Bottom										
Date Sampled	10-Sep-18	12-Sep-18								
Sample Type	Soil - D	Soil - D								
Sample Matrix Code	1	1								
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01							mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01							mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02							mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04							mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04							mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05							mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05							mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07							mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06							mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04							mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08							mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01							mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03							mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03							mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03							mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07							mg/kg	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08							mg/kg	A-T-019s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/9	18/07536/10							Units	Method ref
Client Sample No	6	7								
Client Sample ID	WS22	WS21								
Depth to Top	3.60	4.20								
Depth To Bottom										
Date Sampled	10-Sep-18	12-Sep-18								
Sample Type	Soil - D	Soil - D								
Sample Matrix Code	1	1								
Speciated PCB-EC7										
PCB BZ 28 _A ^{M#}	-	<0.002							mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	<0.002							mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	<0.004							mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	<0.007	<0.007							mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	<0.006							mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	<0.004							mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	<0.004							mg/kg	A-T-004s
Total Speciated PCB-EC7 _A ^{M#}	-	<0.007							mg/kg	A-T-004s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/9	18/07536/10							Units	Method ref
Client Sample No	6	7								
Client Sample ID	WS22	WS21								
Depth to Top	3.60	4.20								
Depth To Bottom										
Date Sampled	10-Sep-18	12-Sep-18								
Sample Type	Soil - D	Soil - D								
Sample Matrix Code	1	1								
Speciated PCB-WHO12										
PCB BZ 81 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 105 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 114 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 123 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 126 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 156 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 157 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 167 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 169 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 189 _A	<0.005	-							mg/kg	A-T-004s
PCB BZ 77 _A	<0.005	-							mg/kg	A-T-004s
Total Speciated PCB-WHO12_A	<0.007	-							mg/kg	A-T-004s

Envirolab Job Number: 18/07536

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07536/9	18/07536/10							Units	Method ref
Client Sample No	6	7								
Client Sample ID	WS22	WS21								
Depth to Top	3.60	4.20								
Depth To Bottom										
Date Sampled	10-Sep-18	12-Sep-18								
Sample Type	Soil - D	Soil - D								
Sample Matrix Code	1	1								
Hexachlorocyclopentadiene _A	<100	<100						µg/kg		
Perylene _A	<100	<100						µg/kg	A-T-052s	

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 18/07384
Issue Number: 1
Date: 25-Sep-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 605028

Date Samples Received: 13-Sep-18
Date Instructions Received: 14-Sep-18
Date Analysis Completed: 25-Sep-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

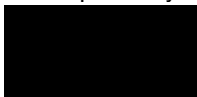
IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:



Georgia King
Admin & Client Services Supervisor



Approved by:



Danielle Brierley
Client Manager



Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/07384/5						
Client Sample Number				2						
Client Sample ID				WS21						
Depth to Top				0.9						
Depth to Bottom										
Date Sampled				10/09/2018						
Sample Type				Soil - D						
Sample Matrix Code				5						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	8.29				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.36				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.1				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	1.9				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.63				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	4.44				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	1100				500	-	-
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	N	N	0.005	0.004	0.012	0.040	0.5	2	25
Barium	A-T-025	N	N	0.032	0.013	0.073	0.150	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70
Copper	A-T-025	N	N	0.005	0.004	0.013	0.050	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.043	0.010	0.100	0.130	0.5	10	30
Nickel	A-T-025	N	N	0.003	0.002	0.007	0.020	0.4	10	40
Lead	A-T-025	N	N	0.010	0.007	0.023	0.080	0.5	10	50
Antimony	A-T-025	N	N	0.002	0.001	0.005	0.010	0.06	0.7	5
Selenium	A-T-025	N	N	0.001	<0.001	0.002	<0.01	0.1	0.5	7
Zinc	A-T-025	N	N	0.021	0.023	0.050	0.240	4	50	200
Chloride	A-T-026	N	N	7	1	16	17	800	15000	25000
Fluoride	A-T-026	N	N	0.6	0.3	1.5	3.0	10	150	500
Sulphate as SO ₄	A-T-026	N	N	65	16	152	210	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	204	79	475	929	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	22.4	<20.0	52	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	7.9	7.7					
Conductivity (µS/cm)	A-T-037	N	N	408	157					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	82.6						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.320						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits						
Lab Sample ID	Method	ISO17025	MCERTS	18/07384/6							
Client Sample Number				2		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample ID				WS20							
Depth to Top				1.2							
Depth to Bottom											
Date Sampled				10/09/2018							
Sample Type				Soil - D							
Sample Matrix Code				5A							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	8.82				-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.55				-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.21				-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	2				-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.37				3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-	
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-	
Eluate Analysis				2:1		8:1		2:1		Cumulative 10:1	
				mg/l		mg/kg		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
Arsenic	A-T-025	N	N	0.009	0.006	0.020	0.060	0.5	2	25	
Barium	A-T-025	N	N	0.131	0.045	0.289	0.540	20	100	300	
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5	
Chromium	A-T-025	N	N	0.005	<0.001	0.011	0.010	0.5	10	70	
Copper	A-T-025	N	N	0.020	0.008	0.043	0.090	2	50	100	
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2	
Molybdenum	A-T-025	N	N	0.010	0.004	0.023	0.050	0.5	10	30	
Nickel	A-T-025	N	N	0.012	0.003	0.025	0.040	0.4	10	40	
Lead	A-T-025	N	N	0.052	0.018	0.114	0.210	0.5	10	50	
Antimony	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5	
Selenium	A-T-025	N	N	0.001	<0.001	0.002	<0.01	0.1	0.5	7	
Zinc	A-T-025	N	N	0.027	0.010	0.059	0.110	4	50	200	
Chloride	A-T-026	N	N	30	3	65	52	800	15000	25000	
Fluoride	A-T-026	N	N	1.2	0.3	2.7	4.0	10	150	500	
Sulphate as SO ₄	A-T-026	N	N	14	<1.00	31	12	1000	20000	50000	
Total Dissolved Solids	A-T-035	N	N	162	59	357	692	4000	60000	100000	
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-	
Dissolved Organic Carbon	A-T-032	N	N	52.9	<20.0	117	<200	500	800	1000	
Leach Test Information											
pH (pH Units)	A-T-031	N	N	7.8	7.5						
Conductivity (µS/cm)	A-T-037	N	N	323	118						
Mass Sample (kg)				0.200							
Dry Matter (%)	A-T-044	N	N	85.8							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.370							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits						
Lab Sample ID	Method	ISO17025	MCERTS	18/07384/8							
Client Sample Number				3		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample ID				WS22							
Depth to Top				1.2							
Depth to Bottom											
Date Sampled				10/09/2018							
Sample Type				Soil - D							
Sample Matrix Code				5							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	9.02				-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.82				-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.22				-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	2.2				-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.55				3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-	
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-	
Eluate Analysis				2:1		8:1		2:1		Cumulative 10:1	
				mg/l		mg/kg		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
Arsenic	A-T-025	N	N	0.073	0.012	0.185	0.180	0.5	2	25	
Barium	A-T-025	N	N	0.509	0.059	1.297	1.050	20	100	300	
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5	
Chromium	A-T-025	N	N	0.006	<0.001	0.015	0.010	0.5	10	70	
Copper	A-T-025	N	N	0.111	0.013	0.284	0.230	2	50	100	
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2	
Molybdenum	A-T-025	N	N	0.010	0.005	0.027	0.050	0.5	10	30	
Nickel	A-T-025	N	N	0.009	0.002	0.023	0.030	0.4	10	40	
Lead	A-T-025	N	N	0.056	0.013	0.143	0.180	0.5	10	50	
Antimony	A-T-025	N	N	0.001	<0.001	0.003	<0.01	0.06	0.7	5	
Selenium	A-T-025	N	N	0.002	<0.001	0.005	<0.01	0.1	0.5	7	
Zinc	A-T-025	N	N	0.026	0.009	0.066	0.110	4	50	200	
Chloride	A-T-026	N	N	10	2	24	27	800	15000	25000	
Fluoride	A-T-026	N	N	0.7	0.2	1.7	3.0	10	150	500	
Sulphate as SO ₄	A-T-026	N	N	2	<1.00	5	<10	1000	20000	50000	
Total Dissolved Solids	A-T-035	N	N	229	72	583	911	4000	60000	100000	
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-	
Dissolved Organic Carbon	A-T-032	N	N	67.8	<20.0	173	<200	500	800	1000	
Leach Test Information											
pH (pH Units)	A-T-031	N	N	8.0	7.7						
Conductivity (µS/cm)	A-T-037	N	N	457	144						
Mass Sample (kg)				0.200							
Dry Matter (%)	A-T-044	N	N	77.5							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.240							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

Final Test Report

Envirolab Job Number: 18/07536
Issue Number: 1
Date: 1-Oct-18

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk, NR1 2SG

Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 605482

Date Samples Received: 17-Sep-18
Date Instructions Received: 19-Sep-18
Date Analysis Completed: 1-Oct-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

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Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.


Superscript # indicates method accredited to ISO 17025.

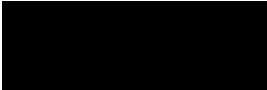
Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:


Gill Walker
Director/Laboratory Manager


Richard Wong
Client Manager



Sample Details						Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/07536/2		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample Number				4							
Client Sample ID				WS21							
Depth to Top				1.8							
Depth to Bottom											
Date Sampled				12/09/2018							
Sample Type				Soil - D							
Sample Matrix Code				5							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	8.91		-	>6	-			
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.17		-	to be evaluated	to be evaluated			
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.08		-	to be evaluated	to be evaluated			
Loss on Ignition (%) _D	A-T-030	Y	N	1.7		-	-	10			
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.37		3	5	6			
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08		100	-	-			
Mineral Oil (mg/kg) _A	A-T-007	N	N	<30		500	-	-			
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007		1	-	-			
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01		6	-	-			
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
				mg/l		mg/kg					
Arsenic	A-T-025	N	N	0.011	0.005	0.025	0.060	0.5	2	25	
Barium	A-T-025	N	N	0.289	0.064	0.668	0.860	20	100	300	
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5	
Chromium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70	
Copper	A-T-025	N	N	0.045	0.011	0.105	0.140	2	50	100	
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2	
Molybdenum	A-T-025	N	N	0.024	0.007	0.056	0.090	0.5	10	30	
Nickel	A-T-025	N	N	0.004	0.001	0.008	0.020	0.4	10	40	
Lead	A-T-025	N	N	0.030	0.008	0.070	0.100	0.5	10	50	
Antimony	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5	
Selenium	A-T-025	N	N	0.002	<0.001	0.003	<0.01	0.1	0.5	7	
Zinc	A-T-025	N	N	0.022	0.010	0.050	0.110	4	50	200	
Chloride	A-T-026	N	N	10	2	24	29	800	15000	25000	
Fluoride	A-T-026	N	N	0.8	0.2	1.9	3.0	10	150	500	
Sulphate as SO ₄	A-T-026	N	N	<1.00	<1.00	<2	<10	1000	20000	50000	
Total Dissolved Solids	A-T-035	N	N	117	35	271	435	4000	60000	100000	
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-	
Dissolved Organic Carbon	A-T-032	N	N	32.6	<20.0	75	<200	500	800	1000	
Leach Test Information											
pH (pH Units)	A-T-031	N	N	7.5	7.6						
Conductivity (µS/cm)	A-T-037	N	N	234	71						
Mass Sample (kg)				0.200							
Dry Matter (%)	A-T-044	N	N	83							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.330							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/07536/4						
Client Sample Number				5		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill		
Client Sample ID				WS21						
Depth to Top				2.2						
Depth to Bottom										
Date Sampled				12/09/2018						
Sample Type				Soil - D						
Sample Matrix Code				1						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	9.26				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.15				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.05				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	0.9				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.16				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	N	N	0.021	0.009	0.047	0.100	0.5	2	25
Barium	A-T-025	N	N	0.120	0.019	0.269	0.280	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	N	N	0.001	<0.001	0.003	<0.01	0.5	10	70
Copper	A-T-025	N	N	0.022	0.004	0.049	0.050	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.009	0.002	0.019	0.020	0.5	10	30
Nickel	A-T-025	N	N	0.010	0.002	0.023	0.030	0.4	10	40
Lead	A-T-025	N	N	0.034	0.005	0.076	0.080	0.5	10	50
Antimony	A-T-025	N	N	0.002	<0.001	0.004	<0.01	0.06	0.7	5
Selenium	A-T-025	N	N	0.003	0.001	0.006	0.010	0.1	0.5	7
Zinc	A-T-025	N	N	0.034	0.007	0.076	0.100	4	50	200
Chloride	A-T-026	N	N	13	2	28	33	800	15000	25000
Fluoride	A-T-026	N	N	0.2	0.2	0.4	2.0	10	150	500
Sulphate as SO ₄	A-T-026	N	N	15	7	34	80	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	74	24	166	290	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	27.6	<20.0	62	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	7.2	7.1					
Conductivity (µS/cm)	A-T-037	N	N	147	49					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	84.7						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.360						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits					
Lab Sample ID	Method	ISO17025	MCERTS	18/07536/6						
Client Sample Number				5		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill		
Client Sample ID				WS22						
Depth to Top				2.6						
Depth to Bottom										
Date Sampled				10/09/2018						
Sample Type				Soil - D						
Sample Matrix Code				5						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	Y	Y	9.12				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.49				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.1				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	Y	N	1.8				-	-	10
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.23				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	N	N	0.041	0.002	0.093	0.060	0.5	2	25
Barium	A-T-025	N	N	0.333	0.033	0.766	0.610	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	N	N	0.002	<0.001	0.004	<0.01	0.5	10	70
Copper	A-T-025	N	N	0.079	0.002	0.182	0.090	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.102	0.025	0.235	0.320	0.5	10	30
Nickel	A-T-025	N	N	0.034	0.002	0.079	0.050	0.4	10	40
Lead	A-T-025	N	N	0.081	<0.001	0.187	0.080	0.5	10	50
Antimony	A-T-025	N	N	0.005	0.001	0.012	0.020	0.06	0.7	5
Selenium	A-T-025	N	N	0.004	0.001	0.010	0.020	0.1	0.5	7
Zinc	A-T-025	N	N	0.072	0.007	0.165	0.130	4	50	200
Chloride	A-T-026	N	N	12	2	27	28	800	15000	25000
Fluoride	A-T-026	N	N	0.7	0.3	1.6	3.0	10	150	500
Sulphate as SO ₄	A-T-026	N	N	162	67	373	775	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	353	148	813	1710	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	8.0	7.9					
Conductivity (µS/cm)	A-T-037	N	N	705	295					
Mass Sample (kg)				0.200						
Dry Matter (%)	A-T-044	N	N	83.2						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.330						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details					Landfill Waste Acceptance Criteria Limits						
Lab Sample ID	Method	ISO17025	MCERTS	18/07536/8							
Client Sample Number				5		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill			
Client Sample ID				WS20							
Depth to Top				3.1							
Depth to Bottom											
Date Sampled				11/09/2018							
Sample Type				Soil - D							
Sample Matrix Code				5							
Solid Waste Analysis											
pH (pH Units) _D	A-T-031	Y	Y	9.35				-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.79				-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.2				-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	4.1				-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.91				3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-	
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-	
Eluate Analysis				2:1		8:1		2:1		Cumulative 10:1	
				mg/l		mg/kg		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
Arsenic	A-T-025	N	N	0.013	0.012	0.035	0.130	0.5	2	25	
Barium	A-T-025	N	N	0.030	0.012	0.080	0.140	20	100	300	
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5	
Chromium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.5	10	70	
Copper	A-T-025	N	N	0.002	0.002	0.004	0.020	2	50	100	
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2	
Molybdenum	A-T-025	N	N	0.075	0.012	0.204	0.190	0.5	10	30	
Nickel	A-T-025	N	N	0.004	0.002	0.012	0.020	0.4	10	40	
Lead	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.5	10	50	
Antimony	A-T-025	N	N	0.002	0.001	0.005	0.010	0.06	0.7	5	
Selenium	A-T-025	N	N	0.006	0.003	0.017	0.030	0.1	0.5	7	
Zinc	A-T-025	N	N	0.003	0.004	0.009	0.040	4	50	200	
Chloride	A-T-026	N	N	217	79	590	982	800	15000	25000	
Fluoride	A-T-026	N	N	0.1	<0.10	0.3	<1	10	150	500	
Sulphate as SO ₄	A-T-026	N	N	50	3	137	81	1000	20000	50000	
Total Dissolved Solids	A-T-035	N	N	333	99	905	1298	4000	60000	100000	
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	<0.1	1	-	-	
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000	
Leach Test Information											
pH (pH Units)	A-T-031	N	N	9.0	7.6						
Conductivity (µS/cm)	A-T-037	N	N	666	197						
Mass Sample (kg)				0.200							
Dry Matter (%)	A-T-044	N	N	73.9							
Stage 1											
Volume Leachant, L ₂ (l)	A-T-046			0.350							
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.150							
Stage 2											
Volume Leachant, L ₈ (l)	A-T-046			1.180							
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation											

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/07889
Issue Number: 1
Date: 05 October, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 606418
Date Samples Received: 27/09/18
Date Instructions Received: 27/09/18
Date Analysis Completed: 05/10/18

Prepared by:



Melanie Marshall
Laboratory Coordinator

Approved by:



Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/07889

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07889/1	18/07889/2	18/07889/3	18/07889/4	18/07889/5	18/07889/6	18/07889/7		Units	Method ref
Client Sample No	3	3	2	5	1	3	5			
Client Sample ID	WS20	WS20	WS21	WS21	WS22	WS22	WS22			
Depth to Top	2.30	2.60	1.40	4.00	0.55	2.00	4.50			
Depth To Bottom										
Date Sampled										
Sample Type	Soil - U	Soil - U	Soil - U	Soil - U	Soil - U	Soil - U	Soil - U			
Sample Matrix Code	3	3	5	5	5A	5	5			
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1	14.8	<0.1	<0.1		% w/w	A-T-044
Organic matter _D ^{OM}	1.7	1.1	0.9	0.2	0.6	0.8	<0.1		% w/w	A-T-032 OM

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Appendix H.1

CONTAMINATED LAND TESTING ON WATER SAMPLES



FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/04384/1

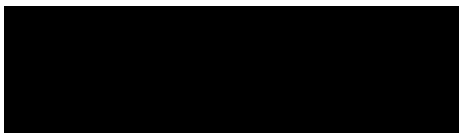
Envirolab Job Number: 18/04384
Issue Number: 2

Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

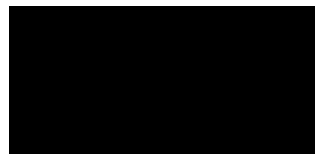
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 595010
Date Samples Received: 05/06/18
Date Instructions Received: 05/06/18
Date Analysis Completed: 13/06/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/04384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04384/1	18/04384/2	18/04384/3	18/04384/4	18/04384/5				Units	Method ref
Client Sample No	0604-8	0604-7	0604-11 Deep	0604-10 Shallow	0604-9					
Client Sample ID	BH6	BH15	BH4D	BH4D	BH4					
Depth to Top	1.20	1.35	1.46	1.57	1.90					
Depth To Bottom										
Date Sampled	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18					
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
pH (w) [#]	7.74	8.28	7.90	7.91	8.00					
Ammoniacal nitrogen (w) [#]	1.60	0.78	1.78	6.37	0.75				mg/l	A-T-033w
Sulphate (w) [#]	2380	230	1280	513	977				mg/l	A-T-026w
Cyanide (free) (w) [#]	<0.005	<0.005	<0.005	<0.005	<0.005				mg/l	A-T-042wFCN
Cyanide (total) (w) [#]	<0.005	0.056	<0.005	0.050	<0.005				mg/l	A-T-042wTCN
Arsenic (dissolved) [#]	19	57	11	6	5				µg/l	A-T-025w
Boron (dissolved) [#]	4030	793	1800	427	475				µg/l	A-T-025w
Cadmium (dissolved) [#]	<1.0	<0.2	<1.0	<0.2	<0.4				µg/l	A-T-025w
Copper (dissolved) [#]	<5	<1	<5	<1	<2				µg/l	A-T-025w
Chromium (dissolved) [#]	<5	<1	<5	<1	<2				µg/l	A-T-025w
Chromium (hexavalent) (w) [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01				mg/l	Calc
Lead (dissolved) [#]	<5	<1	<5	<1	<2				µg/l	A-T-025w
Mercury (dissolved) [#]	<0.5	<0.1	<0.5	<0.1	<0.2				µg/l	A-T-025w
Nickel (dissolved) [#]	<5	<1	<5	2	4				µg/l	A-T-025w
Selenium (dissolved) [#]	<5	<1	<5	<1	<2				µg/l	A-T-025w
Zinc (dissolved) [#]	<5	2	<5	6	4				µg/l	A-T-025w

Envirolab Job Number: 18/04384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04384/1	18/04384/2	18/04384/3	18/04384/4	18/04384/5				Units	Method ref
Client Sample No	0604-8	0604-7	0604-11 Deep	0604-10 Shallow	0604-9					
Client Sample ID	BH6	BH15	BH4D	BH4D	BH4					
Depth to Top	1.20	1.35	1.46	1.57	1.90					
Depth To Bottom										
Date Sampled	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18					
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
PAH 16MS (w)										
Acenaphthene (w) _A [#]	<0.01	0.15	<0.01	0.09	<0.01				µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Anthracene (w) _A [#]	0.02	0.02	<0.01	<0.01	<0.01				µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.03	0.04	0.02	0.03	0.01				µg/l	A-T-019w
Fluorene (w) _A [#]	0.02	0.01	0.01	0.02	<0.01				µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Naphthalene (w) _A [#]	0.02	<0.01	<0.01	<0.01	<0.01				µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.07	0.04	0.03	0.02	0.02				µg/l	A-T-019w
Pyrene (w) _A [#]	0.02	0.06	0.01	0.02	0.01				µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.18	0.32	0.07	0.18	0.04				µg/l	A-T-019w

Envirolab Job Number: 18/04384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04384/1	18/04384/2	18/04384/3	18/04384/4	18/04384/5				Units	Method ref
Client Sample No	0604-8	0604-7	0604-11 Deep	0604-10 Shallow	0604-9					
Client Sample ID	BH6	BH15	BH4D	BH4D	BH4					
Depth to Top	1.20	1.35	1.46	1.57	1.90					
Depth To Bottom										
Date Sampled	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18					
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10				µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
n-Dioctylphthalate _A	<10	<10	<10	<10	<10				µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Pentachlorophenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Phenol _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1	<1				µg/l	A-T-052w

Envirolab Job Number: 18/04384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04384/1	18/04384/2	18/04384/3	18/04384/4	18/04384/5				Units	Method ref
Client Sample No	0604-8	0604-7	0604-11 Deep	0604-10 Shallow	0604-9					
Client Sample ID	BH6	BH15	BH4D	BH4D	BH4					
Depth to Top	1.20	1.35	1.46	1.57	1.90					
Depth To Bottom										
Date Sampled	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18					
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
Isophorone _A	<1	<1	<1	<1	<1					
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1				µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1	<1				µg/l	A-T-052w

Envirolab Job Number: 18/04384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04384/1	18/04384/2	18/04384/3	18/04384/4	18/04384/5				Units	Method ref
Client Sample No	0604-8	0604-7	0604-11 Deep	0604-10 Shallow	0604-9					
Client Sample ID	BH6	BH15	BH4D	BH4D	BH4					
Depth to Top	1.20	1.35	1.46	1.57	1.90					
Depth To Bottom										
Date Sampled	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18					
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1				µg/l	A-T-006w
Chloromethane _A	<10	<10	<10	<10	<10				µg/l	A-T-006w
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Bromomethane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Chloroethane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Dichloromethane _A	<5	<5	<5	<5	<5				µg/l	A-T-006w
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1	<1	9	<1	<1				µg/l	A-T-006w
Bromochloromethane _A [#]	<5	<5	<5	<5	<5				µg/l	A-T-006w
Chloroform _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2				µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Benzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Dibromomethane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10				µg/l	A-T-006w
Trichloroethene _A [#]	<1	<1	14	<1	<1				µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Toluene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3				µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Tetrachloroethene _A	<1	<1	<1	<1	<1				µg/l	A-T-006w

Envirolab Job Number: 18/04384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04384/1	18/04384/2	18/04384/3	18/04384/4	18/04384/5				Units	Method ref
Client Sample No	0604-8	0604-7	0604-11 Deep	0604-10 Shallow	0604-9					
Client Sample ID	BH6	BH15	BH4D	BH4D	BH4					
Depth to Top	1.20	1.35	1.46	1.57	1.90					
Depth To Bottom										
Date Sampled	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18					
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1					
Chlorobenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
m & p Xylene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Bromoform _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Styrene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1				µg/l	A-T-006w
o-Xylene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
Bromobenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
n-propylbenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2				µg/l	A-T-006w
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
n-butylbenzene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2				µg/l	A-T-006w
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3				µg/l	A-T-006w
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3				µg/l	A-T-006w
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-006w

Envirolab Job Number: 18/04384

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/04384/1	18/04384/2	18/04384/3	18/04384/4	18/04384/5				Units	Method ref
Client Sample No	0604-8	0604-7	0604-11 Deep	0604-10 Shallow	0604-9					
Client Sample ID	BH6	BH15	BH4D	BH4D	BH4					
Depth to Top	1.20	1.35	1.46	1.57	1.90					
Depth To Bottom										
Date Sampled	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18	01-Jun-18					
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5				µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5				µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5				µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5				µg/l	A-T-023w
Total Aliphatics (w) _A	<5	<5	<5	<5	<5				µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5				µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5				µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5				µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5				µg/l	A-T-023w
Total Aromatics (w) _A	<5	<5	<5	<5	<5				µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5	<5	<5	<5	<5				µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1	<1				µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/05033/1

Envirolab Job Number: 18/05033

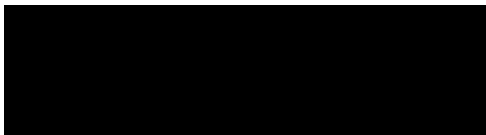
Issue Number: 2

Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

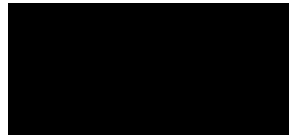
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 596974
Date Samples Received: 25/06/18
Date Instructions Received: 26/06/18
Date Analysis Completed: 09/07/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/05033

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05033/1	18/05033/2	18/05033/3	18/05033/4	18/05033/5	18/05033/6	18/05033/7	18/05033/8	Units	Method ref
Client Sample No	0622-4	0622-1	0622-9	0622-Shallow	0623-3 Deep	0622-8	0622-7	0622-0		
Client Sample ID	BH6	BH4A	BH15	BH4D	BH4D	BH13	BH12B	BH4		
Depth to Top	1.14	1.03	1.42	1.50	1.55	1.75	1.78	2.06		
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
pH (w) _A [#]	7.61	8.36	8.17	8.02	7.81	8.49	8.10	7.87		
Ammoniacal nitrogen (w) _A [#]	1.08	0.29	0.25	5.51	0.94	12.2	5.53	1.11	mg/l	A-T-033w
Sulphate (w) _A [#]	2640	282	249	580	1300	134	102	942	mg/l	A-T-026w
Cyanide (free) (w) _A [#]	<0.005	0.011	0.006	0.006	<0.005	<0.005	<0.005	<0.005	mg/l	A-T-042wFCN
Cyanide (total) (w) _A [#]	<0.005	0.031	0.053	0.040	<0.005	0.016	0.025	<0.005	mg/l	A-T-042wTCN
Arsenic (dissolved) _A [#]	21	4	53	13	10	12	9	<5	µg/l	A-T-025w
Boron (dissolved) _A [#]	3410	334	732	645	1720	996	452	771	µg/l	A-T-025w
Cadmium (dissolved) _A [#]	<1.0	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<1.0	µg/l	A-T-025w
Copper (dissolved) _A [#]	<5	3	<1	<1	<5	<1	3	<5	µg/l	A-T-025w
Chromium (dissolved) _A [#]	10	<1	1	2	6	1	<1	6	µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	A-T-040w
Chromium (trivalent) (w)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	Calc
Lead (dissolved) _A [#]	<5	<1	<1	<1	<5	<1	<1	<5	µg/l	A-T-025w
Mercury (dissolved) _A [#]	<0.5	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	µg/l	A-T-025w
Nickel (dissolved) _A [#]	<5	4	2	4	8	2	3	<5	µg/l	A-T-025w
Selenium (dissolved) _A [#]	<5	<1	<1	<1	<5	<1	1	<5	µg/l	A-T-025w
Zinc (dissolved) _A [#]	<5	6	<1	16	<5	7	8	<5	µg/l	A-T-025w

Envirolab Job Number: 18/05033

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05033/1	18/05033/2	18/05033/3	18/05033/4	18/05033/5	18/05033/6	18/05033/7	18/05033/8	Units	Method ref
Client Sample No	0622-4	0622-1	0622-9	0622-Shallow	0623-3 Deep	0622-8	0622-7	0622-0		
Client Sample ID	BH6	BH4A	BH15	BH4D	BH4D	BH13	BH12B	BH4		
Depth to Top	1.14	1.03	1.42	1.50	1.55	1.75	1.78	2.06		
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
PAH 16MS (w)										
Acenaphthene (w) _A [#]	<0.01	<0.01	0.10	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	0.01	µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01	µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01	0.01	0.03	<0.01	<0.01	<0.01	0.02	µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01	0.02	0.03	<0.01	<0.01	<0.01	0.01	µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.01	<0.01	0.05	0.06	0.02	<0.01	0.02	0.02	µg/l	A-T-019w
Fluorene (w) _A [#]	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01	µg/l	A-T-019w
Naphthalene (w) _A [#]	0.03	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.04	<0.01	0.06	0.04	0.05	<0.01	<0.01	0.01	µg/l	A-T-019w
Pyrene (w) _A [#]	<0.01	<0.01	0.06	0.05	0.02	<0.01	0.04	0.02	µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.08	<0.01	0.37	0.30	0.10	<0.01	0.06	0.11	µg/l	A-T-019w

Envirolab Job Number: 18/05033

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05033/1	18/05033/2	18/05033/3	18/05033/4	18/05033/5	18/05033/6	18/05033/7	18/05033/8	Units	Method ref
Client Sample No	0622-4	0622-1	0622-9	0622-Shallow	0623-3 Deep	0622-8	0622-7	0622-0		
Client Sample ID	BH6	BH4A	BH15	BH4D	BH4D	BH13	BH12B	BH4		
Depth to Top	1.14	1.03	1.42	1.50	1.55	1.75	1.78	2.06		
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10	<20	<10	<10	µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
n-Diethylphthalate _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Pentachlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Phenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05033/1	18/05033/2	18/05033/3	18/05033/4	18/05033/5	18/05033/6	18/05033/7	18/05033/8	Units	Method ref
Client Sample No	0622-4	0622-1	0622-9	0622-Shallow	0623-3 Deep	0622-8	0622-7	0622-0		
Client Sample ID	BH6	BH4A	BH15	BH4D	BH4D	BH13	BH12B	BH4		
Depth to Top	1.14	1.03	1.42	1.50	1.55	1.75	1.78	2.06		
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Isophorone _A	<1	<1	<1	<1	<1	<1	<1	<1		
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w

Envirolab Job Number: 18/05033

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05033/1	18/05033/2	18/05033/3	18/05033/4	18/05033/5	18/05033/6	18/05033/7	18/05033/8	Units	Method ref
Client Sample No	0622-4	0622-1	0622-9	0622-Shallow	0623-3 Deep	0622-8	0622-7	0622-0		
Client Sample ID	BH6	BH4A	BH15	BH4D	BH4D	BH13	BH12B	BH4		
Depth to Top	1.14	1.03	1.42	1.50	1.55	1.75	1.78	2.06		
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	2	12	<1	<1	<1	µg/l	A-T-006w
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Trichloroethene _A [#]	<1	<1	<1	2	17	<1	<1	<1	µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Tetrachloroethene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w

Envirolab Job Number: 18/05033

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05033/1	18/05033/2	18/05033/3	18/05033/4	18/05033/5	18/05033/6	18/05033/7	18/05033/8	Units	Method ref
Client Sample No	0622-4	0622-1	0622-9	0622-Shallow	0623-3 Deep	0622-8	0622-7	0622-0		
Client Sample ID	BH6	BH4A	BH15	BH4D	BH4D	BH13	BH12B	BH4		
Depth to Top	1.14	1.03	1.42	1.50	1.55	1.75	1.78	2.06		
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1		
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
n-propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
n-butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w

Envirolab Job Number: 18/05033

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05033/1	18/05033/2	18/05033/3	18/05033/4	18/05033/5	18/05033/6	18/05033/7	18/05033/8	Units	Method ref
Client Sample No	0622-4	0622-1	0622-9	0622-Shallow	0623-3 Deep	0622-8	0622-7	0622-0		
Client Sample ID	BH6	BH4A	BH15	BH4D	BH4D	BH13	BH12B	BH4		
Depth to Top	1.14	1.03	1.42	1.50	1.55	1.75	1.78	2.06		
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18	21-Jun-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aliphatics (w) _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aromatics (w) _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	1	<1	<1	<1	<1	µg/l	A-T-022w

Envirolab Job Number: 18/05033

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05033/9	18/05033/10								Units	Method ref
Client Sample No	0622-6	0622-5									
Client Sample ID	BH11	BH10									
Depth to Top	2.30	2.37									
Depth To Bottom											
Date Sampled	21-Jun-18	21-Jun-18									
Sample Type	Water - EW	Water - EW									
Sample Matrix Code	N/A	N/A									
PAH 16MS (w)											
Acenaphthene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Fluoranthene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Fluorene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Naphthalene (w) _A [#]	<0.01	0.01								µg/l	A-T-019w
Phenanthrene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Pyrene (w) _A [#]	<0.01	<0.01								µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	<0.01	0.01								µg/l	A-T-019w

Envirolab Job Number: 18/05033

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05033/9	18/05033/10							Units	Method ref
Client Sample No	0622-6	0622-5								
Client Sample ID	BH11	BH10								
Depth to Top	2.30	2.37								
Depth To Bottom										
Date Sampled	21-Jun-18	21-Jun-18								
Sample Type	Water - EW	Water - EW								
Sample Matrix Code	N/A	N/A								
Isophorone _A	<1	<1							µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1							µg/l	A-T-052w
Perylene _A	<1	<1							µg/l	A-T-052w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

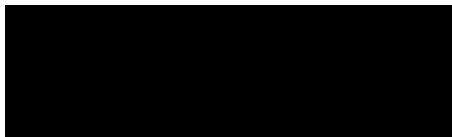
FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/05361/1

Envirolab Job Number: 18/05361
Issue Number: 2
Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

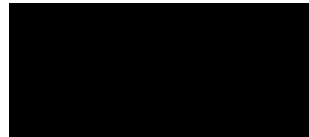
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 598143
Date Samples Received: 05/07/18
Date Instructions Received: 05/07/18
Date Analysis Completed: 16/07/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/05361

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05361/1	18/05361/2	18/05361/3	18/05361/4	18/05361/5	18/05361/6	18/05361/7		Units	Method ref
Client Sample No	0703-3	0703-1	0703-2	0703-7	0703-6 Shallow	0703-5 Deep	0703-4			
Client Sample ID	BH10	BH11	BH15	BH4	BH4D	BH4D	BH6			
Depth to Top	2.44	2.45	1.40	2.06	1.66	1.70	1.38			
Depth To Bottom										
Date Sampled	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
pH (w) _A [#]	8.31	8.47	8.31	8.04	7.98	7.91	7.83			
Ammoniacal nitrogen (w) _A [#]	1.20	0.60	0.38	1.08	5.41	1.93	1.77		mg/l	A-T-033w
Sulphate (w) _A [#]	41	352	247	1140	629	1320	2380		mg/l	A-T-026w
Cyanide (free) (w) _A [#]	<0.005	<0.005	0.006	<0.005	0.007	<0.005	<0.005		mg/l	A-T-042wFCN
Cyanide (total) (w) _A [#]	<0.005	<0.005	0.045	<0.005	0.048	<0.005	<0.005		mg/l	A-T-042wTCN
Arsenic (dissolved) _A [#]	2	7	61	3	11	7	19		µg/l	A-T-025w
Boron (dissolved) _A [#]	273	961	798	768	578	2060	3350		µg/l	A-T-025w
Cadmium (dissolved) _A [#]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0		µg/l	A-T-025w
Copper (dissolved) _A [#]	2	<1	1	1	2	1	<5		µg/l	A-T-025w
Chromium (dissolved) _A [#]	4	<1	<1	<1	<1	<1	<5		µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	Calc
Lead (dissolved) _A [#]	<1	<1	<1	<1	<1	<1	<5		µg/l	A-T-025w
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5		µg/l	A-T-025w
Nickel (dissolved) _A [#]	2	2	2	4	4	4	<5		µg/l	A-T-025w
Selenium (dissolved) _A [#]	<1	<1	<1	<1	<1	<1	<5		µg/l	A-T-025w
Zinc (dissolved) _A [#]	5	3	<1	2	13	2	45		µg/l	A-T-025w

Envirolab Job Number: 18/05361

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05361/1	18/05361/2	18/05361/3	18/05361/4	18/05361/5	18/05361/6	18/05361/7		Units	Method ref
Client Sample No	0703-3	0703-1	0703-2	0703-7	0703-6 Shallow	0703-5 Deep	0703-4			
Client Sample ID	BH10	BH11	BH15	BH4	BH4D	BH4D	BH6			
Depth to Top	2.44	2.45	1.40	2.06	1.66	1.70	1.38			
Depth To Bottom										
Date Sampled	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.02	<0.01	0.11	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Acenaphthylene (w) _A [#]	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01		µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Fluoranthene (w) _A [#]	<0.01	<0.01	0.03	0.02	0.01	0.01	0.01		µg/l	A-T-019w
Fluorene (w) _A [#]	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Naphthalene (w) _A [#]	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.03		µg/l	A-T-019w
Phenanthrene (w) _A [#]	<0.01	<0.01	0.06	<0.01	0.01	0.03	0.05		µg/l	A-T-019w
Pyrene (w) _A [#]	<0.01	<0.01	0.04	0.02	0.01	0.01	0.01		µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.03	<0.01	0.30	0.06	0.03	0.05	0.11		µg/l	A-T-019w

Envirolab Job Number: 18/05361

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05361/1	18/05361/2	18/05361/3	18/05361/4	18/05361/5	18/05361/6	18/05361/7		Units	Method ref
Client Sample No	0703-3	0703-1	0703-2	0703-7	0703-6 Shallow	0703-5 Deep	0703-4			
Client Sample ID	BH10	BH11	BH15	BH4	BH4D	BH4D	BH6			
Depth to Top	2.44	2.45	1.40	2.06	1.66	1.70	1.38			
Depth To Bottom										
Date Sampled	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Chloronaphthalene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Chlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Methylnaphthalene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
3+4-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
4-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w	
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Carbazole _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Dibenzofuran _A	<1	-	<1	<1	<1	<1	<1	µg/l	A-T-052w	
n-Dibutylphthalate _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
n-Diethylphthalate _A	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w	
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Diethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Dimethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Hexachlorobenzene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Pentachlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Phenol _A	<4	<4	<4	<4	<4	<4	<4	µg/l	A-T-052w	
Hexachloroethane _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Nitrobenzene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	

Envirolab Job Number: 18/05361

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05361/1	18/05361/2	18/05361/3	18/05361/4	18/05361/5	18/05361/6	18/05361/7		Units	Method ref		
Client Sample No	0703-3	0703-1	0703-2	0703-7	0703-6 Shallow	0703-5 Deep	0703-4					
Client Sample ID	BH10	BH11	BH15	BH4	BH4D	BH4D	BH6					
Depth to Top	2.44	2.45	1.40	2.06	1.66	1.70	1.38					
Depth To Bottom												
Date Sampled	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18					
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A					
Isophorone _A	<1	<1	<1	<1	<1	<1	<1				µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w		
Perylene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w		

Envirolab Job Number: 18/05361

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05361/1	18/05361/2	18/05361/3	18/05361/4	18/05361/5	18/05361/6	18/05361/7		Units	Method ref
Client Sample No	0703-3	0703-1	0703-2	0703-7	0703-6 Shallow	0703-5 Deep	0703-4			
Client Sample ID	BH10	BH11	BH15	BH4	BH4D	BH4D	BH6			
Depth to Top	2.44	2.45	1.40	2.06	1.66	1.70	1.38			
Depth To Bottom										
Date Sampled	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w	
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w	
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	2	11	<1	µg/l	A-T-006w	
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w	
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w	
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w	
Trichloroethene _A [#]	<1	<1	<1	<1	3	20	<1	µg/l	A-T-006w	
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w	
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Tetrachloroethene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	

Envirolab Job Number: 18/05361

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05361/1	18/05361/2	18/05361/3	18/05361/4	18/05361/5	18/05361/6	18/05361/7		Units	Method ref
Client Sample No	0703-3	0703-1	0703-2	0703-7	0703-6 Shallow	0703-5 Deep	0703-4			
Client Sample ID	BH10	BH11	BH15	BH4	BH4D	BH4D	BH6			
Depth to Top	2.44	2.45	1.40	2.06	1.66	1.70	1.38			
Depth To Bottom										
Date Sampled	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
n-propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2		µg/l	A-T-006w
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
n-butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2	<2	<2		µg/l	A-T-006w
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3		µg/l	A-T-006w
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3		µg/l	A-T-006w
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w

Envirolab Job Number: 18/05361

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05361/1	18/05361/2	18/05361/3	18/05361/4	18/05361/5	18/05361/6	18/05361/7		Units	Method ref
Client Sample No	0703-3	0703-1	0703-2	0703-7	0703-6 Shallow	0703-5 Deep	0703-4			
Client Sample ID	BH10	BH11	BH15	BH4	BH4D	BH4D	BH6			
Depth to Top	2.44	2.45	1.40	2.06	1.66	1.70	1.38			
Depth To Bottom										
Date Sampled	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18	03-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1	1	<1	<1		µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Total Aliphatics (w) _A	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Total Aromatics (w) _A	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1	1	<1	<1		µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/05864/1

Envirolab Job Number: 18/05864

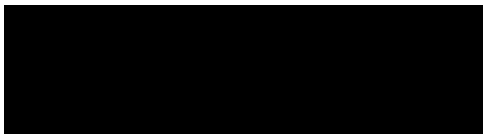
Issue Number: 2

Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

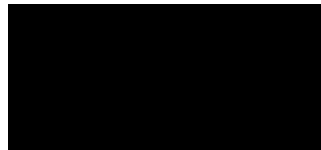
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt. Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 600180
Date Samples Received: 23/07/18
Date Instructions Received: 23/07/18
Date Analysis Completed: 01/08/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/05864

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05864/1	18/05864/2	18/05864/3	18/05864/4	18/05864/5	18/05864/6	18/05864/7		Units	Method ref
Client Sample No	0720-8	0720-4	0720-7 Deep	0720-6 Shallow	0720-5	0720-9	0720-10			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.44	1.51	1.55	1.65	1.99	2.51	2.66			
Depth To Bottom										
Date Sampled	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
pH (w) [#]	7.86	7.42	7.41	7.03	7.34	7.82	7.90			
Ammoniacal nitrogen (w) [#]	0.23	1.95	1.95	5.30	1.30	1.54	1.69		mg/l	A-T-033w
Sulphate (w) [#]	224	2530	1380	618	1220	2540	40		mg/l	A-T-026w
Cyanide (free) (w) [#]	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		mg/l	A-T-042wFCN
Cyanide (total) (w) [#]	0.082	<0.005	<0.005	0.060	<0.005	<0.005	<0.005		mg/l	A-T-042wTCN
Arsenic (dissolved) [#]	58	15	5	13	3	15	2		µg/l	A-T-025w
Boron (dissolved) [#]	660	4050	1790	546	758	3490	308		µg/l	A-T-025w
Cadmium (dissolved) [#]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		µg/l	A-T-025w
Copper (dissolved) [#]	2	1	2	7	1	3	3		µg/l	A-T-025w
Chromium (dissolved) [#]	<1	1	2	<1	<1	1	<1		µg/l	A-T-025w
Chromium (hexavalent) (w) [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	Calc
Lead (dissolved) [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-025w
Mercury (dissolved) [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		µg/l	A-T-025w
Nickel (dissolved) [#]	2	3	5	3	4	2	1		µg/l	A-T-025w
Selenium (dissolved) [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-025w
Zinc (dissolved) [#]	1	4	10	6	5	8	5		µg/l	A-T-025w

Envirolab Job Number: 18/05864

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05864/1	18/05864/2	18/05864/3	18/05864/4	18/05864/5	18/05864/6	18/05864/7		Units	Method ref
Client Sample No	0720-8	0720-4	0720-7 Deep	0720-6 Shallow	0720-5	0720-9	0720-10			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.44	1.51	1.55	1.65	1.99	2.51	2.66			
Depth To Bottom										
Date Sampled	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Anthracene (w) _A [#]	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.04	0.02	0.01	0.03	<0.01	0.01	<0.01		µg/l	A-T-019w
Fluorene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Naphthalene (w) _A [#]	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.05	0.05	0.02	0.02	<0.01	<0.01	0.02		µg/l	A-T-019w
Pyrene (w) _A [#]	0.04	0.02	<0.01	0.03	<0.01	0.01	<0.01		µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.27	0.12	0.03	0.10	<0.01	0.02	0.02		µg/l	A-T-019w

Envirolab Job Number: 18/05864

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05864/1	18/05864/2	18/05864/3	18/05864/4	18/05864/5	18/05864/6	18/05864/7		Units	Method ref
Client Sample No	0720-8	0720-4	0720-7 Deep	0720-6 Shallow	0720-5	0720-9	0720-10			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.44	1.51	1.55	1.65	1.99	2.51	2.66			
Depth To Bottom										
Date Sampled	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Chloronaphthalene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Chlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Methylnaphthalene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
2-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
3+4-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
4-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w	
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Carbazole _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Dibenzofuran _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
n-Dibutylphthalate _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
n-Dioctylphthalate _A	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w	
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Diethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Dimethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Hexachlorobenzene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Pentachlorophenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Phenol _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Hexachloroethane _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Nitrobenzene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	

Envirolab Job Number: 18/05864

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05864/1	18/05864/2	18/05864/3	18/05864/4	18/05864/5	18/05864/6	18/05864/7		Units	Method ref
Client Sample No	0720-8	0720-4	0720-7 Deep	0720-6 Shallow	0720-5	0720-9	0720-10			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.44	1.51	1.55	1.65	1.99	2.51	2.66			
Depth To Bottom										
Date Sampled	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Isophorone _A	<1	<1	<1	<1	<1	<1	<1	µg/l		
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	
Perylene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w	

Envirolab Job Number: 18/05864

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05864/1	18/05864/2	18/05864/3	18/05864/4	18/05864/5	18/05864/6	18/05864/7		Units	Method ref
Client Sample No	0720-8	0720-4	0720-7 Deep	0720-6 Shallow	0720-5	0720-9	0720-10			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.44	1.51	1.55	1.65	1.99	2.51	2.66			
Depth To Bottom										
Date Sampled	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w	
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w	
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
cis 1,2-Dichloroethene _A [#]	<1	<1	8	2	<1	<1	<1	µg/l	A-T-006w	
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w	
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w	
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w	
Trichloroethene _A [#]	<1	<1	18	2	<1	<1	<1	µg/l	A-T-006w	
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w	
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Tetrachloroethene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	

Envirolab Job Number: 18/05864

Client Project Name: Gt. Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/05864/1	18/05864/2	18/05864/3	18/05864/4	18/05864/5	18/05864/6	18/05864/7		Units	Method ref
Client Sample No	0720-8	0720-4	0720-7 Deep	0720-6 Shallow	0720-5	0720-9	0720-10			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.44	1.51	1.55	1.65	1.99	2.51	2.66			
Depth To Bottom										
Date Sampled	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
n-propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2		µg/l	A-T-006w
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
n-butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2	<2	<2		µg/l	A-T-006w
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3		µg/l	A-T-006w
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3		µg/l	A-T-006w
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w

Envirolab Job Number: 18/05864

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Client Project Ref: PZ1522D1

Lab Sample ID	18/05864/1	18/05864/2	18/05864/3	18/05864/4	18/05864/5	18/05864/6	18/05864/7		Units	Method ref
Client Sample No	0720-8	0720-4	0720-7 Deep	0720-6 Shallow	0720-5	0720-9	0720-10			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.44	1.51	1.55	1.65	1.99	2.51	2.66			
Depth To Bottom										
Date Sampled	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18	19-Jul-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	1	<1	<1	<1	µg/l	A-T-022w	
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	2	µg/l	A-T-022w	
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w	
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w	
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w	
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w	
Total Aliphatics (w) _A	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w	
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w	
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w	
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w	
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w	
Total Aromatics (w) _A	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w	
TPH (Ali & Aro) (w) _A	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w	
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w	
MTBE (w) _A [#]	<1	<1	<1	1	<1	<1	<1	µg/l	A-T-022w	

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/06265/1

Envirolab Job Number: 18/06265

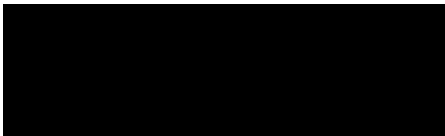
Issue Number: 2

Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

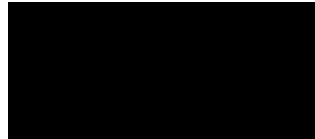
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 601544
Date Samples Received: 06/08/18
Date Instructions Received: 06/08/18
Date Analysis Completed: 14/08/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/06265

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06265/1	18/06265/2	18/06265/3	18/06265/4	18/06265/5	18/06265/6	18/06265/7		Units	Method ref
Client Sample No	0803-4	0803-0	0803-3 Deep	0803-2 Shallow	0803-1	0803-6	0803-5			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.43									
Depth To Bottom										
Date Sampled	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
pH (w) _A [#]	8.20	7.67	7.84	7.87	7.88	7.90	8.46		pH	A-T-031w
Ammoniacal nitrogen (w) _A [#]	0.27	1.36	1.83	5.14	1.19	1.71	1.00		mg/l	A-T-033w
Sulphate (w) _A [#]	235	2480	1350	631	1180	2360	42		mg/l	A-T-026w
Cyanide (free) (w) _A [#]	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		mg/l	A-T-042wFCN
Cyanide (total) (w) _A [#]	0.048	<0.005	<0.005	0.043	<0.005	<0.005	<0.005		mg/l	A-T-042wTCN
Arsenic (dissolved) _A [#]	57	13	6	11	3	3	2		µg/l	A-T-025w
Boron (dissolved) _A [#]	749	1730	1710	459	793	4920	273		µg/l	A-T-025w
Cadmium (dissolved) _A [#]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		µg/l	A-T-025w
Copper (dissolved) _A [#]	8	9	7	9	8	9	10		µg/l	A-T-025w
Chromium (dissolved) _A [#]	<1	3	2	<1	1	2	<1		µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	Calc
Lead (dissolved) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-025w
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		µg/l	A-T-025w
Nickel (dissolved) _A [#]	2	3	4	3	3	2	2		µg/l	A-T-025w
Selenium (dissolved) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-025w
Zinc (dissolved) _A [#]	2	14	4	8	2	1	9		µg/l	A-T-025w

Envirolab Job Number: 18/06265

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06265/1	18/06265/2	18/06265/3	18/06265/4	18/06265/5	18/06265/6	18/06265/7		Units	Method ref
Client Sample No	0803-4	0803-0	0803-3 Deep	0803-2 Shallow	0803-1	0803-6	0803-5			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.43									
Depth To Bottom										
Date Sampled	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.14	0.04	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Acenaphthylene (w) _A [#]	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Anthracene (w) _A [#]	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.03	<0.01	0.01	0.02	<0.01	<0.01	0.02		µg/l	A-T-019w
Fluorene (w) _A [#]	0.03	0.03	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Naphthalene (w) _A [#]	0.03	0.06	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.07	0.06	0.01	0.02	<0.01	<0.01	0.02		µg/l	A-T-019w
Pyrene (w) _A [#]	0.04	<0.01	<0.01	0.02	<0.01	<0.01	0.02		µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.39	0.19	0.02	0.06	<0.01	<0.01	0.06		µg/l	A-T-019w

Envirolab Job Number: 18/06265

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06265/1	18/06265/2	18/06265/3	18/06265/4	18/06265/5	18/06265/6	18/06265/7		Units	Method ref
Client Sample No	0803-4	0803-0	0803-3 Deep	0803-2 Shallow	0803-1	0803-6	0803-5			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.43									
Depth To Bottom										
Date Sampled	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10	<10	<10		µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
n-Diethylphthalate _A	<10	<10	<10	<10	<10	<10	<10		µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Pentachlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Phenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w

Envirolab Job Number: 18/06265

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06265/1	18/06265/2	18/06265/3	18/06265/4	18/06265/5	18/06265/6	18/06265/7		Units	Method ref
Client Sample No	0803-4	0803-0	0803-3 Deep	0803-2 Shallow	0803-1	0803-6	0803-5			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.43									
Depth To Bottom										
Date Sampled	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Isophorone _A	<1	<1	<1	<1	<1	<1	<1			
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w

Envirolab Job Number: 18/06265

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06265/1	18/06265/2	18/06265/3	18/06265/4	18/06265/5	18/06265/6	18/06265/7		Units	Method ref
Client Sample No	0803-4	0803-0	0803-3 Deep	0803-2 Shallow	0803-1	0803-6	0803-5			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.43									
Depth To Bottom										
Date Sampled	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w	
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w	
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
cis 1,2-Dichloroethene _A [#]	<1	<1	8	2	<1	<1	<1	µg/l	A-T-006w	
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w	
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w	
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w	
Trichloroethene _A [#]	<1	<1	16	3	<1	<1	<1	µg/l	A-T-006w	
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w	
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Tetrachloroethene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	

Envirolab Job Number: 18/06265

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06265/1	18/06265/2	18/06265/3	18/06265/4	18/06265/5	18/06265/6	18/06265/7		Units	Method ref
Client Sample No	0803-4	0803-0	0803-3 Deep	0803-2 Shallow	0803-1	0803-6	0803-5			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.43									
Depth To Bottom										
Date Sampled	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
n-propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2		µg/l	A-T-006w
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
n-butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2	<2	<2		µg/l	A-T-006w
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3		µg/l	A-T-006w
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3		µg/l	A-T-006w
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w

Envirolab Job Number: 18/06265

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06265/1	18/06265/2	18/06265/3	18/06265/4	18/06265/5	18/06265/6	18/06265/7		Units	Method ref
Client Sample No	0803-4	0803-0	0803-3 Deep	0803-2 Shallow	0803-1	0803-6	0803-5			
Client Sample ID	BH15	BH6	BH4D	BH4D	BH4	BH11	BH10			
Depth to Top	1.43									
Depth To Bottom										
Date Sampled	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18	02-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Total Aliphatics (w) _A	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w
Total Aromatics (w) _A	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

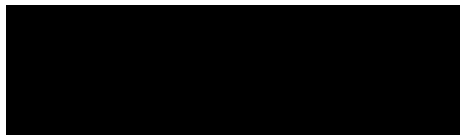
FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/06637/1

Envirolab Job Number: 18/06637
Issue Number: 2
Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

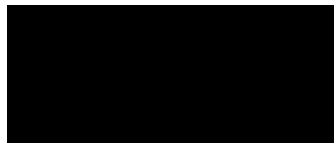
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 602780
Date Samples Received: 17/08/18
Date Instructions Received: 20/08/18
Date Analysis Completed: 29/08/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/06637

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06637/1	18/06637/2	18/06637/3	18/06637/4	18/06637/5	18/06637/6	18/06637/7		Units	Method ref
Client Sample No	0817-0	0817-3 Deep	0817-2	0817-1	0817-4	0817-5	0817-6			
Client Sample ID	BH6	BH4D	BH4D	BH4	BH15	BH11	BH10			
Depth to Top	1.33	1.56	1.64	2.10	2.10	2.32	2.38			
Depth To Bottom										
Date Sampled	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
pH (w) _A [#]	7.26	7.40	7.08	7.28	8.18	7.60	8.03			
Ammoniacal nitrogen (w) _A [#]	1.26	0.74	5.31	1.27	0.22	1.56	0.88		mg/l	A-T-033w
Sulphate (w) _A [#]	2380	1330	618	1160	238	2350	45		mg/l	A-T-026w
Cyanide (free) (w) _A [#]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		mg/l	A-T-042wFCN
Cyanide (total) (w) _A [#]	<0.005	<0.005	<0.005	0.063	0.019	<0.005	<0.005		mg/l	A-T-042wTCN
Arsenic (dissolved) _A [#]	14	5	10	2	62	8	3		µg/l	A-T-025w
Boron (dissolved) _A [#]	2080	1760	635	766	780	3900	288		µg/l	A-T-025w
Cadmium (dissolved) _A [#]	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2		µg/l	A-T-025w
Copper (dissolved) _A [#]	6	5	5	5	5	5	7		µg/l	A-T-025w
Chromium (dissolved) _A [#]	2	1	<1	1	<1	<5	<1		µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	Calc
Lead (dissolved) _A [#]	<1	<1	<1	<1	<1	<5	<1		µg/l	A-T-025w
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1		µg/l	A-T-025w
Nickel (dissolved) _A [#]	3	3	3	3	2	<5	2		µg/l	A-T-025w
Selenium (dissolved) _A [#]	<1	<1	<1	<1	<1	<5	<1		µg/l	A-T-025w
Zinc (dissolved) _A [#]	<1	3	6	1	1	<5	4		µg/l	A-T-025w

Envirolab Job Number: 18/06637

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06637/1	18/06637/2	18/06637/3	18/06637/4	18/06637/5	18/06637/6	18/06637/7		Units	Method ref
Client Sample No	0817-0	0817-3 Deep	0817-2	0817-1	0817-4	0817-5	0817-6			
Client Sample ID	BH6	BH4D	BH4D	BH4	BH15	BH11	BH10			
Depth to Top	1.33	1.56	1.64	2.10	2.10	2.32	2.38			
Depth To Bottom										
Date Sampled	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.01	<0.01	<0.01	<0.01	0.13	<0.01	<0.01		µg/l	A-T-019w
Acenaphthylene (w) _A [#]	0.02	<0.01	<0.01	<0.01	0.01	<0.01	<0.01		µg/l	A-T-019w
Anthracene (w) _A [#]	0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01		µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	0.01	<0.01	0.02	0.04	0.01	0.02	<0.01		µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	0.01	<0.01	0.02	0.04	<0.01	0.01	<0.01		µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01	0.02	0.04	<0.01	0.01	<0.01		µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01		µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01		µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01	0.02	0.03	0.01	0.01	<0.01		µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.03	<0.01	0.05	0.06	0.03	0.05	0.01		µg/l	A-T-019w
Fluorene (w) _A [#]	0.02	<0.01	<0.01	<0.01	0.01	<0.01	<0.01		µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	0.02	0.03	<0.01	<0.01	<0.01		µg/l	A-T-019w
Naphthalene (w) _A [#]	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.05	<0.01	0.03	0.03	0.06	0.03	<0.01		µg/l	A-T-019w
Pyrene (w) _A [#]	0.02	<0.01	0.04	0.05	0.03	0.04	0.01		µg/l	A-T-019w
Total PAH 16MS (w)_A[#]	0.20	<0.01	0.24	0.36	0.31	0.17	0.02		µg/l	A-T-019w

Envirolab Job Number: 18/06637

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06637/1	18/06637/2	18/06637/3	18/06637/4	18/06637/5	18/06637/6	18/06637/7		Units	Method ref
Client Sample No	0817-0	0817-3 Deep	0817-2	0817-1	0817-4	0817-5	0817-6			
Client Sample ID	BH6	BH4D	BH4D	BH4	BH15	BH11	BH10			
Depth to Top	1.33	1.56	1.64	2.10	2.10	2.32	2.38			
Depth To Bottom										
Date Sampled	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10	<10	<10		µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
n-Diethylphthalate _A	<10	<10	<10	<10	<10	<10	<10		µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Pentachlorophenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Phenol _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w

Envirolab Job Number: 18/06637

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06637/1	18/06637/2	18/06637/3	18/06637/4	18/06637/5	18/06637/6	18/06637/7		Units	Method ref
Client Sample No	0817-0	0817-3 Deep	0817-2	0817-1	0817-4	0817-5	0817-6			
Client Sample ID	BH6	BH4D	BH4D	BH4	BH15	BH11	BH10			
Depth to Top	1.33	1.56	1.64	2.10	2.10	2.32	2.38			
Depth To Bottom										
Date Sampled	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Isophorone _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-052w

Envirolab Job Number: 18/06637

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06637/1	18/06637/2	18/06637/3	18/06637/4	18/06637/5	18/06637/6	18/06637/7		Units	Method ref
Client Sample No	0817-0	0817-3 Deep	0817-2	0817-1	0817-4	0817-5	0817-6			
Client Sample ID	BH6	BH4D	BH4D	BH4	BH15	BH11	BH10			
Depth to Top	1.33	1.56	1.64	2.10	2.10	2.32	2.38			
Depth To Bottom										
Date Sampled	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w	
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w	
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
cis 1,2-Dichloroethene _A [#]	<1	4	1	<1	<1	<1	<1	µg/l	A-T-006w	
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w	
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w	
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w	
Trichloroethene _A [#]	<1	8	2	<1	<1	<1	<1	µg/l	A-T-006w	
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w	
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	
Tetrachloroethene _A	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w	

Envirolab Job Number: 18/06637

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06637/1	18/06637/2	18/06637/3	18/06637/4	18/06637/5	18/06637/6	18/06637/7		Units	Method ref
Client Sample No	0817-0	0817-3 Deep	0817-2	0817-1	0817-4	0817-5	0817-6			
Client Sample ID	BH6	BH4D	BH4D	BH4	BH15	BH11	BH10			
Depth to Top	1.33	1.56	1.64	2.10	2.10	2.32	2.38			
Depth To Bottom										
Date Sampled	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18			
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1			
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
n-propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	2	<1		µg/l	A-T-006w
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2		µg/l	A-T-006w
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
n-butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2	<2	<2		µg/l	A-T-006w
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3		µg/l	A-T-006w
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3		µg/l	A-T-006w
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-006w

Envirolab Job Number: 18/06637

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/06637/1	18/06637/2	18/06637/3	18/06637/4	18/06637/5	18/06637/6	18/06637/7		Units	Method ref		
Client Sample No	0817-0	0817-3 Deep	0817-2	0817-1	0817-4	0817-5	0817-6					
Client Sample ID	BH6	BH4D	BH4D	BH4	BH15	BH11	BH10					
Depth to Top	1.33	1.56	1.64	2.10	2.10	2.32	2.38					
Depth To Bottom												
Date Sampled	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18					
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A					
TPH CWG (w)												
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w		
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w		
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w		
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w		
Total Aliphatics (w) _A	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-022+23w		
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1	<1	7	<1		µg/l	A-T-022w		
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w		
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w		
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w		
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5		µg/l	A-T-023w		
Total Aromatics (w) _A	<5	<5	<5	<5	<5	7	<5		µg/l	A-T-022+23w		
TPH (Ali & Aro) (w) _A	<5	<5	<5	<5	<5	7	<5		µg/l	A-T-022+23w		
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		
MTBE (w) _A [#]	<1	<1	<1	<1	<1	<1	<1		µg/l	A-T-022w		

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/07049/1

Envirolab Job Number: 18/07049

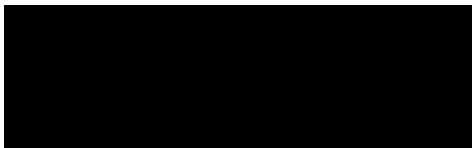
Issue Number: 2

Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

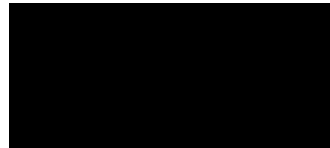
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 603950
Date Samples Received: 03/09/18
Date Instructions Received: 04/09/18
Date Analysis Completed: 11/09/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/1	18/07049/2	18/07049/3	18/07049/4	18/07049/5	18/07049/6	18/07049/7	18/07049/8	Units	Method ref
Client Sample No	0831-0	0831-3 Deep	0831-4	0831-2 Shallow	0831-6	0831-8	0831-1	0831-5		
Client Sample ID	BH6	BH4D	BH15	BH4D	BH13	BH12B	BH4	BH11		
Depth to Top	1.32	1.46	1.56	1.59	1.61	1.70	2.04	2.27		
Depth To Bottom										
Date Sampled	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
pH (w) [#]	7.30	7.61	8.08	7.37	8.23	8.60	7.67	7.73		
Ammoniacal nitrogen (w) [#]	1.28	0.89	0.22	5.04	11.8	2.82	1.08	1.32	mg/l	A-T-033w
Sulphate (w) [#]	2400	1370	249	627	147	301	1180	2370	mg/l	A-T-026w
Cyanide (free) (w) [#]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	A-T-042wFCN
Cyanide (total) (w) [#]	<0.005	<0.005	0.027	0.045	0.019	0.026	<0.005	<0.005	mg/l	A-T-042wTCN
Arsenic (dissolved) [#]	15	5	63	7	17	7	2	7	µg/l	A-T-025w
Boron (dissolved) [#]	1910	1680	766	623	873	482	714	3350	µg/l	A-T-025w
Cadmium (dissolved) [#]	<0.4	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	µg/l	A-T-025w
Copper (dissolved) [#]	<2	<2	<1	<1	1	1	<1	<5	µg/l	A-T-025w
Chromium (dissolved) [#]	3	2	<1	<1	<1	<1	2	7	µg/l	A-T-025w
Chromium (hexavalent) (w) [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	Calc
Lead (dissolved) [#]	<2	<2	<1	<1	<1	<1	<1	<5	µg/l	A-T-025w
Mercury (dissolved) [#]	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	µg/l	A-T-025w
Nickel (dissolved) [#]	<2	3	1	2	4	4	3	<5	µg/l	A-T-025w
Selenium (dissolved) [#]	<2	<2	<1	<1	<1	1	<1	<5	µg/l	A-T-025w
Zinc (dissolved) [#]	<2	21	1	3	<1	2	1	35	µg/l	A-T-025w
Ali >C5-C6 (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C6-C8 (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C8-C10 (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C5-C7 (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C7-C8 (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C8-C9 (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C9-C10 (w) [#]	<1	<1	<1	<1	1	<1	<1	<1	µg/l	A-T-022w
BTEX - Benzene (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Toluene (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Ethyl Benzene (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - m & p Xylene (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - o Xylene (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
MTBE (w) [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/1	18/07049/2	18/07049/3	18/07049/4	18/07049/5	18/07049/6	18/07049/7	18/07049/8	Units	Method ref
Client Sample No	0831-0	0831-3 Deep	0831-4	0831-2 Shallow	0831-6	0831-8	0831-1	0831-5		
Client Sample ID	BH6	BH4D	BH15	BH4D	BH13	BH12B	BH4	BH11		
Depth to Top	1.32	1.46	1.56	1.59	1.61	1.70	2.04	2.27		
Depth To Bottom										
Date Sampled	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
PAH 16MS (w)										
Acenaphthene (w) _A [#]	<0.01	<0.01	0.13	<0.01	0.15	-	<0.01	<0.01	µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01	0.01	<0.01	0.02	-	<0.01	<0.01	µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01	<0.01	0.02	<0.01	<0.01	-	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01	<0.01	0.02	<0.01	-	0.02	<0.01	µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	0.02	<0.01	-	0.02	<0.01	µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	0.02	<0.01	-	0.02	<0.01	µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	0.01	<0.01	-	<0.01	<0.01	µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	0.01	<0.01	-	<0.01	<0.01	µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01	<0.01	0.02	<0.01	-	0.02	<0.01	µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	µg/l	A-T-019w
Fluoranthene (w) _A [#]	<0.01	<0.01	0.04	0.05	<0.01	-	0.03	<0.01	µg/l	A-T-019w
Fluorene (w) _A [#]	<0.01	<0.01	0.02	<0.01	0.08	-	<0.01	<0.01	µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	0.01	<0.01	-	<0.01	<0.01	µg/l	A-T-019w
Naphthalene (w) _A [#]	0.02	<0.01	<0.01	<0.01	1.27	-	<0.01	<0.01	µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.03	<0.01	0.07	0.02	0.04	-	0.01	<0.01	µg/l	A-T-019w
Pyrene (w) _A [#]	<0.01	<0.01	0.05	0.04	0.01	-	0.03	<0.01	µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.05	<0.01	0.34	0.22	1.57	-	0.15	<0.01	µg/l	A-T-019w

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/1	18/07049/2	18/07049/3	18/07049/4	18/07049/5	18/07049/6	18/07049/7	18/07049/8	Units	Method ref
Client Sample No	0831-0	0831-3 Deep	0831-4	0831-2 Shallow	0831-6	0831-8	0831-1	0831-5		
Client Sample ID	BH6	BH4D	BH15	BH4D	BH13	BH12B	BH4	BH11		
Depth to Top	1.32	1.46	1.56	1.59	1.61	1.70	2.04	2.27		
Depth To Bottom										
Date Sampled	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1	3	<1	2	<1	<1	<1	<1	µg/l	A-T-006w
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Trichloroethene _A [#]	<1	8	<1	3	<1	<1	<1	<1	µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Tetrachloroethene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/1	18/07049/2	18/07049/3	18/07049/4	18/07049/5	18/07049/6	18/07049/7	18/07049/8	Units	Method ref		
Client Sample No	0831-0	0831-3 Deep	0831-4	0831-2 Shallow	0831-6	0831-8	0831-1	0831-5				
Client Sample ID	BH6	BH4D	BH15	BH4D	BH13	BH12B	BH4	BH11				
Depth to Top	1.32	1.46	1.56	1.59	1.61	1.70	2.04	2.27				
Depth To Bottom												
Date Sampled	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-006w
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
n-propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w		
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
n-butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w		
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w		
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w		
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/1	18/07049/2	18/07049/3	18/07049/4	18/07049/5	18/07049/6	18/07049/7	18/07049/8	Units	Method ref
Client Sample No	0831-0	0831-3 Deep	0831-4	0831-2 Shallow	0831-6	0831-8	0831-1	0831-5		
Client Sample ID	BH6	BH4D	BH15	BH4D	BH13	BH12B	BH4	BH11		
Depth to Top	1.32	1.46	1.56	1.59	1.61	1.70	2.04	2.27		
Depth To Bottom										
Date Sampled	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10	-	<10	<10	µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
n-Dioctylphthalate _A	<10	<10	<10	<10	<10	-	<10	<10	µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Pentachlorophenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Phenol _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/1	18/07049/2	18/07049/3	18/07049/4	18/07049/5	18/07049/6	18/07049/7	18/07049/8	Units	Method ref		
Client Sample No	0831-0	0831-3 Deep	0831-4	0831-2 Shallow	0831-6	0831-8	0831-1	0831-5				
Client Sample ID	BH6	BH4D	BH15	BH4D	BH13	BH12B	BH4	BH11				
Depth to Top	1.32	1.46	1.56	1.59	1.61	1.70	2.04	2.27				
Depth To Bottom												
Date Sampled	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Isophorone _A	<1	<1	<1	<1	<1	-	<1	<1			µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1	-	<1	<1			µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1	<1	-	<1	<1	µg/l	A-T-052w		

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/1	18/07049/2	18/07049/3	18/07049/4	18/07049/5	18/07049/6	18/07049/7	18/07049/8	Units	Method ref
Client Sample No	0831-0	0831-3 Deep	0831-4	0831-2 Shallow	0831-6	0831-8	0831-1	0831-5		
Client Sample ID	BH6	BH4D	BH15	BH4D	BH13	BH12B	BH4	BH11		
Depth to Top	1.32	1.46	1.56	1.59	1.61	1.70	2.04	2.27		
Depth To Bottom										
Date Sampled	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
TPH CWG (w)										
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	-	<5	<5	µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	-	<5	<5	µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	-	<5	<5	µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	-	<5	<5	µg/l	A-T-023w
Total Aliphatics (w) _A	<5	<5	<5	<5	<5	-	<5	<5	µg/l	A-T-022+23w
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5	6	-	<5	<5	µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	-	<5	<5	µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	-	<5	<5	µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	-	<5	<5	µg/l	A-T-023w
Total Aromatics (w) _A	<5	<5	<5	<5	7	-	<5	<5	µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5	<5	<5	<5	7	-	<5	<5	µg/l	A-T-022+23w

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/9									Units	Method ref
Client Sample No	0831-7										
Client Sample ID	BH10										
Depth to Top	2.34										
Depth To Bottom											
Date Sampled	30-Aug-18										
Sample Type	Water - EW										
Sample Matrix Code	N/A										
pH (w) _A [#]	8.18									pH	A-T-031w
Ammoniacal nitrogen (w) _A [#]	0.74									mg/l	A-T-033w
Sulphate (w) _A [#]	40									mg/l	A-T-026w
Cyanide (free) (w) _A [#]	<0.005									mg/l	A-T-042wFCN
Cyanide (total) (w) _A [#]	<0.005									mg/l	A-T-042wTCN
Arsenic (dissolved) _A [#]	3									µg/l	A-T-025w
Boron (dissolved) _A [#]	299									µg/l	A-T-025w
Cadmium (dissolved) _A [#]	<0.2									µg/l	A-T-025w
Copper (dissolved) _A [#]	3									µg/l	A-T-025w
Chromium (dissolved) _A [#]	<1									µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01									mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01									mg/l	Calc
Lead (dissolved) _A [#]	<1									µg/l	A-T-025w
Mercury (dissolved) _A [#]	<0.1									µg/l	A-T-025w
Nickel (dissolved) _A [#]	1									µg/l	A-T-025w
Selenium (dissolved) _A [#]	<1									µg/l	A-T-025w
Zinc (dissolved) _A [#]	5									µg/l	A-T-025w
Ali >C5-C6 (w) _A [#]	<1									µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1									µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<1									µg/l	A-T-022w
Aro >C5-C7 (w) _A [#]	<1									µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1									µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1									µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1									µg/l	A-T-022w
BTEX - Benzene (w) _A [#]	<1									µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1									µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1									µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1									µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1									µg/l	A-T-022w
MTBE (w) _A [#]	<1									µg/l	A-T-022w

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/9									Units	Method ref
Client Sample No	0831-7										
Client Sample ID	BH10										
Depth to Top	2.34										
Depth To Bottom											
Date Sampled	30-Aug-18										
Sample Type	Water - EW										
Sample Matrix Code	N/A										
PAH 16MS (w)											
Acenaphthene (w) _A [#]	<0.01									µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01									µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01									µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01									µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01									µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01									µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01									µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01									µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01									µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01									µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.03									µg/l	A-T-019w
Fluorene (w) _A [#]	<0.01									µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01									µg/l	A-T-019w
Naphthalene (w) _A [#]	<0.01									µg/l	A-T-019w
Phenanthrene (w) _A [#]	<0.01									µg/l	A-T-019w
Pyrene (w) _A [#]	0.03									µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.06									µg/l	A-T-019w

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/9									Units	Method ref
Client Sample No	0831-7										
Client Sample ID	BH10										
Depth to Top	2.34										
Depth To Bottom											
Date Sampled	30-Aug-18										
Sample Type	Water - EW										
Sample Matrix Code	N/A										
VOC (w)											
Dichlorodifluoromethane _A	<1									µg/l	A-T-006w
Chloromethane _A	<10									µg/l	A-T-006w
Vinyl Chloride _A [#]	<1									µg/l	A-T-006w
Bromomethane _A [#]	<1									µg/l	A-T-006w
Chloroethane _A [#]	<1									µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1									µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1									µg/l	A-T-006w
Dichloromethane _A	<5									µg/l	A-T-006w
Carbon Disulphide _A [#]	<1									µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1									µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1									µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1									µg/l	A-T-006w
Bromochloromethane _A [#]	<5									µg/l	A-T-006w
Chloroform _A [#]	<1									µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1									µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2									µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1									µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1									µg/l	A-T-006w
Benzene _A [#]	<1									µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1									µg/l	A-T-006w
Dibromomethane _A [#]	<1									µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1									µg/l	A-T-006w
Bromodichloromethane _A [#]	<10									µg/l	A-T-006w
Trichloroethene _A [#]	<1									µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1									µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1									µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	<1									µg/l	A-T-006w
Toluene _A [#]	<1									µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1									µg/l	A-T-006w
Dibromochloromethane _A [#]	<3									µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1									µg/l	A-T-006w
Tetrachloroethene _A	<1									µg/l	A-T-006w

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/9									Units	Method ref
Client Sample No	0831-7										
Client Sample ID	BH10										
Depth to Top	2.34										
Depth To Bottom											
Date Sampled	30-Aug-18										
Sample Type	Water - EW										
Sample Matrix Code	N/A										
1,1,1,2-Tetrachloroethane _A	<1									µg/l	A-T-006w
Chlorobenzene _A [#]	<1									µg/l	A-T-006w
Ethylbenzene _A [#]	<1									µg/l	A-T-006w
m & p Xylene _A [#]	<1									µg/l	A-T-006w
Bromoform _A [#]	<1									µg/l	A-T-006w
Styrene _A [#]	<1									µg/l	A-T-006w
1,1,2,2-Tetrachloroethane _A	<1									µg/l	A-T-006w
o-Xylene _A [#]	<1									µg/l	A-T-006w
1,2,3-Trichloropropane _A [#]	<1									µg/l	A-T-006w
Isopropylbenzene _A [#]	<1									µg/l	A-T-006w
Bromobenzene _A [#]	<1									µg/l	A-T-006w
2-Chlorotoluene _A [#]	<1									µg/l	A-T-006w
n-propylbenzene _A [#]	<1									µg/l	A-T-006w
4-Chlorotoluene _A [#]	<1									µg/l	A-T-006w
1,2,4-Trimethylbenzene _A [#]	<1									µg/l	A-T-006w
4-Isopropyltoluene _A [#]	<1									µg/l	A-T-006w
1,3,5-Trimethylbenzene _A [#]	<1									µg/l	A-T-006w
1,2-Dichlorobenzene _A [#]	<1									µg/l	A-T-006w
1,4-Dichlorobenzene _A [#]	<1									µg/l	A-T-006w
sec-Butylbenzene _A [#]	<1									µg/l	A-T-006w
tert-Butylbenzene _A [#]	<2									µg/l	A-T-006w
1,3-Dichlorobenzene _A [#]	<1									µg/l	A-T-006w
n-butylbenzene _A [#]	<1									µg/l	A-T-006w
1,2-Dibromo-3-chloropropane _A [#]	<2									µg/l	A-T-006w
1,2,4-Trichlorobenzene _A [#]	<3									µg/l	A-T-006w
1,2,3-Trichlorobenzene _A [#]	<3									µg/l	A-T-006w
Hexachlorobutadiene _A [#]	<1									µg/l	A-T-006w

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/9									Units	Method ref
Client Sample No	0831-7										
Client Sample ID	BH10										
Depth to Top	2.34										
Depth To Bottom											
Date Sampled	30-Aug-18										
Sample Type	Water - EW										
Sample Matrix Code	N/A										
SVOC (excluding PAH-16) (w)											
2,4,5-Trichlorophenol _A	<1									µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1									µg/l	A-T-052w
2,4-Dichlorophenol _A	<1									µg/l	A-T-052w
2,4-Dimethylphenol _A	<1									µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1									µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1									µg/l	A-T-052w
2-Chloronaphthalene _A	<1									µg/l	A-T-052w
2-Chlorophenol _A	<1									µg/l	A-T-052w
2-Methylnaphthalene _A	<1									µg/l	A-T-052w
2-Methylphenol _A	<1									µg/l	A-T-052w
2-Nitrophenol _A	<1									µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1									µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1									µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1									µg/l	A-T-052w
3+4-Methylphenol _A	<1									µg/l	A-T-052w
4-Nitrophenol _A	<1									µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1									µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1									µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10									µg/l	A-T-052w
Butylbenzyl phthalate _A	<1									µg/l	A-T-052w
Carbazole _A	<1									µg/l	A-T-052w
Dibenzofuran _A	<1									µg/l	A-T-052w
n-Dibutylphthalate _A	<1									µg/l	A-T-052w
n-Dioctylphthalate _A	<10									µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1									µg/l	A-T-052w
Diethyl phthalate _A	<1									µg/l	A-T-052w
Dimethyl phthalate _A	<1									µg/l	A-T-052w
Hexachlorobenzene _A	<1									µg/l	A-T-052w
Pentachlorophenol _A	<1									µg/l	A-T-052w
Phenol _A	<1									µg/l	A-T-052w
Hexachloroethane _A	<1									µg/l	A-T-052w
Nitrobenzene _A	<1									µg/l	A-T-052w

Envirolab Job Number: 18/07049

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/9								Units	Method ref
Client Sample No	0831-7									
Client Sample ID	BH10									
Depth to Top	2.34									
Depth To Bottom										
Date Sampled	30-Aug-18									
Sample Type	Water - EW									
Sample Matrix Code	N/A									
Isophorone _A	<1								µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1								µg/l	A-T-052w
Perylene _A	<1								µg/l	A-T-052w

Envirolab Job Number: 18/07049/9

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/07049/9								Units	Method ref
Client Sample No	0831-7									
Client Sample ID	BH10									
Depth to Top	2.34									
Depth To Bottom										
Date Sampled	30-Aug-18									
Sample Type	Water - EW									
Sample Matrix Code	N/A									
TPH CWG (w)										
Ali >C10-C12 (w) _A [#]	<5								µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5								µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5								µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5								µg/l	A-T-023w
Total Aliphatics (w) _A	<5								µg/l	A-T-022+23w
Aro >C10-C12 (w) _A [#]	<5								µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5								µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5								µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5								µg/l	A-T-023w
Total Aromatics (w) _A	<5								µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5								µg/l	A-T-022+23w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

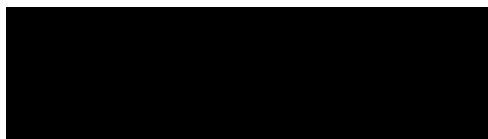
FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/08232/1

Envirolab Job Number: 18/08232
Issue Number: 2
Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

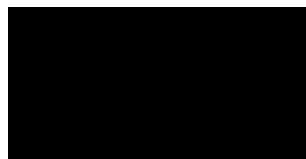
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 607569
Date Samples Received: 08/10/18
Date Instructions Received: 08/10/18
Date Analysis Completed: 17/10/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/08232

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08232/1	18/08232/2	18/08232/3	18/08232/4	18/08232/5	18/08232/6	18/08232/7	18/08232/8	Units	Method ref		
Client Sample No	1005-11	1005-10	1005-9	1005-4	1005-0	1005-3 Deep	1005-2 Shallow	1005-6				
Client Sample ID	WS22	WS21	WS20	BH15	BH6	BH4D	BH4D	BH13				
Depth to Top	0.95	1.19	1.22	1.36	1.40	1.55	1.60	1.73				
Depth To Bottom												
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
pH (w) _A [#]	8.78	10.34	8.46	8.16	7.60	7.69	7.73	8.47			pH	A-T-031w
Ammoniacal nitrogen (w) _A [#]	11.9	12.2	12	0.32	1.10	0.97	6.94	9.90			mg/l	A-T-033w
Sulphate (w) _A [#]	62	62	62	218	2380	1240	644	84	mg/l	A-T-026w		
Cyanide (free) (w) _A [#]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	A-T-042wFCN		
Cyanide (total) (w) _A [#]	0.048	0.050	0.050	0.050	<0.005	<0.005	0.041	0.018	mg/l	A-T-042wTCN		
Arsenic (dissolved) _A [#]	18	18	18	68	17	8	4	14	µg/l	A-T-025w		
Boron (dissolved) _A [#]	180	187	184	704	3870	1800	591	878	µg/l	A-T-025w		
Cadmium (dissolved) _A [#]	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<0.2	<0.2	µg/l	A-T-025w		
Copper (dissolved) _A [#]	2	2	2	<1	<5	<5	<1	<1	µg/l	A-T-025w		
Chromium (dissolved) _A [#]	<1	<1	<1	<1	<5	<5	<1	<1	µg/l	A-T-025w		
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	A-T-040w		
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	Calc		
Lead (dissolved) _A [#]	<1	<1	<1	<1	<5	<5	<1	<1	µg/l	A-T-025w		
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.1	<0.1	µg/l	A-T-025w		
Nickel (dissolved) _A [#]	6	6	6	<1	<5	<5	1	1	µg/l	A-T-025w		
Selenium (dissolved) _A [#]	2	1	1	<1	<5	<5	<1	<1	µg/l	A-T-025w		
Zinc (dissolved) _A [#]	7	2	2	4	13	13	4	4	µg/l	A-T-025w		

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08232/1	18/08232/2	18/08232/3	18/08232/4	18/08232/5	18/08232/6	18/08232/7	18/08232/8	Units	Method ref
Client Sample No	1005-11	1005-10	1005-9	1005-4	1005-0	1005-3 Deep	1005-2 Shallow	1005-6		
Client Sample ID	WS22	WS21	WS20	BH15	BH6	BH4D	BH4D	BH13		
Depth to Top	0.95	1.19	1.22	1.36	1.40	1.55	1.60	1.73		
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.11	0.29	<0.01	0.15	<0.01	<0.01	0.10	<0.01	µg/l	A-T-019w
Acenaphthylene (w) _A [#]	0.09	0.06	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Anthracene (w) _A [#]	0.25	0.08	0.07	0.02	0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	1.15	0.04	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	1.87	0.03	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	1.88	0.04	0.18	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	1.39	0.02	0.33	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	0.73	0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Chrysene (w) _A [#]	1.46	0.05	0.18	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	0.29	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Fluoranthene (w) _A [#]	2.33	0.17	0.30	0.03	0.02	0.01	0.04	<0.01	µg/l	A-T-019w
Fluorene (w) _A [#]	0.22	0.27	<0.01	0.01	<0.01	<0.01	0.02	<0.01	µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	1.46	0.03	0.21	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Naphthalene (w) _A [#]	0.23	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Phenanthrene (w) _A [#]	1.19	0.43	0.04	0.06	0.05	0.03	0.02	<0.01	µg/l	A-T-019w
Pyrene (w) _A [#]	1.94	0.14	0.50	0.04	0.02	0.01	0.03	<0.01	µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	16.6	1.69	2.23	0.31	0.10	0.05	0.21	<0.01	µg/l	A-T-019w

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08232/1	18/08232/2	18/08232/3	18/08232/4	18/08232/5	18/08232/6	18/08232/7	18/08232/8	Units	Method ref
Client Sample No	1005-11	1005-10	1005-9	1005-4	1005-0	1005-3 Deep	1005-2 Shallow	1005-6		
Client Sample ID	WS22	WS21	WS20	BH15	BH6	BH4D	BH4D	BH13		
Depth to Top	0.95	1.19	1.22	1.36	1.40	1.55	1.60	1.73		
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
3+4-Methylphenol _A	2	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
n-Dioctylphthalate _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Pentachlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Phenol _A	13	3	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w

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Client Project Ref: PZ1522D1

Lab Sample ID	18/08232/1	18/08232/2	18/08232/3	18/08232/4	18/08232/5	18/08232/6	18/08232/7	18/08232/8	Units	Method ref		
Client Sample No	1005-11	1005-10	1005-9	1005-4	1005-0	1005-3 Deep	1005-2 Shallow	1005-6				
Client Sample ID	WS22	WS21	WS20	BH15	BH6	BH4D	BH4D	BH13				
Depth to Top	0.95	1.19	1.22	1.36	1.40	1.55	1.60	1.73				
Depth To Bottom												
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Isophorone _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w		

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Client Project Ref: PZ1522D1

Lab Sample ID	18/08232/1	18/08232/2	18/08232/3	18/08232/4	18/08232/5	18/08232/6	18/08232/7	18/08232/8	Units	Method ref
Client Sample No	1005-11	1005-10	1005-9	1005-4	1005-0	1005-3 Deep	1005-2 Shallow	1005-6		
Client Sample ID	WS22	WS21	WS20	BH15	BH6	BH4D	BH4D	BH13		
Depth to Top	0.95	1.19	1.22	1.36	1.40	1.55	1.60	1.73		
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	4	2	<1	µg/l	A-T-006w
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Trichloroethene _A [#]	<1	<1	<1	<1	<1	5	2	<1	µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Tetrachloroethene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w

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Client Project Ref: PZ1522D1

Lab Sample ID	18/08232/1	18/08232/2	18/08232/3	18/08232/4	18/08232/5	18/08232/6	18/08232/7	18/08232/8	Units	Method ref		
Client Sample No	1005-11	1005-10	1005-9	1005-4	1005-0	1005-3 Deep	1005-2 Shallow	1005-6				
Client Sample ID	WS22	WS21	WS20	BH15	BH6	BH4D	BH4D	BH13				
Depth to Top	0.95	1.19	1.22	1.36	1.40	1.55	1.60	1.73				
Depth To Bottom												
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-006w
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
n-propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	1	µg/l	A-T-006w		
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w		
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
n-butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w		
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w		
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w		
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08232/1	18/08232/2	18/08232/3	18/08232/4	18/08232/5	18/08232/6	18/08232/7	18/08232/8	Units	Method ref
Client Sample No	1005-11	1005-10	1005-9	1005-4	1005-0	1005-3 Deep	1005-2 Shallow	1005-6		
Client Sample ID	WS22	WS21	WS20	BH15	BH6	BH4D	BH4D	BH13		
Depth to Top	0.95	1.19	1.22	1.36	1.40	1.55	1.60	1.73		
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	78	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aliphatics (w) _A	78	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	6	10	5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	14	10	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aromatics (w) _A	6	24	15	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	85	24	15	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w

Envirolab Job Number: 18/08232

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08232/9	18/08232/10	18/08232/11	18/08232/12					Units	Method ref
Client Sample No	1005-8	1005-1	1005-7	1005-5						
Client Sample ID	BH12B	BH4	BH10	BH11						
Depth to Top	1.76	2.09	2.74	2.76						
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
pH (w) _A [#]	8.08	7.68	8.28	7.78						
Ammoniacal nitrogen (w) _A [#]	4.96	1.47	1.07	1.41					mg/l	A-T-033w
Sulphate (w) _A [#]	479	1100	40	2220					mg/l	A-T-026w
Cyanide (free) (w) _A [#]	<0.005	<0.005	<0.005	<0.005					mg/l	A-T-042wFCN
Cyanide (total) (w) _A [#]	0.026	<0.005	<0.005	<0.005					mg/l	A-T-042wTCN
Arsenic (dissolved) _A [#]	6	<5	2	15					µg/l	A-T-025w
Boron (dissolved) _A [#]	720	934	244	4040					µg/l	A-T-025w
Cadmium (dissolved) _A [#]	<0.2	<1.0	<0.2	<1.0					µg/l	A-T-025w
Copper (dissolved) _A [#]	2	<5	3	<5					µg/l	A-T-025w
Chromium (dissolved) _A [#]	<1	<5	<1	<5					µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01					mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01					mg/l	Calc
Lead (dissolved) _A [#]	<1	<5	<1	<5					µg/l	A-T-025w
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.5					µg/l	A-T-025w
Nickel (dissolved) _A [#]	5	<5	2	<5					µg/l	A-T-025w
Selenium (dissolved) _A [#]	<1	<5	<1	<5					µg/l	A-T-025w
Zinc (dissolved) _A [#]	5	11	16	<5					µg/l	A-T-025w

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Lab Sample ID	18/08232/9	18/08232/10	18/08232/11	18/08232/12					Units	Method ref
Client Sample No	1005-8	1005-1	1005-7	1005-5						
Client Sample ID	BH12B	BH4	BH10	BH11						
Depth to Top	1.76	2.09	2.74	2.76						
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.07	<0.01	0.01	<0.01					µg/l	A-T-019w
Fluorene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Naphthalene (w) _A [#]	0.07	<0.01	<0.01	<0.01					µg/l	A-T-019w
Phenanthrene (w) _A [#]	<0.01	<0.01	0.01	<0.01					µg/l	A-T-019w
Pyrene (w) _A [#]	0.07	<0.01	0.01	<0.01					µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.23	<0.01	0.03	<0.01					µg/l	A-T-019w

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Client Project Ref: PZ1522D1

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Client Sample No	1005-8	1005-1	1005-7	1005-5						
Client Sample ID	BH12B	BH4	BH10	BH11						
Depth to Top	1.76	2.09	2.74	2.76						
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1					µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1					µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1					µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10					µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1					µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1					µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
n-Dioctylphthalate _A	<10	<10	<10	<10					µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1					µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1					µg/l	A-T-052w
Pentachlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Phenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1					µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1					µg/l	A-T-052w

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Client Project Ref: PZ1522D1

Lab Sample ID	18/08232/9	18/08232/10	18/08232/11	18/08232/12					Units	Method ref
Client Sample No	1005-8	1005-1	1005-7	1005-5						
Client Sample ID	BH12B	BH4	BH10	BH11						
Depth to Top	1.76	2.09	2.74	2.76						
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
Isophorone _A	<1	<1	<1	<1					µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1	<1	<1					µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1					µg/l	A-T-052w

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Lab Sample ID	18/08232/9	18/08232/10	18/08232/11	18/08232/12						
Client Sample No	1005-8	1005-1	1005-7	1005-5						
Client Sample ID	BH12B	BH4	BH10	BH11						
Depth to Top	1.76	2.09	2.74	2.76						
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1					µg/l	A-T-006w
Chloromethane _A	<10	<10	<10	<10					µg/l	A-T-006w
Vinyl Chloride _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromomethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Chloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Dichloromethane _A	<5	<5	<5	<5					µg/l	A-T-006w
Carbon Disulphide _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromochloromethane _A [#]	<5	<5	<5	<5					µg/l	A-T-006w
Chloroform _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2	<2	<2	<2					µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Benzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Dibromomethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromodichloromethane _A [#]	<10	<10	<10	<10					µg/l	A-T-006w
Trichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Toluene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Dibromochloromethane _A [#]	<3	<3	<3	<3					µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Tetrachloroethene _A	<1	<1	<1	<1					µg/l	A-T-006w

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Client Sample No	1005-8	1005-1	1005-7	1005-5						
Client Sample ID	BH12B	BH4	BH10	BH11						
Depth to Top	1.76	2.09	2.74	2.76						
Depth To Bottom										
Date Sampled	04-Oct-18	04-Oct-18	04-Oct-18	04-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	9	<5					µg/l	A-T-023w
Total Aliphatics (w) _A	<5	<5	9	<5					µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Total Aromatics (w) _A	<5	<5	<5	<5					µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5	<5	9	<5					µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

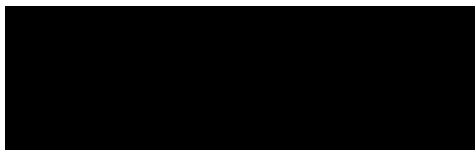
FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/08736/1

Envirolab Job Number: 18/08736
Issue Number: 2
Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

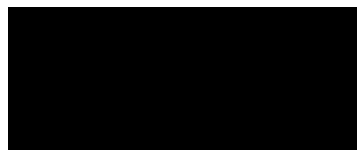
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 609131
Date Samples Received: 22/10/18
Date Instructions Received: 22/10/18
Date Analysis Completed: 30/10/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/08736

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08736/1	18/08736/2	18/08736/3	18/08736/4	18/08736/5	18/08736/6	18/08736/7	18/08736/8	Units	Method ref		
Client Sample No	1019-11	1019-9	1019-10	1019-4	1019-2 Deep	1019-0	1019-3 Shallow	1019-6				
Client Sample ID	WS22	WS20	WS21	BH15	BH4D	BH6	BH4D	BH13				
Depth to Top	0.94	1.23	1.29	1.34	1.39	1.46	1.52	1.66				
Depth To Bottom												
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
pH (w) _A [#]	7.92	8.14	11.09	7.88	6.86	7.13	6.56	7.88			pH	A-T-031w
Ammoniacal nitrogen (w) _A [#]	1.21	6.52	6.03	0.42	1.92	1.27	4.45	12.6			mg/l	A-T-033w
Sulphate (w) _A [#]	146	54	52	235	1300	2360	726	152	mg/l	A-T-026w		
Cyanide (free) (w) _A [#]	<0.005	0.027	0.033	<0.005	<0.005	<0.005	0.012	<0.005	mg/l	A-T-042wFCN		
Cyanide (total) (w) _A [#]	<0.005	0.227	0.231	0.027	<0.005	<0.005	0.036	0.022	mg/l	A-T-042wTCN		
Arsenic (dissolved) _A [#]	12	12	12	68	3	12	9	15	µg/l	A-T-025w		
Boron (dissolved) _A [#]	434	166	153	854	1770	2770	750	919	µg/l	A-T-025w		
Cadmium (dissolved) _A [#]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	µg/l	A-T-025w		
Copper (dissolved) _A [#]	6	4	5	1	<1	<1	1	<1	µg/l	A-T-025w		
Chromium (dissolved) _A [#]	<1	<1	<1	<1	<1	1	<1	<1	µg/l	A-T-025w		
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	A-T-040w		
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	Calc		
Lead (dissolved) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-025w		
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	µg/l	A-T-025w		
Nickel (dissolved) _A [#]	6	4	4	2	3	2	3	2	µg/l	A-T-025w		
Selenium (dissolved) _A [#]	1	2	2	<1	<1	<1	<1	<1	µg/l	A-T-025w		
Zinc (dissolved) _A [#]	10	2	1	2	15	<1	10	3	µg/l	A-T-025w		

Envirolab Job Number: 18/08736

Client Project Name: Gt Yarmouth 3rd River Crossing

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Lab Sample ID	18/08736/1	18/08736/2	18/08736/3	18/08736/4	18/08736/5	18/08736/6	18/08736/7	18/08736/8	Units	Method ref
Client Sample No	1019-11	1019-9	1019-10	1019-4	1019-2 Deep	1019-0	1019-3 Shallow	1019-6		
Client Sample ID	WS22	WS20	WS21	BH15	BH4D	BH6	BH4D	BH13		
Depth to Top	0.94	1.23	1.29	1.34	1.39	1.46	1.52	1.66		
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.02	<0.01	0.24	0.14	<0.01	<0.01	<0.01	0.04	µg/l	A-T-019w
Acenaphthylene (w) _A [#]	0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Anthracene (w) _A [#]	0.02	0.03	0.07	0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	0.06	0.03	0.10	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	0.06	0.04	0.10	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	0.09	0.05	0.13	<0.01	<0.01	<0.01	0.01	<0.01	µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	0.07	0.08	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	0.03	0.02	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Chrysene (w) _A [#]	0.09	0.04	0.12	<0.01	<0.01	<0.01	0.01	<0.01	µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.20	0.04	0.25	0.02	<0.01	0.01	0.02	<0.01	µg/l	A-T-019w
Fluorene (w) _A [#]	0.03	<0.01	0.30	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	0.07	0.05	0.09	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Naphthalene (w) _A [#]	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.17	<0.01	0.23	0.05	<0.01	0.03	0.01	<0.01	µg/l	A-T-019w
Pyrene (w) _A [#]	0.18	0.11	0.24	0.03	<0.01	<0.01	0.02	<0.01	µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	1.14	0.50	2.03	0.25	<0.01	0.04	0.07	0.04	µg/l	A-T-019w

Envirolab Job Number: 18/08736

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08736/1	18/08736/2	18/08736/3	18/08736/4	18/08736/5	18/08736/6	18/08736/7	18/08736/8	Units	Method ref
Client Sample No	1019-11	1019-9	1019-10	1019-4	1019-2 Deep	1019-0	1019-3 Shallow	1019-6		
Client Sample ID	WS22	WS20	WS21	BH15	BH4D	BH6	BH4D	BH13		
Depth to Top	0.94	1.23	1.29	1.34	1.39	1.46	1.52	1.66		
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
n-Diethylphthalate _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Pentachlorophenol _A	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-052w
Phenol _A	<1	<1	2	<1	<1	<1	<1	<1	µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w

Envirolab Job Number: 18/08736

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08736/1	18/08736/2	18/08736/3	18/08736/4	18/08736/5	18/08736/6	18/08736/7	18/08736/8	Units	Method ref		
Client Sample No	1019-11	1019-9	1019-10	1019-4	1019-2 Deep	1019-0	1019-3 Shallow	1019-6				
Client Sample ID	WS22	WS20	WS21	BH15	BH4D	BH6	BH4D	BH13				
Depth to Top	0.94	1.23	1.29	1.34	1.39	1.46	1.52	1.66				
Depth To Bottom												
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Isophorone _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w		

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Lab Sample ID	18/08736/1	18/08736/2	18/08736/3	18/08736/4	18/08736/5	18/08736/6	18/08736/7	18/08736/8	Units	Method ref
Client Sample No	1019-11	1019-9	1019-10	1019-4	1019-2 Deep	1019-0	1019-3 Shallow	1019-6		
Client Sample ID	WS22	WS20	WS21	BH15	BH4D	BH6	BH4D	BH13		
Depth to Top	0.94	1.23	1.29	1.34	1.39	1.46	1.52	1.66		
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	1	<1	µg/l	A-T-006w
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Trichloroethene _A [#]	<1	<1	<1	<1	2	<1	2	<1	µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Tetrachloroethene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w

Envirolab Job Number: 18/08736

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08736/1	18/08736/2	18/08736/3	18/08736/4	18/08736/5	18/08736/6	18/08736/7	18/08736/8	Units	Method ref		
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Client Sample ID	WS22	WS20	WS21	BH15	BH4D	BH6	BH4D	BH13				
Depth to Top	0.94	1.23	1.29	1.34	1.39	1.46	1.52	1.66				
Depth To Bottom												
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-006w
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
n-propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w		
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
n-butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w		
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w		
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w		
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08736/1	18/08736/2	18/08736/3	18/08736/4	18/08736/5	18/08736/6	18/08736/7	18/08736/8	Units	Method ref
Client Sample No	1019-11	1019-9	1019-10	1019-4	1019-2 Deep	1019-0	1019-3 Shallow	1019-6		
Client Sample ID	WS22	WS20	WS21	BH15	BH4D	BH6	BH4D	BH13		
Depth to Top	0.94	1.23	1.29	1.34	1.39	1.46	1.52	1.66		
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	7	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	17	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aliphatics (w) _A	26	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	<5	<5	17	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	<5	34	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	8	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aromatics (w) _A	<5	<5	59	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	26	<5	59	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1	<1	<1	1	<1	µg/l	A-T-022w

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Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/08736/9	18/08736/10	18/08736/11	18/08736/12					Units	Method ref
Client Sample No	1019-8	1019-1	1019-5	1019-7						
Client Sample ID	BH12B	BH4	BH11	BH10						
Depth to Top	1.71	2.00	2.60	2.61						
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
pH (w) _A [#]	7.72	6.82	7.43	7.61						
Ammoniacal nitrogen (w) _A [#]	3.70	1.15	1.46	0.72					mg/l	A-T-033w
Sulphate (w) _A [#]	473	1190	2100	42					mg/l	A-T-026w
Cyanide (free) (w) _A [#]	0.009	<0.005	<0.005	<0.005					mg/l	A-T-042wFCN
Cyanide (total) (w) _A [#]	0.033	<0.005	<0.005	<0.005					mg/l	A-T-042wTCN
Arsenic (dissolved) _A [#]	7	2	3	2					µg/l	A-T-025w
Boron (dissolved) _A [#]	829	901	4220	279					µg/l	A-T-025w
Cadmium (dissolved) _A [#]	<0.2	<0.2	<0.2	<0.2					µg/l	A-T-025w
Copper (dissolved) _A [#]	4	<1	4	2					µg/l	A-T-025w
Chromium (dissolved) _A [#]	<1	<1	1	<1					µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01					mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01					mg/l	Calc
Lead (dissolved) _A [#]	<1	<1	<1	<1					µg/l	A-T-025w
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1					µg/l	A-T-025w
Nickel (dissolved) _A [#]	6	4	2	1					µg/l	A-T-025w
Selenium (dissolved) _A [#]	<1	<1	<1	<1					µg/l	A-T-025w
Zinc (dissolved) _A [#]	10	4	11	6					µg/l	A-T-025w

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Client Project Ref: PZ1522D1

Lab Sample ID	18/08736/9	18/08736/10	18/08736/11	18/08736/12					Units	Method ref
Client Sample No	1019-8	1019-1	1019-5	1019-7						
Client Sample ID	BH12B	BH4	BH11	BH10						
Depth to Top	1.71	2.00	2.60	2.61						
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Anthracene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.07	0.01	<0.01	<0.01					µg/l	A-T-019w
Fluorene (w) _A [#]	0.02	<0.01	<0.01	<0.01					µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Naphthalene (w) _A [#]	0.29	<0.01	<0.01	<0.01					µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.01	<0.01	<0.01	0.02					µg/l	A-T-019w
Pyrene (w) _A [#]	0.07	0.01	<0.01	<0.01					µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.48	0.02	<0.01	0.02					µg/l	A-T-019w

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Client Project Ref: PZ1522D1

Lab Sample ID	18/08736/9	18/08736/10	18/08736/11	18/08736/12						
Client Sample No	1019-8	1019-1	1019-5	1019-7						
Client Sample ID	BH12B	BH4	BH11	BH10						
Depth to Top	1.71	2.00	2.60	2.61						
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1					µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1					µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1					µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10					µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1					µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1					µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
n-Diethylphthalate _A	<10	<10	<10	<10					µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1					µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1					µg/l	A-T-052w
Pentachlorophenol _A	<2	<2	<2	<2					µg/l	A-T-052w
Phenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1					µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1					µg/l	A-T-052w

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Client Project Ref: PZ1522D1

Lab Sample ID	18/08736/9	18/08736/10	18/08736/11	18/08736/12					Units	Method ref
Client Sample No	1019-8	1019-1	1019-5	1019-7						
Client Sample ID	BH12B	BH4	BH11	BH10						
Depth to Top	1.71	2.00	2.60	2.61						
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
Isophorone _A	<1	<1	<1	<1					µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1	<1	<1					µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1					µg/l	A-T-052w

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Lab Sample ID	18/08736/9	18/08736/10	18/08736/11	18/08736/12						
Client Sample No	1019-8	1019-1	1019-5	1019-7						
Client Sample ID	BH12B	BH4	BH11	BH10						
Depth to Top	1.71	2.00	2.60	2.61						
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1					µg/l	A-T-006w
Chloromethane _A	<10	<10	<10	<10					µg/l	A-T-006w
Vinyl Chloride _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromomethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Chloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Dichloromethane _A	<5	<5	<5	<5					µg/l	A-T-006w
Carbon Disulphide _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromochloromethane _A [#]	<5	<5	<5	<5					µg/l	A-T-006w
Chloroform _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2	<2	<2	<2					µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Benzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Dibromomethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromodichloromethane _A [#]	<10	<10	<10	<10					µg/l	A-T-006w
Trichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Toluene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Dibromochloromethane _A [#]	<3	<3	<3	<3					µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Tetrachloroethene _A	<1	<1	<1	<1					µg/l	A-T-006w

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Lab Sample ID	18/08736/9	18/08736/10	18/08736/11	18/08736/12					Units	Method ref
Client Sample No	1019-8	1019-1	1019-5	1019-7						
Client Sample ID	BH12B	BH4	BH11	BH10						
Depth to Top	1.71	2.00	2.60	2.61						
Depth To Bottom										
Date Sampled	18-Oct-18	18-Oct-18	18-Oct-18	18-Oct-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Total Aliphatics (w) _A	<5	<5	<5	<5					µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Total Aromatics (w) _A	<5	<5	<5	<5					µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5	<5	<5	<5					µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

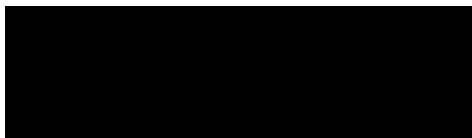
FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/09217/1

Envirolab Job Number: 18/09217
Issue Number: 2
Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

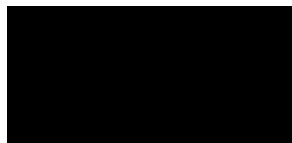
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 610527
Date Samples Received: 05/01/18
Date Instructions Received: 05/11/18
Date Analysis Completed: 13/11/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/1	18/09217/2	18/09217/3	18/09217/4	18/09217/5	18/09217/6	18/09217/7	18/09217/8	Units	Method ref		
Client Sample No	1102-11	1102-10	1102-8	1102-9	1102-4	1102-0	1102-3 Deep	1102-2 Shallow				
Client Sample ID	WS22	WS21	BH12B	WS20	BH15	BH6	BH4D	BH4D				
Depth to Top	0.90	1.20	1.74	1.23	1.38	1.42	1.50	1.60				
Depth To Bottom												
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
pH (w) _A [#]	7.69	11.56	7.64	8.47	7.81	6.92	6.74	6.48			pH	A-T-031w
Ammoniacal nitrogen (w) _A [#]	2.50	2.73	4.66	2.48	0.32	1.87	1.15	0.95			mg/l	A-T-033w
Sulphate (w) _A [#]	72	30	615	33	223	1830	1220	678	mg/l	A-T-026w		
Cyanide (free) (w) _A [#]	0.022	0.022	0.008	0.024	<0.005	<0.005	<0.005	<0.005	mg/l	A-T-042wFCN		
Cyanide (total) (w) _A [#]	0.044	0.043	0.031	0.043	0.046	0.025	<0.005	<0.005	mg/l	A-T-042wTCN		
Arsenic (dissolved) _A [#]	5	6	7	6	71	12	6	6	µg/l	A-T-025w		
Boron (dissolved) _A [#]	59	64	1010	58	810	4380	2060	2430	µg/l	A-T-025w		
Cadmium (dissolved) _A [#]	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	µg/l	A-T-025w		
Copper (dissolved) _A [#]	6	5	5	6	2	3	3	4	µg/l	A-T-025w		
Chromium (dissolved) _A [#]	4	4	1	4	<1	3	1	1	µg/l	A-T-025w		
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	A-T-040w		
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	Calc		
Lead (dissolved) _A [#]	1	1	<1	1	<1	<1	<1	<1	µg/l	A-T-025w		
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	µg/l	A-T-025w		
Nickel (dissolved) _A [#]	3	3	6	3	<1	2	2	3	µg/l	A-T-025w		
Selenium (dissolved) _A [#]	1	1	<1	1	<1	<1	<1	<1	µg/l	A-T-025w		
Zinc (dissolved) _A [#]	3	4	9	6	22	3	6	6	µg/l	A-T-025w		

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/1	18/09217/2	18/09217/3	18/09217/4	18/09217/5	18/09217/6	18/09217/7	18/09217/8	Units	Method ref
Client Sample No	1102-11	1102-10	1102-8	1102-9	1102-4	1102-0	1102-3 Deep	1102-2 Shallow		
Client Sample ID	WS22	WS21	BH12B	WS20	BH15	BH6	BH4D	BH4D		
Depth to Top	0.90	1.20	1.74	1.23	1.38	1.42	1.50	1.60		
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
PAH 16MS (w)										
Acenaphthene (w) _A [#]	<0.01	0.28	<0.01	<0.01	0.17	<0.01	<0.01	0.01	µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01	0.07	<0.01	0.03	0.03	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	0.03	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	0.02	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.02	0.16	0.10	0.04	0.04	0.02	0.01	0.02	µg/l	A-T-019w
Fluorene (w) _A [#]	0.01	0.38	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Naphthalene (w) _A [#]	0.03	0.11	0.09	<0.01	<0.01	0.01	<0.01	<0.01	µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.02	0.37	<0.01	<0.01	0.07	0.03	0.03	<0.01	µg/l	A-T-019w
Pyrene (w) _A [#]	0.02	0.15	0.10	0.10	0.05	0.02	<0.01	0.02	µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.10	1.63	0.31	0.32	0.36	0.08	0.04	0.05	µg/l	A-T-019w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/1	18/09217/2	18/09217/3	18/09217/4	18/09217/5	18/09217/6	18/09217/7	18/09217/8	Units	Method ref
Client Sample No	1102-11	1102-10	1102-8	1102-9	1102-4	1102-0	1102-3 Deep	1102-2 Shallow		
Client Sample ID	WS22	WS21	BH12B	WS20	BH15	BH6	BH4D	BH4D		
Depth to Top	0.90	1.20	1.74	1.23	1.38	1.42	1.50	1.60		
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
n-Dioctylphthalate _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Pentachlorophenol _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Phenol _A	<1	1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/1	18/09217/2	18/09217/3	18/09217/4	18/09217/5	18/09217/6	18/09217/7	18/09217/8	Units	Method ref		
Client Sample No	1102-11	1102-10	1102-8	1102-9	1102-4	1102-0	1102-3 Deep	1102-2 Shallow				
Client Sample ID	WS22	WS21	BH12B	WS20	BH15	BH6	BH4D	BH4D				
Depth to Top	0.90	1.20	1.74	1.23	1.38	1.42	1.50	1.60				
Depth To Bottom												
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Isophorone _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-052w		

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/1	18/09217/2	18/09217/3	18/09217/4	18/09217/5	18/09217/6	18/09217/7	18/09217/8	Units	Method ref
Client Sample No	1102-11	1102-10	1102-8	1102-9	1102-4	1102-0	1102-3 Deep	1102-2 Shallow		
Client Sample ID	WS22	WS21	BH12B	WS20	BH15	BH6	BH4D	BH4D		
Depth to Top	0.90	1.20	1.74	1.23	1.38	1.42	1.50	1.60		
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloromethane _A	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Vinyl Chloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Chloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dichloromethane _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Carbon Disulphide _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1	<1	<1	1	1	µg/l	A-T-006w
Bromochloromethane _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-006w
Chloroform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Benzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromomethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Bromodichloromethane _A [#]	<10	<10	<10	<10	<10	<10	<10	<10	µg/l	A-T-006w
Trichloroethene _A [#]	<1	<1	<1	<1	<1	<1	<1	4	µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Toluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Dibromochloromethane _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w
Tetrachloroethene _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/1	18/09217/2	18/09217/3	18/09217/4	18/09217/5	18/09217/6	18/09217/7	18/09217/8	Units	Method ref		
Client Sample No	1102-11	1102-10	1102-8	1102-9	1102-4	1102-0	1102-3 Deep	1102-2 Shallow				
Client Sample ID	WS22	WS21	BH12B	WS20	BH15	BH6	BH4D	BH4D				
Depth to Top	0.90	1.20	1.74	1.23	1.38	1.42	1.50	1.60				
Depth To Bottom												
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-006w
Chlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1			µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
m & p Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Bromoform _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Styrene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
o-Xylene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Isopropylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
Bromobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
2-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
n-propylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
4-Chlorotoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
4-Isopropyltoluene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,4-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
sec-Butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
tert-Butylbenzene _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w		
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
n-butylbenzene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2	<2	<2	<2	<2	µg/l	A-T-006w		
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w		
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3	<3	<3	<3	<3	µg/l	A-T-006w		
Hexachlorobutadiene _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-006w		

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/1	18/09217/2	18/09217/3	18/09217/4	18/09217/5	18/09217/6	18/09217/7	18/09217/8	Units	Method ref
Client Sample No	1102-11	1102-10	1102-8	1102-9	1102-4	1102-0	1102-3 Deep	1102-2 Shallow		
Client Sample ID	WS22	WS21	BH12B	WS20	BH15	BH6	BH4D	BH4D		
Depth to Top	0.90	1.20	1.74	1.23	1.38	1.42	1.50	1.60		
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	2	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aliphatics (w) _A	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	<5	20	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	53	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	14	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-023w
Total Aromatics (w) _A	<5	89	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5	89	<5	<5	<5	<5	<5	<5	µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/9	18/09217/10	18/09217/11	18/09217/12					Units	Method ref
Client Sample No	1102-6	1102-1	1102-7	1102-5						
Client Sample ID	BH13	BH4	BH10	BH11						
Depth to Top	1.75	2.10	2.75	2.76						
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
pH (w) _A [#]	7.84	6.65	7.45	7.21						
Ammoniacal nitrogen (w) _A [#]	9.27	1.43	1.21	1.58					mg/l	A-T-033w
Sulphate (w) _A [#]	82	1120	44	1830					mg/l	A-T-026w
Cyanide (free) (w) _A [#]	<0.005	<0.005	<0.005	<0.005					mg/l	A-T-042wFCN
Cyanide (total) (w) _A [#]	0.020	<0.005	<0.005	<0.005					mg/l	A-T-042wTCN
Arsenic (dissolved) _A [#]	15	2	2	12					µg/l	A-T-025w
Boron (dissolved) _A [#]	751	859	272	667					µg/l	A-T-025w
Cadmium (dissolved) _A [#]	<0.2	<0.2	<0.2	<0.2					µg/l	A-T-025w
Copper (dissolved) _A [#]	2	1	9	2					µg/l	A-T-025w
Chromium (dissolved) _A [#]	<1	1	<1	1					µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01					mg/l	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01					mg/l	Calc
Lead (dissolved) _A [#]	<1	<1	1	<1					µg/l	A-T-025w
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1					µg/l	A-T-025w
Nickel (dissolved) _A [#]	2	4	1	3					µg/l	A-T-025w
Selenium (dissolved) _A [#]	<1	<1	<1	<1					µg/l	A-T-025w
Zinc (dissolved) _A [#]	2	4	26	3					µg/l	A-T-025w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/9	18/09217/10	18/09217/11	18/09217/12					Units	Method ref
Client Sample No	1102-6	1102-1	1102-7	1102-5						
Client Sample ID	BH13	BH4	BH10	BH11						
Depth to Top	1.75	2.10	2.75	2.76						
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
PAH 16MS (w)										
Acenaphthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Chrysene (w) _A [#]	0.02	<0.01	<0.01	<0.01					µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.02	<0.01	<0.01	<0.01					µg/l	A-T-019w
Fluorene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Naphthalene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Phenanthrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Pyrene (w) _A [#]	0.04	<0.01	<0.01	<0.01					µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.11	<0.01	<0.01	<0.01					µg/l	A-T-019w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/9	18/09217/10	18/09217/11	18/09217/12						
Client Sample No	1102-6	1102-1	1102-7	1102-5						
Client Sample ID	BH13	BH4	BH10	BH11						
Depth to Top	1.75	2.10	2.75	2.76						
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
SVOC (excluding PAH-16) (w)										
2,4,5-Trichlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4,6-Trichlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4-Dichlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4-Dimethylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2,4-Dinitrotoluene _A	<1	<1	<1	<1					µg/l	A-T-052w
2,6-Dinitrotoluene _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Chloronaphthalene _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Chlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Methylnaphthalene _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Methylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
2-Nitrophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
4-Bromophenyl phenyl ether _A	<1	<1	<1	<1					µg/l	A-T-052w
4-Chloro-3-methylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-chloroisopropyl)ether _A	<1	<1	<1	<1					µg/l	A-T-052w
3+4-Methylphenol _A	<1	<1	<1	<1					µg/l	A-T-052w
4-Nitrophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-chloroethyl)ether _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-chloroethoxy)methane _A	<1	<1	<1	<1					µg/l	A-T-052w
Bis(2-ethylhexyl)phthalate _A	<10	<10	<10	<10					µg/l	A-T-052w
Butylbenzyl phthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
Carbazole _A	<1	<1	<1	<1					µg/l	A-T-052w
Dibenzofuran _A	<1	<1	<1	<1					µg/l	A-T-052w
n-Dibutylphthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
n-Diethylphthalate _A	<10	<10	<10	<10					µg/l	A-T-052w
n-Nitroso-n-dipropylamine _A	<1	<1	<1	<1					µg/l	A-T-052w
Diethyl phthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
Dimethyl phthalate _A	<1	<1	<1	<1					µg/l	A-T-052w
Hexachlorobenzene _A	<1	<1	<1	<1					µg/l	A-T-052w
Pentachlorophenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Phenol _A	<1	<1	<1	<1					µg/l	A-T-052w
Hexachloroethane _A	<1	<1	<1	<1					µg/l	A-T-052w
Nitrobenzene _A	<1	<1	<1	<1					µg/l	A-T-052w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/9	18/09217/10	18/09217/11	18/09217/12					Units	Method ref
Client Sample No	1102-6	1102-1	1102-7	1102-5						
Client Sample ID	BH13	BH4	BH10	BH11						
Depth to Top	1.75	2.10	2.75	2.76						
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
Isophorone _A	<1	<1	<1	<1					µg/l	A-T-052w
Hexachlorocyclopentadiene _A	<1	<1	<1	<1					µg/l	A-T-052w
Perylene _A	<1	<1	<1	<1					µg/l	A-T-052w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/9	18/09217/10	18/09217/11	18/09217/12						
Client Sample No	1102-6	1102-1	1102-7	1102-5						
Client Sample ID	BH13	BH4	BH10	BH11						
Depth to Top	1.75	2.10	2.75	2.76						
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
VOC (w)										
Dichlorodifluoromethane _A	<1	<1	<1	<1					µg/l	A-T-006w
Chloromethane _A	<10	<10	<10	<10					µg/l	A-T-006w
Vinyl Chloride _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromomethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Chloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Trichlorofluoromethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
trans 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Dichloromethane _A	<5	<5	<5	<5					µg/l	A-T-006w
Carbon Disulphide _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1-Dichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1-Dichloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
cis 1,2-Dichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromochloromethane _A [#]	<5	<5	<5	<5					µg/l	A-T-006w
Chloroform _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
2,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2-Dichloroethane _A [#]	<2	<2	<2	<2					µg/l	A-T-006w
1,1,1-Trichloroethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1-Dichloropropene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Benzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Carbon Tetrachloride _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Dibromomethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2-Dichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromodichloromethane _A [#]	<10	<10	<10	<10					µg/l	A-T-006w
Trichloroethene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
cis 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
trans 1,3-Dichloropropene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1,2-Trichloroethane _A [#]	1	<1	<1	<1					µg/l	A-T-006w
Toluene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,3-Dichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Dibromochloromethane _A [#]	<3	<3	<3	<3					µg/l	A-T-006w
1,2-Dibromoethane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Tetrachloroethene _A	<1	<1	<1	<1					µg/l	A-T-006w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/9	18/09217/10	18/09217/11	18/09217/12						
Client Sample No	1102-6	1102-1	1102-7	1102-5						
Client Sample ID	BH13	BH4	BH10	BH11						
Depth to Top	1.75	2.10	2.75	2.76						
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
									Units	Method ref
1,1,1,2-Tetrachloroethane _A	<1	<1	<1	<1					µg/l	A-T-006w
Chlorobenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Ethylbenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
m & p Xylene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromoform _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Styrene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,1,2,2-Tetrachloroethane _A	<1	<1	<1	<1					µg/l	A-T-006w
o-Xylene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2,3-Trichloropropane _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Isopropylbenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
Bromobenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
2-Chlorotoluene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
n-propylbenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
4-Chlorotoluene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2,4-Trimethylbenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
4-Isopropyltoluene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,3,5-Trimethylbenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2-Dichlorobenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,4-Dichlorobenzene _A [#]	2	<1	<1	<1					µg/l	A-T-006w
sec-Butylbenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
tert-Butylbenzene _A [#]	<2	<2	<2	<2					µg/l	A-T-006w
1,3-Dichlorobenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
n-butylbenzene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w
1,2-Dibromo-3-chloropropane _A [#]	<2	<2	<2	<2					µg/l	A-T-006w
1,2,4-Trichlorobenzene _A [#]	<3	<3	<3	<3					µg/l	A-T-006w
1,2,3-Trichlorobenzene _A [#]	<3	<3	<3	<3					µg/l	A-T-006w
Hexachlorobutadiene _A [#]	<1	<1	<1	<1					µg/l	A-T-006w

Envirolab Job Number: 18/09217

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09217/9	18/09217/10	18/09217/11	18/09217/12						
Client Sample No	1102-6	1102-1	1102-7	1102-5						
Client Sample ID	BH13	BH4	BH10	BH11						
Depth to Top	1.75	2.10	2.75	2.76						
Depth To Bottom										
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	01-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Total Aliphatics (w) _A	<5	<5	<5	<5					µg/l	A-T-022+23w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C8-C9 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C9-C10 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Aro >C16-C21 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Aro >C21-C35 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-023w
Total Aromatics (w) _A	<5	<5	<5	<5					µg/l	A-T-022+23w
TPH (Ali & Aro) (w) _A	<5	<5	<5	<5					µg/l	A-T-022+23w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/09646/1

Envirolab Job Number: 18/09646

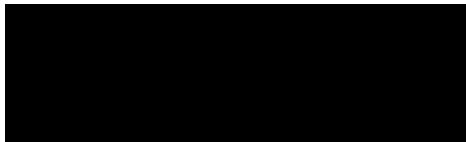
Issue Number: 2

Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

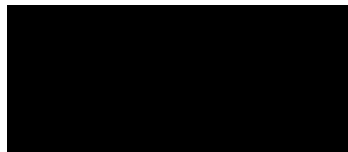
Project Manager: Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 611989
Date Samples Received: 16/11/18
Date Instructions Received: 16/11/18
Date Analysis Completed: 27/11/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/09646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09646/1	18/09646/2	18/09646/3	18/09646/4	18/09646/5	18/09646/6	18/09646/7	18/09646/8	Units	Method ref
Client Sample No	1115-16	1115-15	1115-8	1115-14	1115-3	1115-10	1115-13	1115-4		
Client Sample ID	WS22	WS21	BH15	WS20	BH6	BH13	BH12B	BH4		
Depth to Top	0.93	1.10	1.21	1.26	2.10	1.73	1.73	2.05		
Depth To Bottom										
Date Sampled	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
pH (w) _A [#]	8.29	11.90	8.19	8.10	7.50	8.26	8.02	7.46		
Electrical conductivity @ 20degC (w) _A [#]	1434	1907	4480	860	41800	4830	12150	22200	µs/cm	A-T-037w
BOD (settled, 5 day) _A	6	<1	<1	4	<1	<1	3	<1	mg/l	A-T-048
Alkalinity (total) (w) Colorimetry _A [#]	450	293	189	135	75	414	220	123	mg/l Ca CO3	A-T-038w
Alkalinity by titration (bicarbonate) (w) _A	845	<15	200	1090	125	520	260	175	mg/l Ca CO3	Titration w
Alkalinity by titration (carbonate) (w) _A	<15	190	<15	<15	<15	<15	<15	<15	mg/l Ca CO3	Titration w
Hardness Total _A [#]	383	369	597	425	4970	390	1690	2390	mg/l Ca CO3	A-T-049w
Total Suspended Solids (w) _A [#]	1734	159	64	7276	202	18	30	44	mg/l	A-T-036w
Ammoniacal nitrogen (w) _A [#]	2.64	1.86	0.42	1.44	1.05	12.9	5.52	1.39	mg/l	A-T-033w
Ammonium / Ammoniacal nitrogen as NH4 (w) _A [#]	3.408	2.405	0.543	1.852	1.356	16.693	7.117	1.794	mg/l	A-T-033w
Chloride (w) _A [#]	116	143	1320	155	18400	929	4320	10000	mg/l	A-T-026w
Bromine _A	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/l	Test kit
Fluoride (w) _A [#]	1.41	<0.10	0.54	0.47	<0.10	0.81	<0.10	<0.10	mg/l	A-T-026w
Nitrite (w) _A [#]	0.2	9.9	<0.1	<5.0	<0.1	<0.1	<0.1	<0.1	mg/l	A-T-026w
Nitrate (w) _A [#]	0.3	11.8	5.3	1.0	<0.1	14.4	2.9	<0.1	mg/l	A-T-026w
Nitrate as N (w) _A [#]	0.077	2.658	1.197	0.231	<0.022	3.254	0.649	<0.022	mg/l	A-T-026w
Nitrogen, Total Oxidised TOxN (w) _A [#]	0.1	5.7	1.2	1.2	<0.1	3.3	0.7	<0.1	mg/l	A-T-026w
Nitrogen, Total (w)	8.1	9.0	2.3	10.0	1.6	15.3	7.3	1.8	mg/l	Calc
Nitrogen (kjeldahl) (w) _A	8.0	3.3	1.1	8.8	1.6	12.0	6.6	1.8	mg/l	Subcon DETS
Phosphate (orthophosphate) as P (w) _A [#]	0.425	<0.007	0.583	<0.007	1.221	0.497	0.337	0.121	mg/l	A-T-026w
Phosphorus, Total (dissolved) _A	<20	26	816	<20	322	940	377	159	µg/l	A-T-025w
Sulphate (w) _A [#]	30	28	226	48	2380	141	591	1160	mg/l	A-T-026w
DOC (w) _A [#]	5.2	4.9	2.4	4.8	1.0	14.3	9.1	1.2	mg/l	A-T-032w
Oil & Grease (total) (w) _A	<1	<1	<1	<1	2	3	<1	<1	mg/l	A-T-039w
Arsenic (dissolved) _A [#]	4	4	75	4	15	13	9	2	µg/l	A-T-025w
Boron (dissolved) _A [#]	57	61	753	76	4340	1150	1020	888	µg/l	A-T-025w
Cadmium (dissolved 0.08 ug/l) _A	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	µg/l	A-T-025w
Calcium (dissolved) _A [#]	153	147	94	170	351	96	347	277	mg/l	A-T-049w
Copper (dissolved) _A [#]	13	14	8	13	7	14	8	7	µg/l	A-T-025w
Chromium (dissolved) _A [#]	15	15	<1	15	1	<1	1	1	µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	A-T-040w

Envirolab Job Number: 18/09646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09646/1	18/09646/2	18/09646/3	18/09646/4	18/09646/5	18/09646/6	18/09646/7	18/09646/8	Units	Method ref
Client Sample No	1115-16	1115-15	1115-8	1115-14	1115-3	1115-10	1115-13	1115-4		
Client Sample ID	WS22	WS21	BH15	WS20	BH6	BH13	BH12B	BH4		
Depth to Top	0.93	1.10	1.21	1.26	2.10	1.73	1.73	2.05		
Depth To Bottom										
Date Sampled	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Iron (dissolved) _A [#]	10	17	594	<10	2950	2610	80	93		
Lead (dissolved) _A [#]	1	2	<1	1	<1	<1	<1	<1	µg/l	A-T-025w
Manganese (dissolved) _A [#]	<1	<1	266	<1	4660	236	1320	9460	µg/l	A-T-025w
Magnesium (dissolved) _A [#]	<1	<1	88	<1	993	37	199	413	mg/l	A-T-049w
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	µg/l	A-T-025w
Nickel (dissolved) _A [#]	2	2	<1	2	2	2	6	4	µg/l	A-T-025w
Potassium (dissolved) _A [#]	38	36	52	41	303	51	143	150	mg/l	A-T-049w
Selenium (dissolved) _A [#]	<1	1	<1	<1	<1	<1	<1	<1	µg/l	A-T-025w
Sodium (dissolved) _A [#]	111	106	764	121	7950	544	2090	3920	mg/l	A-T-049w
Zinc (dissolved) _A [#]	2	60	3	<1	4	6	4	4	µg/l	A-T-025w
Ethylene glycol (Monoethylene glycol) (w) _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	Subcon Chemtest

Envirolab Job Number: 18/09646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09646/1	18/09646/2	18/09646/3	18/09646/4	18/09646/5	18/09646/6	18/09646/7	18/09646/8	Units	Method ref
Client Sample No	1115-16	1115-15	1115-8	1115-14	1115-3	1115-10	1115-13	1115-4		
Client Sample ID	WS22	WS21	BH15	WS20	BH6	BH13	BH12B	BH4		
Depth to Top	0.93	1.10	1.21	1.26	2.10	1.73	1.73	2.05		
Depth To Bottom										
Date Sampled	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.01	0.05	0.15	<0.01	0.01	0.05	0.01	<0.01	µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01	0.04	0.02	0.03	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	<0.01	0.02	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	<0.01	0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Chrysene (w) _A [#]	<0.01	0.02	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.01	0.13	0.03	0.04	0.02	<0.01	0.08	<0.01	µg/l	A-T-019w
Fluorene (w) _A [#]	<0.01	0.12	<0.01	<0.01	0.02	0.04	0.02	<0.01	µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w
Naphthalene (w) _A [#]	<0.01	0.04	0.02	<0.01	0.03	<0.01	0.12	0.02	µg/l	A-T-019w
Phenanthrene (w) _A [#]	<0.01	0.04	0.06	<0.01	0.06	<0.01	<0.01	<0.01	µg/l	A-T-019w
Pyrene (w) _A [#]	0.01	0.13	0.04	0.10	0.02	<0.01	0.07	<0.01	µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.03	0.62	0.32	0.52	0.16	0.09	0.30	0.02	µg/l	A-T-019w

Envirolab Job Number: 18/09646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09646/1	18/09646/2	18/09646/3	18/09646/4	18/09646/5	18/09646/6	18/09646/7	18/09646/8	Units	Method ref
Client Sample No	1115-16	1115-15	1115-8	1115-14	1115-3	1115-10	1115-13	1115-4		
Client Sample ID	WS22	WS21	BH15	WS20	BH6	BH13	BH12B	BH4		
Depth to Top	0.93	1.10	1.21	1.26	2.10	1.73	1.73	2.05		
Depth To Bottom										
Date Sampled	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Total Aliphatics (w) _A [#]	<5	<5	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C8-C10 (w) _A	<5	7	<5	<5	<5	6	<5	<5	µg/l	A-T-055w
Aro >C10-C12 (w) _A [#]	<5	51	<5	6	<5	15	<5	<5	µg/l	A-T-055w
Aro >C12-C16 (w) _A [#]	<5	121	<5	32	<5	17	6	<5	µg/l	A-T-055w
Aro >C16-C21 (w) _A [#]	<5	71	35	32	16	50	29	22	µg/l	A-T-055w
Aro >C21-C35 (w) _A [#]	<10	25	<10	<10	<10	<10	<10	<10	µg/l	A-T-055w
Total Aromatics (w) _A	<10	275	35	80	16	93	35	22	µg/l	A-T-055w
TPH (Ali & Aro >C5-C35) (w) _A	<10	275	35	80	16	93	35	22	µg/l	A-T-055w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w

Envirolab Job Number: 18/09646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09646/9	18/09646/10	18/09646/11	18/09646/12					Units	Method ref
Client Sample No	1115-5 Shallow	1115-6 Deep	1115-12	1115-9						
Client Sample ID	BH4D	BH4D	BH10	BH11						
Depth to Top	2.50	2.51	2.59	2.74						
Depth To Bottom										
Date Sampled	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
Iron (dissolved) _A [#]	6910	1940	99	1380				µg/l		
Lead (dissolved) _A [#]	<1	<1	<1	<1				µg/l	A-T-025w	
Manganese (dissolved) _A [#]	5200	5960	164	2180				µg/l	A-T-025w	
Magnesium (dissolved) _A [#]	239	529	20	1050				mg/l	A-T-049w	
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1				µg/l	A-T-025w	
Nickel (dissolved) _A [#]	3	3	1	3				µg/l	A-T-025w	
Potassium (dissolved) _A [#]	78	157	27	320				mg/l	A-T-049w	
Selenium (dissolved) _A [#]	<1	<1	<1	<1				µg/l	A-T-025w	
Sodium (dissolved) _A [#]	1610	4330	156	10100				mg/l	A-T-049w	
Zinc (dissolved) _A [#]	4	6	3	5				µg/l	A-T-025w	
Ethylene glycol (Monoethylene glycol) (w) _A	<0.1	<0.1	<0.1	<0.1				mg/l	Subcon Chemtest	

Envirolab Job Number: 18/09646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09646/9	18/09646/10	18/09646/11	18/09646/12					Units	Method ref
Client Sample No	1115-5 Shallow	1115-6 Deep	1115-12	1115-9						
Client Sample ID	BH4D	BH4D	BH10	BH11						
Depth to Top	2.50	2.51	2.59	2.74						
Depth To Bottom										
Date Sampled	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.07	<0.01	0.01	<0.01					µg/l	A-T-019w
Acenaphthylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Chrysene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.04	<0.01	<0.01	<0.01					µg/l	A-T-019w
Fluorene (w) _A [#]	0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	<0.01	<0.01	<0.01	<0.01					µg/l	A-T-019w
Naphthalene (w) _A [#]	0.02	<0.01	0.03	<0.01					µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.02	0.03	<0.01	<0.01					µg/l	A-T-019w
Pyrene (w) _A [#]	0.03	<0.01	<0.01	<0.01					µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	0.22	0.03	0.04	<0.01					µg/l	A-T-019w

Envirolab Job Number: 18/09646

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/09646/9	18/09646/10	18/09646/11	18/09646/12					Units	Method ref
Client Sample No	1115-5 Shallow	1115-6 Deep	1115-12	1115-9						
Client Sample ID	BH4D	BH4D	BH10	BH11						
Depth to Top	2.50	2.51	2.59	2.74						
Depth To Bottom										
Date Sampled	14-Nov-18	14-Nov-18	14-Nov-18	14-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-055w
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-055w
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-055w
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-055w
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-055w
Total Aliphatics (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-055w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
Aro >C8-C10 (w) _A	<5	<5	<5	<5					µg/l	A-T-055w
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-055w
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5					µg/l	A-T-055w
Aro >C16-C21 (w) _A [#]	30	22	35	15					µg/l	A-T-055w
Aro >C21-C35 (w) _A [#]	<10	<10	<10	<10					µg/l	A-T-055w
Total Aromatics (w) _A	30	22	35	15					µg/l	A-T-055w
TPH (Ali & Aro >C5-C35) (w) _A	30	22	35	15					µg/l	A-T-055w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1					µg/l	A-T-022w

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

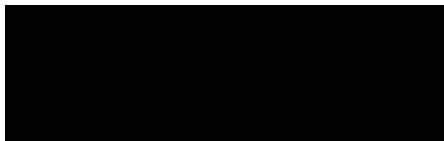
FINAL ANALYTICAL TEST REPORT SUPPLEMENT TO TEST REPORT 18/10170/1

Envirolab Job Number: 18/10170
Issue Number: 2
Date: 20 December, 2018

Client: Norfolk Partnership Laboratory
Environment, Transport and Development Department
Norfolk County Council
County Hall
Norwich
Norfolk
NR1 2SG

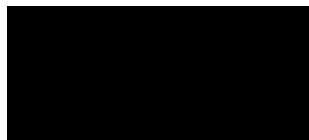
Project Manager: Scott Viner/Sharon Woods; Simon Holden
Project Name: Gt Yarmouth 3rd River Crossing
Project Ref: PZ1522D1
Order No: 611989
Date Samples Received: 03/12/18
Date Instructions Received: 03/12/18
Date Analysis Completed: 14/12/18

Prepared by:



Holly Neary-King
Sales Executive

Approved by:



Georgia King
Admin & Client Services Supervisor

Envirolab Job Number: 18/10170

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/10170/1	18/10170/2	18/10170/3	18/10170/4	18/10170/5	18/10170/6	18/10170/7	18/10170/8	Units	Method ref
Client Sample No	1115-16	1115-15	1115-8	115-14	1115-3	1115-10	1115-13	1115-4		
Client Sample ID	WS22	WS21	BH15	WS20	BH6	BH13	BH12B	BH4		
Depth to Top	0.95	1.17	1.36	1.23	1.51	1.87	1.83	1.15		
Depth To Bottom										
Date Sampled	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
pH (w) _A [#]	7.95	11.88	8.40	8.47	7.73	8.53	8.10	7.75		
Electrical conductivity @ 20degC (w) _A [#]	1455	1684	4490	819	43600	2620	13660	24000	µs/cm	A-T-037w
BOD (settled, 5 day) _A	6	<1	<1	16	3	8	3	1	mg/l	A-T-048
Alkalinity (total) (w) Colorimetry _A [#]	616	437	238	184	86	540	315	148	mg/l Ca CO ₃	A-T-038w
Alkalinity by titration (bicarbonate) (w) _A	1570	<15	230	1255	185	520	315	185	mg/l Ca CO ₃	Titration w
Alkalinity by titration (carbonate) (w) _A	<15	170	<15	<15	<15	<15	<15	<15	mg/l Ca CO ₃	Titration w
Hardness Total _A [#]	400	405	615	403	5570	244	1900	2930	mg/l Ca CO ₃	A-T-049w
Total Suspended Solids (w) _A [#]	1294	258	90	8822	147	11	17	37	mg/l	A-T-036w
Ammoniacal nitrogen (w) _A [#]	5.70	6.09	0.21	6.16	1.37	8.07	3.69	1.22	mg/l	A-T-033w
Ammonium / Ammoniacal nitrogen as NH ₄ (w) _A [#]	7.357	7.856	0.272	7.945	1.769	10.4	4.758	1.569	mg/l	A-T-033w
Chloride (w) _A [#]	113	198	1270	147	17400	472	4630	9130	mg/l	A-T-026w
Bromine _A	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/l	Test kit
Fluoride (w) _A [#]	1.59	<0.10	0.53	0.59	<0.10	1.53	<0.10	<0.10	mg/l	A-T-026w
Nitrite (w) _A [#]	<0.1	19.0	<0.1	4.0	<0.1	<0.1	<0.1	<0.1	mg/l	A-T-026w
Nitrate (w) _A [#]	<0.1	15.8	<0.1	1.6	<0.1	<0.1	7.3	<0.1	mg/l	A-T-026w
Nitrate as N (w) _A [#]	<0.022	3.576	<0.022	0.371	<0.022	<0.022	1.640	<0.022	mg/l	A-T-026w
Nitrogen, Total Oxidised TOxN (w) _A [#]	<0.1	9.4	<0.1	1.6	<0.1	<0.1	1.7	<0.1	mg/l	A-T-026w
Nitrogen, Total (w)	6.4	15.7	0.4	4.3	0.9	7.6	5.8	0.6	mg/l	Calc
Nitrogen (kjeldahl) (w) _A	6.4	6.3	0.4	2.7	0.9	7.6	4.1	0.6	mg/l	Subcon DETS
Phosphate (orthophosphate) as P (w) _A [#]	0.202	<0.007	0.564	0.024	<0.007	0.942	0.242	0.849	mg/l	A-T-026w
Phosphorus, Total (dissolved) _A	26	25	798	<20	412	1247	405	214	µg/l	A-T-025w
Sulphate (w) _A [#]	<1	34	237	47	2290	68	635	1180	mg/l	A-T-026w
DOC (w) _A [#]	7.2	6.6	1.8	6.5	0.5	13.4	5.5	0.4	mg/l	A-T-032w
Oil & Grease (total) (w) _A	3	<1	2	5	5	6	2	<1	mg/l	A-T-039w
Arsenic (dissolved) _A [#]	6	6	69	6	24	15	7	2	µg/l	A-T-025w
Boron (dissolved) _A [#]	72	66	710	75	3690	680	767	855	µg/l	A-T-025w
Cadmium (dissolved 0.08 ug/l) _A	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	µg/l	A-T-025w
Calcium (dissolved) _A [#]	160	162	97	161	405	66	393	335	mg/l	A-T-049w
Copper (dissolved) _A [#]	19	21	7	21	7	7	12	12	µg/l	A-T-025w
Chromium (dissolved) _A [#]	8	8	<1	8	1	<1	1	1	µg/l	A-T-025w
Chromium (hexavalent) (w) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	A-T-040w

Envirolab Job Number: 18/10170

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/10170/1	18/10170/2	18/10170/3	18/10170/4	18/10170/5	18/10170/6	18/10170/7	18/10170/8	Units	Method ref
Client Sample No	1115-16	1115-15	1115-8	115-14	1115-3	1115-10	1115-13	1115-4		
Client Sample ID	WS22	WS21	BH15	WS20	BH6	BH13	BH12B	BH4		
Depth to Top	0.95	1.17	1.36	1.23	1.51	1.87	1.83	1.15		
Depth To Bottom										
Date Sampled	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Iron (dissolved) _A [#]	33	27	498	27	5320	924	65	110		
Lead (dissolved) _A [#]	1	1	<1	1	<1	<1	<1	<1	µg/l	A-T-025w
Manganese (dissolved) _A [#]	5	2	248	2	3990	213	1180	8130	µg/l	A-T-025w
Magnesium (dissolved) _A [#]	<1	<1	90	<1	1110	19	223	508	mg/l	A-T-049w
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1	0.2	0.1	<0.1	<0.1	µg/l	A-T-025w
Nickel (dissolved) _A [#]	5	5	<1	5	2	2	5	4	µg/l	A-T-025w
Potassium (dissolved) _A [#]	48	48	52	48	268	48	155	139	mg/l	A-T-049w
Selenium (dissolved) _A [#]	3	3	<1	2	<1	<1	1	<1	µg/l	A-T-025w
Sodium (dissolved) _A [#]	125	124	786	122	9520	395	2220	4670	mg/l	A-T-049w
Zinc (dissolved) _A [#]	1	1	<1	2	4	2	6	6	µg/l	A-T-025w
Ethylene glycol (Monoethylene glycol) (w) _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	Subcon Chemtest

Envirolab Job Number: 18/10170

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/10170/1	18/10170/2	18/10170/3	18/10170/4	18/10170/5	18/10170/6	18/10170/7	18/10170/8	Units	Method ref		
Client Sample No	1115-16	1115-15	1115-8	115-14	1115-3	1115-10	1115-13	1115-4				
Client Sample ID	WS22	WS21	BH15	WS20	BH6	BH13	BH12B	BH4				
Depth to Top	0.95	1.17	1.36	1.23	1.51	1.87	1.83	1.15				
Depth To Bottom												
Date Sampled	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18				
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
PAH 16MS (w)												
Acenaphthene (w) _A [#]	<0.01	<0.01	0.14	0.02	<0.01	0.79	<0.01	<0.01	µg/l	A-T-019w		
Acenaphthylene (w) _A [#]	<0.01	<0.01	0.01	0.06	<0.01	0.07	<0.01	<0.01	µg/l	A-T-019w		
Anthracene (w) _A [#]	<0.01	0.06	0.02	0.24	<0.01	0.04	<0.01	<0.01	µg/l	A-T-019w		
Benzo(a)anthracene (w) _A [#]	<0.01	0.09	0.01	0.26	<0.01	<0.01	0.01	<0.01	µg/l	A-T-019w		
Benzo(a)pyrene (w) _A [#]	<0.01	0.07	<0.01	0.30	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w		
Benzo(b)fluoranthene (w) _A [#]	<0.01	0.10	<0.01	0.35	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w		
Benzo(ghi)perylene (w) _A [#]	<0.01	0.04	<0.01	0.59	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w		
Benzo(k)fluoranthene (w) _A [#]	<0.01	0.04	<0.01	0.13	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w		
Chrysene (w) _A [#]	<0.01	0.11	0.01	0.29	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w		
Dibenzo(ah)anthracene (w) _A [#]	<0.01	0.02	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w		
Fluoranthene (w) _A [#]	<0.01	0.25	0.03	0.48	0.02	0.01	0.07	0.01	µg/l	A-T-019w		
Fluorene (w) _A [#]	<0.01	0.06	<0.01	0.02	<0.01	0.53	0.01	<0.01	µg/l	A-T-019w		
Indeno(123-cd)pyrene (w) _A [#]	<0.01	0.05	<0.01	0.47	<0.01	<0.01	<0.01	<0.01	µg/l	A-T-019w		
Naphthalene (w) _A [#]	<0.01	0.03	0.03	0.02	0.02	<0.01	<0.01	0.01	µg/l	A-T-019w		
Phenanthrene (w) _A [#]	<0.01	0.04	0.05	0.16	0.02	0.22	<0.01	<0.01	µg/l	A-T-019w		
Pyrene (w) _A [#]	<0.01	0.23	0.04	0.58	0.01	<0.01	0.07	0.01	µg/l	A-T-019w		
Total PAH 16MS (w) _A [#]	<0.01	1.19	0.34	4.04	0.07	1.66	0.16	0.03	µg/l	A-T-019w		

Envirolab Job Number: 18/10170

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/10170/1	18/10170/2	18/10170/3	18/10170/4	18/10170/5	18/10170/6	18/10170/7	18/10170/8	Units	Method ref
Client Sample No	1115-16	1115-15	1115-8	115-14	1115-3	1115-10	1115-13	1115-4		
Client Sample ID	WS22	WS21	BH15	WS20	BH6	BH13	BH12B	BH4		
Depth to Top	0.95	1.17	1.36	1.23	1.51	1.87	1.83	1.15		
Depth To Bottom										
Date Sampled	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18		
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW	Water - EW		
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1	<1	1	<1	<1	µg/l	A-T-022w
Ali >C8-C10 (w) _A [#]	<5	7	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Ali >C10-C12 (w) _A [#]	9	5	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Ali >C12-C16 (w) _A [#]	20	6	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Ali >C16-C21 (w) _A [#]	16	6	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Ali >C21-C35 (w) _A [#]	35	10	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Total Aliphatics (w) _A [#]	80	35	<5	<5	<5	<5	<5	<5	µg/l	A-T-055w
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
Aro >C8-C10 (w) _A	9	17	<5	6	<5	31	<5	<5	µg/l	A-T-055w
Aro >C10-C12 (w) _A [#]	5	52	<5	5	<5	97	<5	<5	µg/l	A-T-055w
Aro >C12-C16 (w) _A [#]	11	163	<5	27	<5	61	10	<5	µg/l	A-T-055w
Aro >C16-C21 (w) _A [#]	6	110	21	29	9	67	<5	14	µg/l	A-T-055w
Aro >C21-C35 (w) _A [#]	16	45	<10	20	<10	23	<10	<10	µg/l	A-T-055w
Total Aromatics (w) _A	47	388	21	87	<10	279	19	14	µg/l	A-T-055w
TPH (Ali & Aro >C5-C35) (w) _A	127	422	21	87	<10	280	19	14	µg/l	A-T-055w
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1	<1	1	<1	<1	µg/l	A-T-022w
MTBE (w) _A [#]	<1	<1	<1	<1	<1	<1	<1	<1	µg/l	A-T-022w

Envirolab Job Number: 18/10170

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/10170/9	18/10170/10	18/10170/11	18/10170/12					Units	Method ref
Client Sample No	1115-5 Shallow	1115-6 Deep	1115-12	1115-9						
Client Sample ID	BH4D	BH4D	BH10	BH11						
Depth to Top	1.67	1.69	2.56	2.50						
Depth To Bottom										
Date Sampled	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
Iron (dissolved) _A [#]	7690	435	37	1300				µg/l		
Lead (dissolved) _A [#]	<1	<1	<1	<1				µg/l	A-T-025w	
Manganese (dissolved) _A [#]	4850	6090	64	2090				µg/l	A-T-025w	
Magnesium (dissolved) _A [#]	232	536	23	1130				mg/l	A-T-049w	
Mercury (dissolved) _A [#]	<0.1	<0.1	<0.1	<0.1				µg/l	A-T-025w	
Nickel (dissolved) _A [#]	2	4	1	3				µg/l	A-T-025w	
Potassium (dissolved) _A [#]	74	246	27	150				mg/l	A-T-049w	
Selenium (dissolved) _A [#]	<1	<1	<1	<1				µg/l	A-T-025w	
Sodium (dissolved) _A [#]	1510	4960	159	9660				mg/l	A-T-049w	
Zinc (dissolved) _A [#]	7	29	32	6				µg/l	A-T-025w	
Ethylene glycol (Monoethylene glycol) (w) _A	<0.1	<0.1	<0.1	<0.1				mg/l	Subcon Chemtest	

Envirolab Job Number: 18/10170

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/10170/9	18/10170/10	18/10170/11	18/10170/12					Units	Method ref
Client Sample No	1115-5 Shallow	1115-6 Deep	1115-12	1115-9						
Client Sample ID	BH4D	BH4D	BH10	BH11						
Depth to Top	1.67	1.69	2.56	2.50						
Depth To Bottom										
Date Sampled	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
PAH 16MS (w)										
Acenaphthene (w) _A [#]	0.02	<0.01	0.01	<0.02					µg/l	A-T-019w
Acenaphthylene (w) _A [#]	0.01	<0.01	<0.01	<0.02					µg/l	A-T-019w
Anthracene (w) _A [#]	0.02	<0.01	<0.01	<0.02					µg/l	A-T-019w
Benzo(a)anthracene (w) _A [#]	0.09	0.01	<0.01	<0.02					µg/l	A-T-019w
Benzo(a)pyrene (w) _A [#]	0.10	0.01	<0.01	<0.02					µg/l	A-T-019w
Benzo(b)fluoranthene (w) _A [#]	0.12	0.02	<0.01	<0.02					µg/l	A-T-019w
Benzo(ghi)perylene (w) _A [#]	0.07	<0.01	<0.01	<0.02					µg/l	A-T-019w
Benzo(k)fluoranthene (w) _A [#]	0.04	<0.01	<0.01	<0.02					µg/l	A-T-019w
Chrysene (w) _A [#]	0.11	0.01	<0.01	<0.02					µg/l	A-T-019w
Dibenzo(ah)anthracene (w) _A [#]	0.01	<0.01	<0.01	<0.02					µg/l	A-T-019w
Fluoranthene (w) _A [#]	0.18	0.04	<0.01	<0.02					µg/l	A-T-019w
Fluorene (w) _A [#]	0.01	<0.01	<0.01	<0.02					µg/l	A-T-019w
Indeno(123-cd)pyrene (w) _A [#]	0.08	<0.01	<0.01	<0.02					µg/l	A-T-019w
Naphthalene (w) _A [#]	0.04	<0.01	0.02	<0.02					µg/l	A-T-019w
Phenanthrene (w) _A [#]	0.06	0.02	<0.01	<0.02					µg/l	A-T-019w
Pyrene (w) _A [#]	0.15	0.03	<0.01	<0.02					µg/l	A-T-019w
Total PAH 16MS (w) _A [#]	1.11	0.14	0.03	<0.02					µg/l	A-T-019w

Envirolab Job Number: 18/10170

Client Project Name: Gt Yarmouth 3rd River Crossing

Client Project Ref: PZ1522D1

Lab Sample ID	18/10170/9	18/10170/10	18/10170/11	18/10170/12					Units	Method ref
Client Sample No	1115-5 Shallow	1115-6 Deep	1115-12	1115-9						
Client Sample ID	BH4D	BH4D	BH10	BH11						
Depth to Top	1.67	1.69	2.56	2.50						
Depth To Bottom										
Date Sampled	29-Nov-18	29-Nov-18	29-Nov-18	29-Nov-18						
Sample Type	Water - EW	Water - EW	Water - EW	Water - EW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
TPH CWG (w)										
Ali >C5-C6 (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	
Ali >C6-C8 (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	
Ali >C8-C10 (w) _A [#]	<5	<5	<5	<5				µg/l	A-T-055w	
Ali >C10-C12 (w) _A [#]	<5	<5	<5	<5				µg/l	A-T-055w	
Ali >C12-C16 (w) _A [#]	<5	<5	<5	<5				µg/l	A-T-055w	
Ali >C16-C21 (w) _A [#]	<5	<5	<5	<5				µg/l	A-T-055w	
Ali >C21-C35 (w) _A [#]	<5	<5	<5	<5				µg/l	A-T-055w	
Total Aliphatics (w) _A [#]	<5	<5	<5	<5				µg/l	A-T-055w	
Aro >C5-C7 (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	
Aro >C7-C8 (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	
Aro >C8-C10 (w) _A	<5	<5	<5	<5				µg/l	A-T-055w	
Aro >C10-C12 (w) _A [#]	<5	<5	<5	<5				µg/l	A-T-055w	
Aro >C12-C16 (w) _A [#]	<5	<5	<5	<5				µg/l	A-T-055w	
Aro >C16-C21 (w) _A [#]	17	39	<5	12				µg/l	A-T-055w	
Aro >C21-C35 (w) _A [#]	<10	<10	<10	<10				µg/l	A-T-055w	
Total Aromatics (w) _A	22	46	<10	12				µg/l	A-T-055w	
TPH (Ali & Aro >C5-C35) (w) _A	22	46	<10	12				µg/l	A-T-055w	
BTEX - Benzene (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	
BTEX - Toluene (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	
BTEX - Ethyl Benzene (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	
BTEX - m & p Xylene (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	
BTEX - o Xylene (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	
MTBE (w) _A [#]	<1	<1	<1	<1				µg/l	A-T-022w	

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

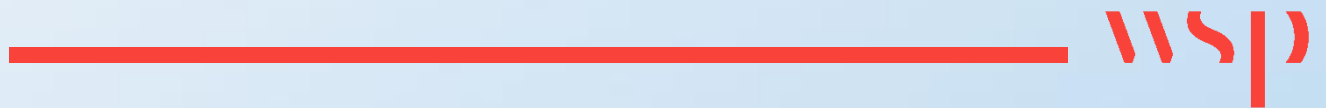
Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Appendix I

GAS AND GROUND WATER MONITORING



PZ1522D1:Gt Yarmouth 3rd River crossing - Piezometer readings

Borehole No	04	04A	04Dshallow	04Ddeep	06	07	10	11	12B	13	15	20	21	22
01/06/2018	1.90	1.15	1.57	1.46	1.70	Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	1.35	x	x	x
21/06/2018	2.06	1.30	1.50	1.55	1.14	Inaccessible	2.37	2.30	1.78	1.75	1.42	x	x	x
03/07/2018	1.97	2.00	1.66	1.70	1.38	Inaccessible	2.44	2.45	Inaccessible	Inaccessible	1.40	x	x	x
19/07/2018	1.99	1.70	1.65	1.55	1.51	Inaccessible	2.66	2.51	Inaccessible	Inaccessible	1.44	x	x	x
02/08/2018	1.98	1.80	1.65	1.60	1.46	Inaccessible	2.70	2.66	Inaccessible	Inaccessible	1.43	x	x	x
17/08/2018	2.10	1.18	1.64	1.56	1.33	Inaccessible	2.38	2.32	Inaccessible	Inaccessible	2.10	x	x	x
30/08/2018	2.04	1.18	1.59	1.46	1.32	Inaccessible	2.34	2.27	1.70	1.61	1.56	x	x	x
04/10/2018	2.09	1.28	1.60	1.55	1.40	Inaccessible	2.74	2.76	1.76	1.73	1.36	1.22	1.19	0.95
18/10/2018	2.00	1.20	1.52	1.39	1.46	Inaccessible	2.61	2.60	1.71	1.66	1.34	1.23	1.29	0.94
01/11/2018	2.10	1.31	1.50	1.60	1.42	Inaccessible	2.75	2.76	1.74	1.75	1.38	1.23	1.20	0.90
14/11/2018	2.05	1.11	2.50	2.51	2.10	Inaccessible	2.59	2.74	1.73	1.73	1.30	1.26	1.10	0.93
29/11/2018	1.15	1.10	1.67	1.69	1.51	Inaccessible	2.56	2.50	1.83	1.87	1.36	1.23	1.17	0.95
11/12/2018	1.95	1.10	1.50	1.53	1.50	Inaccessible	2.43	2.40	1.91	1.96	1.26	1.2	1.15	0.86
20/12/2018	x	x	x	x	x	Dry	x	x	x	x	x	x	x	x

Readings are metres below existing ground level

PZ1522D1:Gt Yarmouth 3rd River crossing - Methane readings

Borehole No	04	04A	04Dshallow	04Ddeep	06	07	10	11	12B	13	15	20	21	22
17/08/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	Inaccessible	Inaccessible	0.0	x	x	x
30/08/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	1.1	0.0	0.8	0.0	x	x	x
04/10/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.0
18/10/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
01/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
11/12/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
20/12/2018	x	x	x	x	x	0.0	x	x	x	x	x	x	x	x

NOTE: A value of 0.0 represents a value that is below the limit of detection of 0.1%

PZ1522D1:Gt Yarmouth 3rd River crossing - Carbon Dioxide readings

Borehole No	04	04A	04Dshallow	04Ddeep	06	07	10	11	12B	13	15	20	21	22
17/08/2018	0.5	4.9	10.6	9.9	0.3	Inaccessible	1.5	0.5	Inaccessible	Inaccessible	0.1	x	x	x
30/08/2018	4.8	4.7	10.2	10.1	0.3	Inaccessible	1.2	6.1	3.6	0.1	0.5	x	x	x
04/10/2018	2.4	5.1	7.1	7.2	0.7	Inaccessible	1.0	5.3	0.4	0.1	0.4	0.1	0.0	0.1
18/10/2018	2.2	4.9	7.7	6.6	0.2	Inaccessible	1.1	5.4	0.0	0.0	0.4	0.0	0.0	0.2
01/11/2018	0.9	4.1	3.3	3.9	0.6	Inaccessible	0.9	6.1	0.1	0.3	0.3	0.1	0.0	0.1
14/11/2018	1.5	2.9	4.9	3.8	0.3	Inaccessible	0.6	2.8	0.1	0.0	0.1	0.1	0.1	0.1
29/11/2018	1.6	2.8	4.8	3.5	0.9	Inaccessible	0.6	2.4	0.2	0.1	0.2	0.1	0.1	0.1
11/12/2018	1.2	2.4	4.5	2.6	0.8	Inaccessible	0.5	3.1	0.2	0.1	0.1	0.1	0.1	0.1
20/12/2018	x	x	x	x	x	4.1	x	x	x	x	x	x	x	x

NOTE: A value of 0.0 represents a value that is below the limit of detection of 0.1%

PZ1522D1:Gt Yarmouth 3rd River crossing - Oxygen readings

Borehole No	04	04A	04Dshallow	04Ddeep	06	07	10	11	12B	13	15	20	21	22
17/08/2018	13.8	8.1	20.4	9.5	20.5	Inaccessible	4.9	19.8	Inaccessible	Inaccessible	18.8	x	x	x
30/08/2018	18.8	15.7	10.5	10.7	20.6	Inaccessible	6.0	3.8	17.5	18.9	19.4	x	x	x
04/10/2018	18.2	16.9	13.0	13.5	19.8	Inaccessible	7.4	3.0	17.7	19.6	18.8	19.7	18.5	19.6
18/10/2018	18.1	15.9	12.5	13.4	20.6	Inaccessible	5.4	2.9	16.6	20.3	19.1	20.5	21.1	20.6
01/11/2018	19.4	18.3	16.3	15.1	18.6	Inaccessible	9.6	3.9	17.9	20.3	20.0	19.7	19.8	20.1
14/11/2018	18.5	18.5	12.5	13.9	20.4	Inaccessible	19.9	9.7	20.6	20.8	15.7	19.6	19.9	20.1
29/11/2018	18.5	18.6	13.5	15.6	20.8	Inaccessible	20.3	9.6	20.6	19.8	20.2	19.9	20.1	20.2
11/12/2018	19.1	17.7	16.3	14.5	20.4	Inaccessible	20.2	11.6	20.6	19.9	20.6	20.4	20.3	20.5
20/12/2018	x	x	x	x	x	14.3	x	x	x	x	x	x	x	x

NOTE: A value of 0.0 represents a value that is below the limit of detection of 0.1%

PZ1522D1:Gt Yarmouth 3rd River crossing - Flow readings

Borehole No	04	04A	04Dshallow	04Ddeep	06	07	10	11	12B	13	15	20	21	22
17/08/2018	0.0	0.0	0.1	1.0	0.0	Inaccessible	0.1	0.2	Inaccessible	Inaccessible	0.0	x	x	x
30/08/2018	0.1	0.0	1.1	0.1	0.1	Inaccessible	0.1	1.1	0.1	0.1	0.0	x	x	x
04/10/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
18/10/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11/12/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20/12/2018	x	x	x	x	x	0.0	x	x	x	x	x	x	x	x

NOTE: A value of 0.0 represents a value that is below the limit of detection of 0.1 ltrs/hr

PZ1522D1:Gt Yarmouth 3rd River crossing - Atmospheric Pressure readings

Borehole No	mbar	Status
17/08/2018	1010	Steady
30/08/2018	1020	Steady
04/10/2018	1022	Steady
18/10/2018	1024	Steady
01/11/2018	1001	Steady
14/11/2018	1022-1021	Falling
29/11/2018	1002	Steady
11/12/2018	1026	Steady
20/12/2018	1003	Steady



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Annex B.2 2018 Gas and Groundwater Monitoring

PZ1522D1:Gt Yarmouth 3rd River crossing - Methane readings

Borehole No	04	04A	04Dshallow	04Ddeep	06	07	10	11	12B	13	15	20	21	22
17/08/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	Inaccessible	Inaccessible	0.0	x	x	x
30/08/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	1.1	0.0	0.8	0.0	x	x	x
04/10/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.0
18/10/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
01/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
11/12/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
20/12/2018	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-

NOTE: A value of 0.0 represents a value that is below the limit of detection of 0.1%

PZ1522D1:Gt Yarmouth 3rd River crossing - Carbon Dioxide readings

Borehole No	04	04A	04Dshallow	04Ddeep	06	07	10	11	12B	13	15	20	21	22
17/08/2018	0.5	4.9	10.6	9.9	0.3	Inaccessible	1.5	0.5	Inaccessible	Inaccessible	0.1	x	x	x
30/08/2018	4.8	4.7	10.2	10.1	0.3	Inaccessible	1.2	6.1	3.6	0.1	0.5	x	x	x
04/10/2018	2.4	5.1	7.1	7.2	0.7	Inaccessible	1.0	5.3	0.4	0.1	0.4	0.1	0.0	0.1
18/10/2018	2.2	4.9	7.7	6.6	0.2	Inaccessible	1.1	5.4	0.0	0.0	0.4	0.0	0.0	0.2
01/11/2018	0.9	4.1	3.3	3.9	0.6	Inaccessible	0.9	6.1	0.1	0.3	0.3	0.1	0.0	0.1
14/11/2018	1.5	2.9	4.9	3.8	0.3	Inaccessible	0.6	2.8	0.1	0.0	0.1	0.1	0.1	0.1
29/11/2018	1.6	2.8	4.8	3.5	0.9	Inaccessible	0.6	2.4	0.2	0.1	0.2	0.1	0.1	0.1
11/12/2018	1.2	2.4	4.5	2.6	0.8	Inaccessible	0.5	3.1	0.2	0.1	0.1	0.1	0.1	0.1
20/12/2018	-	-	-	-	-	4.1	-	-	-	-	-	-	-	-

NOTE: A value of 0.0 represents a value that is below the limit of detection of 0.1%

PZ1522D1:Gt Yarmouth 3rd River crossing - Oxygen readings

Borehole No	04	04A	04Dshallow	04Ddeep	06	07	10	11	12B	13	15	20	21	22
17/08/2018	13.8	8.1	20.4	9.5	20.5		4.9	19.8	Inaccessible	Inaccessible	18.8	x	x	x
30/08/2018	18.8	15.7	10.5	10.7	20.6		6.0	3.8	17.5	18.9	19.4	x	x	x
04/10/2018	18.2	16.9	13.0	13.5	19.8		7.4	3.0	17.7	19.6	18.8	19.7	18.5	19.6
18/10/2018	18.1	15.9	12.5	13.4	20.6		5.4	2.9	16.6	20.3	19.1	20.5	21.1	20.6
01/11/2018	19.4	18.3	16.3	15.1	18.6		9.6	3.9	17.9	20.3	20.0	19.7	19.8	20.1
14/11/2018	18.5	18.5	12.5	13.9	20.4		19.9	9.7	20.6	20.8	15.7	19.6	19.9	20.1
29/11/2018	18.5	18.6	13.5	15.6	20.8		20.3	9.6	20.6	19.8	20.2	19.9	20.1	20.2
11/12/2018	19.1	17.7	16.3	14.5	20.4		20.2	11.6	20.6	19.9	20.6	20.4	20.3	20.5
20/12/2018	-	-	-	-	-	14.3	-	-	-	-	-	-	-	-

NOTE: A value of 0.0 represents a value that is below the limit of detection of 0.1%

PZ1522D1:Gt Yarmouth 3rd River crossing - Flow readings

Borehole No	04	04A	04Dshallow	04Ddeep	06	07	10	11	12B	13	15	20	21	22
17/08/2018	0.0	0.0	0.1	1.0	0.0	Inaccessible	0.1	0.2	Inaccessible	Inaccessible	0.0	x	x	x
30/08/2018	0.1	0.0	1.1	0.1	0.1	Inaccessible	0.1	1.1	0.1	0.1	0.0	x	x	x
04/10/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
18/10/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29/11/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11/12/2018	0.0	0.0	0.0	0.0	0.0	Inaccessible	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20/12/2018	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-

NOTE: A value of 0.0 represents a value that is below the limit of detection of 0.1 ltrs/hr

PZ1522D1:Gt Yarmouth 3rd River crossing - Atmospheric Pressure readings

Borehole No	mbar	Status
17/08/2018	1010	Steady
30/08/2018	1020	Steady
04/10/2018	1022	Steady
18/10/2018	1024	Steady
01/11/2018	1001	Steady
14/11/2018	1022-1021	Falling
29/11/2018	1002	Steady
11/12/2018	1026	Steady
20/12/2018	1003	Steady

Annex B.3 2006 Ground Investigation Factual Report

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Appendices

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- Appendix B - Site Plan
- Appendix C - Borehole, Trialpit and Window Sample Logs
- Appendix D - Laboratory Test Results
- Appendix E - Contamination Results
- Appendix F - Water level records
- Appendix G - Gas results
- Appendix H - UXO Desk Study
- Appendix I - UXO site reports
- Appendix J - Historical Borehole Log, Fishermans Wharf
- Appendix K - Land owners and contacts

ii) Distribution

Planning & Transportation	2 copies
Mott Macdonald	1 copy
Norfolk Partnership Laboratory.	1 copy

Each party also received a copy in pdf format.

1.0. Introduction.

This ground investigation was carried out on land approximately 2 kilometres to the south of the centre Great Yarmouth. The site is approximately centred at OSGR 652620,305495. The area of investigation is approximately 1 kilometre in length north, south and extends to the east approximately 500 metres and approximately 350 metres to the west from the River Yare. The investigation was undertaken by Norfolk Partnership Laboratory on behalf of Norfolk County Council. Norfolk Partnership Laboratory provides a service within the Highways Operation Group of the Department of Planning and Transportation of Norfolk County Council.

It is proposed to construct a new River Yare crossing to ease the traffic congestion within Great Yarmouth town centre. At present the options being considered are;

- a) High level bridge crossings (deck level >8m above Spring Tide level)
- b) Low level bridge crossings
- c) Tunnel crossings

At this stage five different locations for a high or low level bridge and two locations for a tunnel are being considered. These combined give a total of twelve alternative crossing options.

This report covers a preliminary site investigation of the area. The principle purposes of this phase of the investigation were to:

- a) Carry out an early assessment of the actual ground conditions present and to determine their geotechnical properties.
- b) Carry out an early assessment of the actual ground conditions present with respect to contamination within the soil and water.
- c) Carry out an early assessment of the tidal influence on groundwater levels that are likely to affect construction.
- d) Carry out a UXO Desk Study and a preliminary UXO survey in the field during the site investigation works.

This report describes the expected geology of the region, the fieldwork carried out laboratory tests performed and the actual ground conditions encountered.

This site investigation data contained within this report is available in Association of Geotechnical Specialist (AGS) data format upon request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

2.0 General Geology

The geology of the region may be summarised as follows :-

Recent	: Tidal River or Creek Deposits	
	: Blown Sand	
	: Breydon Formation	: Breydon Peat
		: Breydon Silts and Clays
	: North Denes Formation	
Pleistocene	: Corton Formation	: Corton Sand
	: Kesgrave Sand and Gravel	
	: Lowestoft Till	
	: Norwich Crag	
Eocene	: Walton Member	
	: Harwich Member	
	: Hales Clay	
Palaeocene	: Ormesby Clay	
Cretaceous	: Upper Chalk	

An extract from the geological map can be found in Appendix A.

The **Norwich Crag** was formed when, after a long period of standing above sea level, the area was submerged by a marine transgression caused by movements of the sea floor during a period of coastal instability in the region. The deposits are a variable series of yellowish or reddish brown sands, laminated clays and pebbly gravels. In places they are highly fossiliferous, shell fragments being especially prolific. The thickness of these deposits is variable between 5 and 60 metres.

Lowestoft Till is a heterogeneous mass of rock fragments, mainly chalk and flint, but with some material from further afield, suspended in a groundmass of grey sand, silt and clay which is usually derived from local sources. The glaciers which formed this material advanced from the west or north-west.

The **Corton Formation** is probably glacio-marine in origin and comprises of orange to buff, mostly fine grained sand with subordinate gravel, often gravely towards the base. A widespread sandy clay or till occurs at the base and is equivalent to the Cromer Till of North Norfolk. Thicknesses up to 10 metres may be present.

North Denes Formation comprises the deposits of a coastal barrier that extends in a tract up to about one kilometre wide between Caister-on-Sea and Gorleston-on-Sea, a distance of some eight kilometres. It consists of sand and subordinate gravel, and flanks the eastern limits of the Breydon Formation. Seawards, the formation extends to an arbitrary limit taken at the present coastline, where it is flanked by shoreface and beach sands.

The **Breydon Formation** is a series of older estuarine deposits of soft grey to dark grey silty clay and fine to medium grained sand. The materials are commonly laminated or bioturbated and include disseminated plant material and layers of peat. Bivalve shells occur locally. The upper 1-2 metres often forms a desiccated crust and is mottled and firm to stiff in nature. These materials may be up to 20 metres in thickness nearer the coast tapering to a thin veneer further inland.

Sands of a wind blown origin known as **Blown Sand** deposits which are locally up to 5 metres thick occurs at the surface in the coastal belt. This formation is common between Caister on Sea and Gorleston on Sea, and forms the foundation for much of the older part of the town of Great Yarmouth. The sand is typically buff in colour and fine in nature.

Alluvium is the material laid down in its channel and on the flood plain by modern day rivers. This material is generally silt, sand or clay. The presence of gravels represents times of flood. Where still conditions prevail then the growth of plant material may occur in or near the river channel, this facilitates the development of peat as this material dies and is buried.

According to the Regional Hydrogeology Map of Northern East Anglia, the Upper Chalk is the principle aquifer for the area.

4.0 Geotechnical Laboratory Testing

A laboratory geotechnical testing schedule was drawn up to assist classification of the soils and to determine their physical and chemical properties. Norfolk Partnership Laboratory is a UKAS TESTING laboratory No. 0920.

- a) The determination of Natural Moisture Content by oven drying (BS1377:1990:Part 2: Clause 3).
- b) The determination of Liquid Limit using the four point cone penetrometer method (BS 1377: 1990: Part 2: Clause 4).
- c) The determination of the Plastic Limit (BS 1377: 1990: Part 2: Clause 5).
- d) The determination of Particle Size Distribution (BS1377:1990:Part 2: Clause 9.2).
- e) The determination of Particle Size Distribution by Sedimentation (BS1377:1990:Part 2: Clause 9.3).
- f) The determination of Plasticity Index (BS 1377: 1990: Part 2: Clause 5).
- g) The determination of the Californian Bearing Ratio value (B.S. 1377: Part 4: 1990: Clause 7).
- h) The determination of the Moisture Content / Density Relationship (B.S. 1377: Part 4: 1990: Clause 3).
- i) The determination of Particle Density by Gas Jar Method (BS1377:1990: Part 2 : Clause 8).
- j) The determination of organic matter content (BS1377: Part 3 :Section 3).

The laboratory does not hold accreditation for the following tests undertaken:

In addition the following tests were subcontracted to ALcontrol Geochem (UKAS TESTING laboratory No 1291)

- k) The determination of Total Sulphate, Water Soluble Sulphate and Total Potential Sulphur in accordance with TRL447.

Additional testing was subcontracted for the detection of potential soil and groundwater contamination. This is outlined in Section 7 of this report.

These results are included in Appendix D. The laboratory will retain remaining samples for 28 days from the date of issue of this report.

5.0 Ground Conditions

The exploratory holes substantially confirm the Geology outlined in Section 2.1 of this report and the soils are described below.

5.1 Surface Deposits and Made Ground

No Topsoil was recorded during this investigation.

Asphalt and intact concrete was recorded as the surface deposits in a number of holes. Thickness ranged between 0.10 metre up to 0.35 metres. Often the concrete was reinforced with steel. Flint cobbles were also noted in a small number of holes on the eastern side of the site.

Soft cover was noted in BH's 101, 107, 108, 111, 111A, 111B, 112, 113, TP's 101, 104, 109 and WS 111. Made Ground was recorded in all holes undertaken within the site. The thickness of Made Ground revealed ranged from 0.30 in BH 109 up to 3.00 metres in BH's 112, 115 and WS 108. The Made Ground deposits varied vastly across the site. Generally a fine and medium sand matrix was noted with numerous up to cobble size inclusions. These inclusions were noted as concrete, brick, flint, ash and metal. More detail can be found on the logs in Appendix C.

5.2 Tidal River or Creek Deposits

Tidal River and Creek deposits were revealed in BH's 103, 105, 106, 109, 114 and 117. This deposit was encountered at depths ranging from 0.30 metre in BH 109 up to 2.60 metres in BH 114. Colours included light brown, dark grey, black, greyish brown, brownish grey, brown, orangey brown and grey. This material comprised a sandy silt or a silty clayey sand. Organic lenses and material were also noted within this deposit. Thickness recorded ranged from 0.40 metres in BH 114 up to 3.90 metres in BH 105. The base of this deposit was proven in all holes where found at a maximum depth of 5.00 metres in BH 117.

SPT N values calculated within this material ranged from very loose through loose up to an occasional medium dense.

5.3 Blown Sand

Blown Sand was revealed in WS's 105, 106 and 111. This deposit was encountered at depths of 0.50 metre in WS's 105 and 111 and 0.60 metre in WS 106. This material comprised a light brown fine and medium sand. Occasional and a little fine and medium or fine medium and coarse rounded flint clasts were noted in some of this deposit. Thickness recorded ranged from 2.70 metres in WS 105 up to 3.40 metres in WS 106. The base of this deposit was proven in all holes where found at a maximum depth of 4.00 metres in WS 106.

5.4 Breydon Formation : Breydon Peat

The Breydon Formation : Breydon Peat was encountered in BH's 101 and 108. This deposit was encountered at a depth of 1.50 metres in BH 108 and 1.70 metres in BH101. Colours were generally dark grey, black and greyish brown. This material generally comprised a soft dark grey amorphous peat. Soft organic silty clay with lenses of black fibrous peat was also noted. Thickness recorded ranged from 0.50 metre in BH 108 up to 1.10 metres in BH 101. The base of this deposit was proven in all holes where found at a maximum depth of 2.80 metres in BH 101.

5.5 Breydon Formation : Breydon Silts and Clays

The Breydon Formation : Breydon Silts and Clays were encountered in BH's 101, 102, 104, 108, 110, 111, 111A, 113, TP's 101 and 104. This deposit was encountered at depths ranging from 1.10 metres in BH 102 up to 2.30 metres in BH 113. Colours included dark grey, black, greyish brown, brownish grey, brown, orangey brown and grey. This material was found to be a mixture of sands, sandy silty clay, peaty sands, clay and silt. Thickness recorded ranged from 0.10 metre in TP101 up to 5.00 metres in BH 110. The base of this deposit was not proven in TP's 101 and 104 at depths of 1.70 metres and 3.30 metres respectively. The deposit was proven in all other holes where identified at a maximum depth of 6.70 metres in BH 110.

5.6 North Denes Formation

The North Denes Formation was identified in BH's 103, 105, 106, 107, 109, 114, 115, 116, 117, WS's 103, 104, 105, 106, 107, 108, 110 and 111. This deposit was encountered at depths ranging from 0.50 metre in WS's 103, 104 and 110 up to 5.00 metres in BH 117. Colours included light brown, greyish brown, brownish grey, brown, greyish brown and dark grey. This material was generally a sand with varying proportions of sub angular and rounded gravel. Clast content ranged from none through some and much up to equal proportions of fine, medium and coarse flint. Proven thickness recorded ranged from 3.95 metres in BH's 106 up to 14.00 metres in BH 107. The base of this deposit was not proven in BH 114 and all the window sample holes at a maximum depth of 5.00 metres. The deposit was proven in all other holes where identified at a maximum depth of 16.80 metres in BH 109.

N values calculated within this material ranged across the site with values increasing with depth. Densities recorded were loose, medium dense, dense and very dense.

5.7 Corton Formation

The Corton Formation was identified in BH's 108, 110, 111, 111A, 112, 113 and TP109. This deposit was encountered at depths ranging from 0.30 metre in TP 109 up to 6.7 metres in BH 110. Colours included brown, orangey brown, yellowish brown and dark grey. This material was generally a fine and medium sand. Occasional clay and silt lenses were noted present within this deposit. Varying proportions of sub angular and rounded gravel were noted. Clast content ranged from none through a little up to some fine, medium and coarse flint and occasional

quartz. Thickness recorded ranged from 4.40 metres in BH 113 up to 8.00 metres in BH 112. The base of this deposit was not proven in TP 109 at a depth of 3.50 metres. The deposit was proven in all other holes where identified at a maximum depth of 12.00 metres in BH 112.

N values calculated within this material ranged across the site with values increasing with depth. Densities recorded were medium dense and dense.

5.8 Corton Formation: Corton Sand

The Corton Formation : Corton Sand was identified in BH's 101, 102 and 104. This deposit was encountered at depths ranging from 2.80 metres in BH 101 up to 5.80 metres in BH 104. Colours included brown, orangey brown, yellowish brown, greyish brown and grey. This material was generally a fine and medium sand. Varying proportions of sub angular and rounded gravel Clast content ranged from none through a little up to some fine, medium and coarse flint. Thickness recorded ranged from 6.90 metres in BH 102 up to 9.20 metres in BH 104. The base of this deposit was proven in all holes where identified at a maximum depth of 15.00 metres in BH 104.

N values calculated ranged from medium dense through dense up to very dense.

5.9 Kesgrave Sand and Gravel

The Kesgrave Sand and Gravel was identified in BH's 106 and 116. This deposit was encountered at depths ranging from 6.00 metres and 8.50 metres respectively. Colours included brown, orangey brown and reddish brown. This material was generally a fine, medium and coarse sand and gravel and varying proportions of sub rounded and rounded gravel. Clast content ranged from none through some up to much fine, medium and coarse flint and quartz. Thickness recorded ranged from 5.50 metres in BH 116 up to 10.00 metres in BH 106. The base of this deposit was proven in all holes where identified at a maximum depth of 16.00 metres in BH 106.

Although not identified in other holes, this material maybe present as it is difficult to distinguish from other granular deposits.

N values calculated ranged were generally medium dense to dense. It should be noted that occasional loose densities were recorded.

5.10 Lowestoft Till

No Lowestoft Till deposits were positively identified during this investigation.

5.11 Crag

Crag deposits were positively identified during this investigation in all cable percussion boreholes with the exception of BH's 111A and 111B. The Crag deposits were not discovered in any of the trialpits or any of the window sample hole.

This deposit was encountered at depths ranging from 7.00 metres in BH 111 up to 16.80 metres in BH 109. Colours included reddish brown, orangey brown and grey. This material was generally a fine and medium sand. Laminae, lenses and layers of silty clay and silt were also noted within this deposit. A little fine flint gravel and shell fragments were noted to be present within some areas of this deposit. A maximum thickness of 31.50 metres was recorded in BH 113. The base of this deposit was not proven in any of the holes where identified at a maximum depth of 40.00 metres in BH's 105, 109, 113 and 117.

N values calculated within this material indicate densities ranging from medium dense through dense up to very dense.

5.12 Walton Member

No Walton Member deposits were positively identified during this investigation.

5.13 Harwich Member

The Harwich Member was not encountered during this investigation.

5.14 Hales Clay

No Hales Clay was recorded during this investigation.

5.15 Ormesby Clay

The Ormesby Clay was not positively identified during this investigation.

5.16 Upper Chalk

No Upper Chalk was revealed during this investigation.

Groundwater was subsequently monitored on five occasions. These results can be seen tabulated below.

Table 2. Piezometer readings

BH ID	Hole depth (m)	26/09/07	05/10/07	12/10/07	19/10/07	22/10/07
		Depth below ground level (m)				
101	3.20	1.60	1.69	1.44	1.60	1.57
101	9.00	1.51	1.73	1.55	1.57	1.60
102	3.10	2.30	1.81	2.19	2.23	2.36
102	24.65	2.04	1.84	2.27	2.51	2.30
103	1.62	0.79	0.92	0.86	0.78	0.86
103	35.00	1.01	1.05	1.04	1.00	1.12
104	5.50	1.37	2.43	1.42	1.73	1.87
104	28.50	1.34	2.52	1.44	1.72	1.86
105	3.00	1.14	1.16	1.08	1.10	1.10
105	26.40	1.14	1.21	1.09	1.07	1.12
105	40.00	1.33	1.09	1.09	1.07	1.12
106	3.57	1.15	1.21	1.19	1.22	1.20
106	11.90	1.17	1.23	1.19	1.23	1.22
107	2.95	2.49	2.51	2.52	2.52	2.55
107	10.00	2.56	2.51	2.53	2.53	2.54
107	19.80	2.52	2.51	2.52	2.52	2.53
108	2.80	1.12	1.06	1.01	1.02	1.02
108	19.90	1.35	1.31	0.95	1.11	1.11
109	2.50	1.27	1.24	1.17	1.21	1.22
109	39.00	1.29	1.29	0.77	1.25	1.24
110	2.60	2.04	1.99	1.95	1.97	1.95
110	28.10	1.55	2.83	2.52	2.73	2.59
111	1.85	Dry	Dry	Dry	Dry	Dry
111	19.50	2.70	2.75	2.60	2.73	2.68
112	2.60	2.57	2.56	2.55	2.55	2.55
112	19.70	2.65	3.01	2.74	2.77	2.79
113	1.62	n/a	Dry	2.09	2.24	2.11
113	4.20	n/a	2.34	1.99	2.21	2.06
114	2.80	1.64	1.97	1.77	1.88	1.84
115	3.00	2.85	2.84	2.88	2.84	2.86
115	27.70	2.85	2.83	2.89	2.83	2.86
116	2.50	2.02	2.00	1.92	1.98	2.00
116	7.30	2.02	2.00	1.93	1.97	2.01
117	5.80	1.91	2.01	1.92	1.92	1.91
117	40.00	1.94	1.96	1.75	1.90	1.87

More detail concerning the water level dips can be found in Appendix F.

7.0 Contamination Investigation

7.1 Contamination within the soil

The following tests were subcontracted ALcontrol Hawarden. ALcontrol Hawarden is a UKAS TESTING laboratory No. 1291.

The following samples were analysed.

Location Number	Depth (m)	Type	Testing undertaken
BH101	0.50	Soil	MM4, Speciated PAH
BH101	1.00	Soil	BRE SD1
BH101	8.00-8.45	Soil	BRE SD1
BH102	0.5	Soil	MM4, Speciated PAH
BH102	1.20-1.65	Soil	BRE SD1
BH102	3.0	Soil	MM4, Speciated PAH
BH102	10.00-10.45	Soil	BRE SD1
BH103	21.0	Soil	BRE SD1
BH103	0.5	Soil	MM4, Speciated TPH
BH103	5.0	Soil	BRE SD1
BH104	0.5	Soil	MM4
BH104	0.6	Soil	BRE SD1
BH104	25.5-25.95	Soil	BRE SD1
BH105	1.00	Soil	MM4, BRE SD1, Speciated PAH, Speciated TPH
BH 105	30.20	Soil	BRE SD1
BH 105	26.00	Soil	BRE SD1
BH 105	34.00	Soil	BRE SD1
BH106	0.2	Soil	MM4
BH 106	9.00	Soil	BRE SD1
BH 106	0.60	Soil	BRE SD1
BH107	1.00	Soil	MM4
BH 107	3.00	Soil	BRE SD1
BH108	1.00	Soil	MM4, BRE SD1, Speciated PAH, Speciated TPH
BH109	0.5	Soil	MM4
BH109	17.0	Soil	BRE SD1
BH109	9.5	Soil	BRE SD1
BH110	0.50	Soil	MM4, BRE SD1
BH110	1.00	Soil	MM4, BRE SD1
BH110	2.00	Soil	MM4
BH110	3.00	Soil	MM4
BH110	4.00	Soil	MM4
BH110	6.70	Soil	MM4

BH110	11.50	Soil	MM4
BH110	13.00	Soil	MM4
BH111	0.2	Soil	MM4, Speciated TPH
BH111	0.7	Soil	BRE SD1
BH112	0.5	Soil	MM4, Speciated PAH, Speciated TPH
BH112	1.4	Soil	BRE SD1
BH112	3.0	Soil	BRE SD1
BH112	4.0-4.45	Soil	BRE SD1
BH113	0.50	Soil	MM4, BRE SD1
BH114	1.20	Soil	BRE SD1
BH114	1.8	Soil	BRE SD1
BH 114	0.50	Soil	MM4, Speciated TPH
BH 114	2.20	Soil	MM4, Speciated TPH
BH115	0.5	Soil	BRE SD1
BH115	1.0	Soil	MM4, BRE SD1
BH115	3.0	Soil	MM4
BH115	6.50	Soil	BRE SD1
BH116	1.0	Soil	MM4, Speciated TPH
BH 116	24.50	Soil	BRE SD1
BH 116	28.50	Soil	BRE SD1
BH117	0.35	Soil	MM4
BH117	1.0	Soil	BRE SD1
BH117	10.0	Soil	BRE SD1
TP101	0.20	Soil	MM4
TP101	0.50	Soil	BRE SD1
TP104	0.20	Soil	MM4
TP104	0.50	Soil	BRE SD1
TP109	0.50	Soil	MM4, BRE SD1
WS104	0.50	Soil	MM4, BRE SD1, Speciated PAH, Speciated TPH
WS104	1.00	Soil	BRE SD1
WS 107	0.40	Soil	BRE SD1
WS 107	0.50	Soil	MM4
WS110	0.15	Soil	MM4, BRE SD1, Speciated PAH, Speciated TPH

MM4 suite = Sulphide Acid Soluble, Arsenic, Asbestos Screen, Boron Water Soluble, Barium, Beryllium, Cadmium, Chromium, Copper, Cyanide Free, Mercury, Nickel, Nitrate as NO₃ Kone, PAH Total GC-EZ, Lead, pH, Selenium, Cyanide Total, Sulphur Total, C6-40 (Band 1) EZ, Sulphate Total, Vanadium, Zinc.

BRE SD1 = Chloride 2:1 water/soil extract BRE, Magnesium 2:1 water/soil extract BRE, Nitrate 2:1 water/soil extract BRE, pH Value, Soluble Sulphate 2:1 Extract as SO₄ BRE, Total Sulphate BRE, Sulphur Total,

The samples were analysed in accordance with the methods detailed in ALcontrol method files.

Tabulated below are the minimum and maximum values recorded

Parameter	Minimum	Maximum	Units + LOD
Total Sulphate	160	23000	<100 mg/kg
Boron Water Soluble	<3.5	4.3	<3.5 mg/kg
Total Sulphate BRE	<0.01	1.3	<0.01%
Arsenic	<3	23	<3.0 mg/kg
Barium	<6	680	<6.0 mg/kg
Beryllium	<0.4	0	<0.4 mg/kg
Cadmium	<0.3	0.8	<0.3 mg/kg
Chromium	<4.5	57	<4.5 mg/kg
Copper	<6	330	<6 mg/kg
Lead	<2	1600	<2 mg/kg
Mercury	<0.6	0	<0.6 mg/kg
Nickel	<0.9	30	<0.9 mg/kg
Selenium	<3	0	<3 mg/kg
Vanadium	<1.5	59	<1.5 mg/kg
Zinc	<2.5	1500	<2.5 mg/kg
Ammonium as NH4 in 2:1 Extract BRE	<0.0003	0.0099	<0.0003 g/l
Nitrate (soluble) as NO3	<1	54	<1 mg/kg
Acid Soluble Sulphide	<50	1200	<50 mg/kg
Total Cyanide	<1	37	<1 mg/kg
Free Cyanide	<1	0	<1 mg/kg
Complex Cyanide	<1	37	<1 mg/kg
Asbestos Presence Screen	None	None	Detected
Chloride 2:1 water/soil extract BRE	0.002	1.7	<0.001 g/l
Magnesium 2:1 water/soil extract BRE	<0.001	0.072	<0.001 g/l
Nitrate 2:1 water/soil extract BRE	<0.0003	0.021	<0.0003 g/l
pH Value	7.47	11.52	<1.00 pH Units
Soluble Sulphate 2:1 Extract as SO4 BRE	<0.003	1.1	<0.003 g/l
Total Sulphur	<0.01	4.1	<0.01%
GRO (C4-C12)	<10	890	<10 ug/kg
MTBE	<10	0	<10 ug/kg
Benzene	<10	0	<10 ug/kg
Toluene	<10	180	<10 ug/kg
Ethyl benzene	<10	0	<10 ug/kg
m & p Xylene	<10	0	<10 ug/kg
o Xylene	<10	0	<10 ug/kg
Aliphatics C5-C6	<10	26	<10 ug/kg
Aliphatics >C6-C8	<10	670	<10 ug/kg
Aliphatics >C8-C10	<10	0	<10 ug/kg
Aliphatics >C10-C12	<10	0	<10 ug/kg
Aliphatics >C12-C16	<100	8400	<100 ug/kg
Aliphatics >C16-C21	<100	16000	<100 ug/kg
Aliphatics >C16-C35	<100	7800000	<100 ug/kg

Aliphatics >C21-C35	<100	110000	<100 ug/kg
Aliphatics >C35-C44	<100	17000000	<100 ug/kg
Total Aliphatics C5-C35	<100	130000	<100 ug/kg
Total Aliphatics C5-C44	<100	24000000	<100 ug/kg
Aromatics C6-C7	<10	<10	<10 ug/kg
Aromatics >C7-C8	<10	180	<10 ug/kg
Aromatics >EC8-EC10	<10	13	<10 ug/kg
Aromatics >EC10-EC12	<10	<10	<10 ug/kg
Aromatics >EC12-EC16	<100	15000	<100 ug/kg
Aromatics >EC16-EC21	<100	300000	<100 ug/kg
Aromatics >EC21-EC35	<100	18000000	<100 ug/kg
Aromatics >EC35-EC44	<100	35000000	<100 ug/kg
Total Aromatics C6-C35	19000	780000	<100 ug/kg
Total Aromatics C6-C44	<100	53000000	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C35)	19000	840000	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C44)	<100	78000000	<100 ug/kg
TPH C6-40	<10	770	<10 mg/kg
PAH Total	<10	210	<10 mg/kg
Naphthalene	17	4800	<10 ug/kg
Acenaphthylene	<5	170	<5 ug/kg
Acenaphthene	<14	2100	<14 ug/kg
Fluorene	<12	1500	<12 ug/kg
Phenanthrene	<21	25000	<21 ug/kg
Anthracene	<9	5000	<9 ug/kg
Fluoranthene	<25	42000	<25 ug/kg
Pyrene	<22	33000	<22 ug/kg
Benz(a)anthracene	21	19000	<12 ug/kg
Chrysene	<10	19000	<10 ug/kg
Benzo(b)fluoranthene	<16	26000	<16 ug/kg
Benzo(k)fluoranthene	<25	7700	<25 ug/kg
Benzo(a)pyrene	<12	20000	<12 ug/kg
Indeno(123cd)pyrene	<11	9800	<11 ug/kg
Dibenzo(ah)anthracene	<8	3100	<8 ug/kg
Benzo(ghi)perylene	16	11000	<10 ug/kg
PAH 16 Total	69	230000	<25 ug/kg

7.2 Contamination within the Groundwater

Groundwater was sampled and analysed from nine locations across the site. These locations were agreed at the end of the drilling works. All the boreholes were purged before sampling with three times the insitu volume being removed before sampling took place. In addition one water sample was taken from TP104 and was also sent for analysis.

The testing was subcontracted to ALcontrol Hawarden. ALcontrol Hawarden is a UKAS TESTING laboratory No. 1291.

The sampling points and testing can be seen tabulated below;

BH ID	Depth of bore (m)	Location	Tests
104 Shallow	5.50	West of River Yare	MM4, TPH total, PAH total, Speciated PAH
105 Deep	40.00	East of River Yare	MM4, TPH total, PAH total, Speciated PAH
107 Shallow	2.95	East of River Yare	MM4, TPH total, PAH total, Speciated PAH
108 Deep	19.90	West of River Yare	MM4, TPH total, PAH total, Speciated PAH
110 Shallow	2.60	West of River Yare	MM4, TPH total, PAH total, Speciated PAH
112 Deep	19.70	West of River Yare	MM4, TPH total, PAH total, Speciated PAH
114 Shallow	2.80	East of River Yare	MM4, TPH total, PAH total, Speciated PAH
115 Deep	27.70	East of River Yare	MM4, TPH total, PAH total, Speciated PAH
117 Deep	40.00	East of River Yare	MM4, TPH total, PAH total, Speciated PAH
TP 104	n/a	West of River Yare	MM4, TPH total, PAH total, Speciated PAH

8.0 Gas investigation

Monitoring of naturally occurring ground gasses was undertaken on thirty five installations across the site. Five sets of gas results were obtained. The maximum and minimum values can be found below. The complete results can be found in Appendix G.

Minimum Values

BH No.	Depth	Atmospheric Pressure	CO2 (%)	CH4 (%)	O2 (%)	LEL (%)	Flow Rate
101	3.20	1000	0.5	0.0	3.6	0.0	0.0
101	9.00		0.0	0.0	1.0	0.0	0.0
102	3.10	1015	0.0	0.0	10.1	0.0	0.0
102	24.65		0.0	0.0	17.1	0.0	0.0
103	1.62	1008	0.0	0.0	20.3	0.0	0.0
103	35.00		0.0	0.0	20.4	0.0	0.0
104	5.50	1007	0.1	0.0	11.1	0.0	0.0
104	28.50		0.0	0.0	16.9	0.0	0.0
105	3.00	1007	0.0	0.0	16.2	0.0	-1.2
105	26.40		0.0	0.0	19.7	0.0	0.0
105	40.00		0.0	0.0	18.3	0.0	0.0
106	3.57	1015	0.0	0.0	18.3	0.0	0.0
106	11.90		0.0	0.0	18.4	0.0	0.0
107	2.95	1007	0.3	0.0	18.9	0.0	0.0
107	10.00		0.0	0.0	20.0	0.0	0.0
107	19.80		0.0	0.0	19.5	0.0	0.0
108	2.80	1015	0.0	0.0	11.8	0.0	0.0
108	19.90		0.0	0.0	20.1	0.0	0.0
109	2.50	1007	0.3	0.0	14.5	0.0	0.0
109	39.00		0.0	0.0	20.1	0.0	0.0
110	2.60	1015	0.0	0.0	9.9	0.0	0.0
110	28.10		0.0	0.0	15.2	0.0	0.0
111	1.85	1015	0.0	0.0	18.8	0.0	0.0
111	19.50		0.0	0.0	18.9	0.0	0.0
112	2.60	1016	0.0	0.0	18.1	0.0	0.0
112	19.70		0.0	0.0	19.4	0.0	0.0
113	1.62	1022	0.0	0.0	0.0	0.0	0.0
113	4.20		0.0	0.0	0.0	0.0	0.0
114	2.80	1008	0.0	0.0	7.5	0.0	0.0
115	3.00	1008	0.0	0.0	7.1	0.0	0.0
115	27.70		0.0	0.0	11.2	0.0	0.0
116	2.50	1008	0.0	0.0	19.3	0.0	0.0
116	7.30		0.0	0.0	20.3	0.0	0.0
117	5.80	1008	0.0	0.0	4.5	0.0	0.0
117	40.00		0.0	0.0	14.9	0.0	0.0

Maximum Values

BH No.	Depth	Atmospheric Pressure	CO2 (%)	CH4 (%)	O2 (%)	LEL (%)	Flow Rate
101	3.20	1033	1.7	0.0	15.4	0.5	0.2
101	9.00		1.7	0.0	21.0	0.0	0.0
102	3.10	1033	6.3	0.0	19.8	0.0	0.0
102	24.65		0.1	0.0	20.0	0.0	0.0
103	1.62	1033	0.0	0.0	20.7	0.0	0.1
103	35.00		0.0	0.0	20.7	0.0	0.0
104	5.50	1033	4.4	0.0	16.8	0.0	0.1
104	28.50		0.8	0.0	19.4	0.0	0.0
105	3.00	1033	0.4	0.1	20.1	2.0	0.1
105	26.40		0.0	0.0	20.4	0.0	0.0
105	40.00		0.0	0.0	20.5	0.0	0.0
106	3.57	1033	0.3	0.0	21.0	0.0	0.0
106	11.90		0.2	0.0	21.7	0.0	0.0
107	2.95	1033	6.4	0.0	19.7	0.0	0.0
107	10.00		0.0	0.0	20.2	0.0	0.0
107	19.80		0.0	0.0	20.4	0.0	0.0
108	2.80	1033	0.0	0.0	20.5	0.0	0.0
108	19.90		0.0	0.0	20.4	0.0	0.0
109	2.50	1033	1.6	0.0	19.3	0.0	0.1
109	39.00		0.0	0.0	20.7	0.0	0.0
110	2.60	1033	0.0	0.0	14.2	0.0	0.1
110	28.10		0.0	0.0	19.8	0.0	0.1
111	1.85	1033	0.4	0.0	20.4	0.0	0.0
111	19.50		0.0	0.0	20.3	0.0	0.0
112	2.60	1033	0.1	0.0	20.4	0.0	0.0
112	19.70		0.0	0.0	20.2	0.0	0.0
113	1.62	1033	0.4	0.0	18.6	0.0	0.0
113	4.20		2.4	0.0	16.8	0.0	0.0
114	2.80	1033	0.9	0.5	19.5	6.0	0.1
115	3.00	1033	0.3	0.0	20.0	0.0	0.0
115	27.70		0.1	0.0	20.2	0.0	0.0
116	2.50	1033	0.0	0.0	20.9	0.0	0.0
116	7.30		0.0	0.0	20.9	0.0	0.0
117	5.80	1033	1.0	2.6	18.4	46.0	0.1
117	40.00		0.1	0.2	19.5	9.6	0.0

9.0 Other Information

9.1 BH110 Gas House Quay

No geotechnical testing was undertaken on material from BH 110. A number of samples recovered from this borehole were seen to contain material associated with historical gas works. Contamination testing was undertaken on a number of these samples. The results of these tests can be found in Appendix E.

9.2 Tidal influences

It should be noted that the tidal River Yare dissects the area of investigation. This should be taken into consideration when any analysing the water level data is undertaken.

9.3 UXO investigation

A UXO survey was undertaken on all excavations. It should be noted that some excavation locations were moved and some terminated due to the findings of the UXO engineer.

The UXO engineers reports can be found in Appendix I.

Norfolk Partnership Laboratory
Site Investigation Section

This report was prepared under the direction of

 Manager

.....R. J. Noakes

BSc. C Eng. M.I.C.E

and under the supervision of the

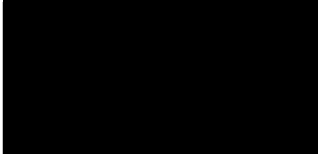
 stigation Engineer

.....M. L. Bumstead

MSc. BSc. F.G.S.

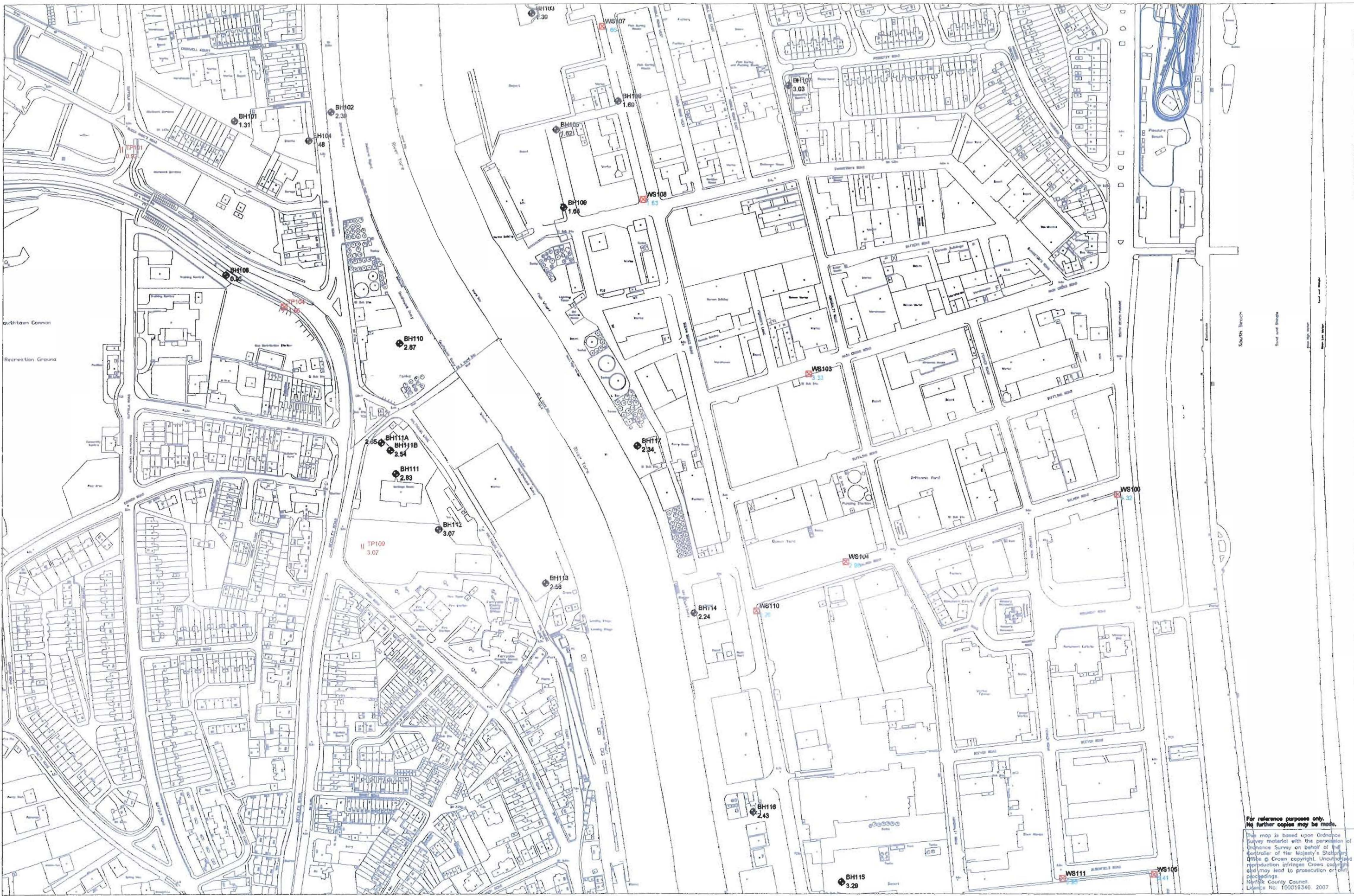
Author of report

Geoenvironmental Engineer

I.D Brown

Date: 26/10/07

Appendix A



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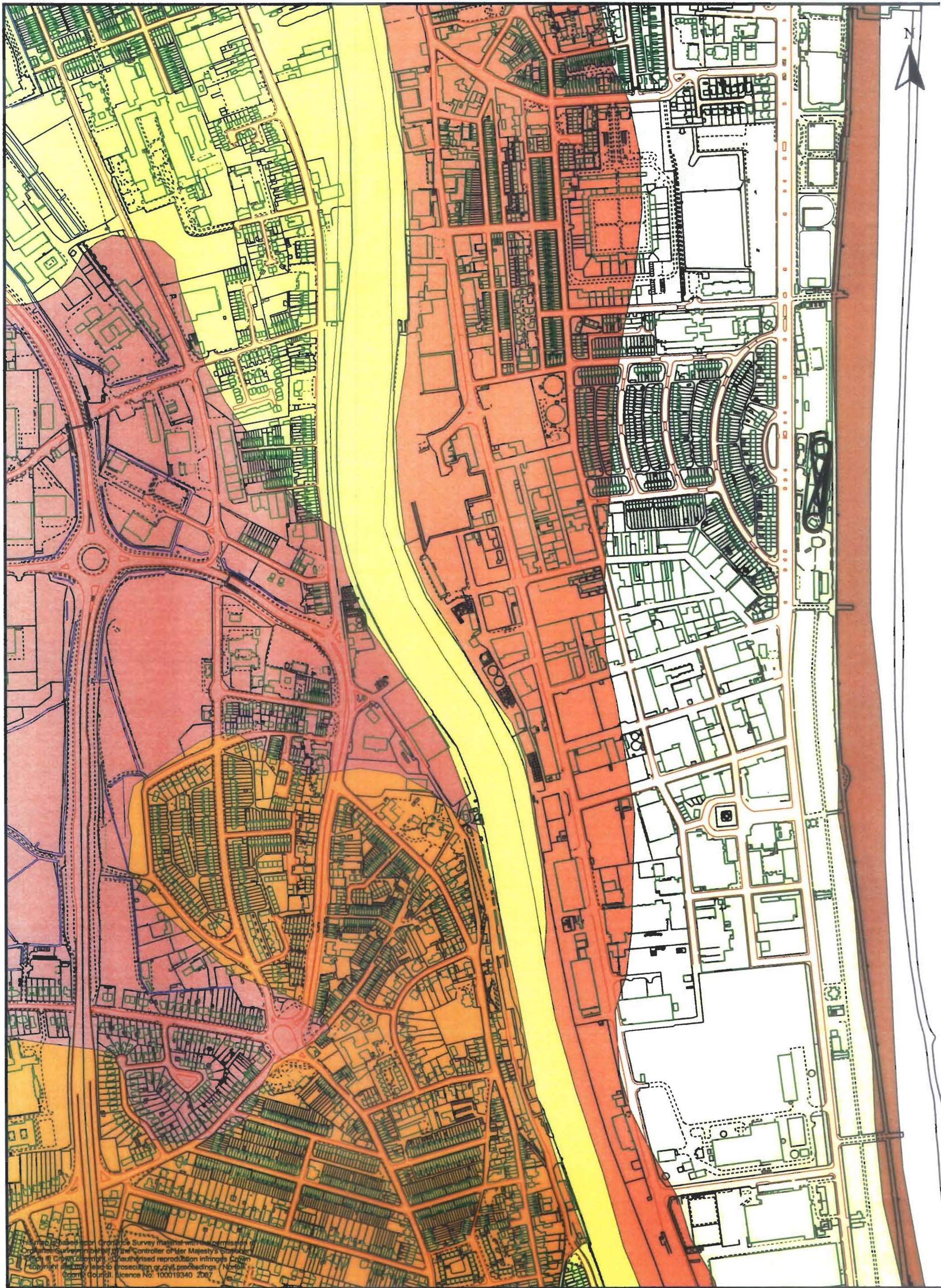
Mike Jackson
Director of Planning and Transportation
Norfolk County Council
County Hall
Marineau Lane
Norwich NR1 2SG

DRAWING TITLE
Great Yarmouth Third River Crossing
Exploratory Hole Location Plan

REV.	DESCRIPTION	CHECKED	DATE

SURVEYED BY	INITIALS	DATE	DRAWING No.
			GYTRCEH1
DESIGNED BY			PROJECT TITLE
DRAWN BY			Third river crossing
CHECKED BY			Gt. Yarmouth
			SCALE
			1:3000
			FILE No.
			PTPZ0008

APPENDIX B



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Great Yarmouth Third River Crossing PTPZ0008
Extract from Geological Map

- Evnt02_grat_yarmouth_v0_superficial_geology_polygons.shp
- Beach Deposits
- Breyton Formation Clays and Silts
- Breyton Formation Peat
- Brown Sands
- Corran Formation Sand
- North Domes Formation Sand and Gravel
- Total River Deposits
- Evnt02_grat_yarmouth_v0_bedrock_geology_polygons.shp
- Norwich Crag

 **Norfolk County Council**

Planning & Transportation GIS
 Scale 1: 5000 Centered on 652628 305758

APPENDIX C

NORFOLK PARTNERSHIP LABORATORY

WINDOW SAMPLER LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Hole No. WS 103
Carried out for Planning & Transportation		Date Started 10/08/2007	Date Finished 10/08/2007
Diameter 128.0 mm	Type of Sampler Dando Terrier		
Remarks:	Depth 5.00	Height 3.330 mAOD	Logged by DJ
	Co-ords 652820E - 305713N		Drawn by Gra
	Checked by MB		

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl ⁻	pH	Org.	CBR	Other			
		Asphalt																
		MADE GROUND : dark brown fine and medium sand with some up to medium gravel size concrete, asphalt, flint (MADE GROUND)				●	001											
		Greyish brown fine and medium SAND with a little coarse gravel. Gravel rounded. (NORTH DENES FORMATION)		0.50		●	002											
		Light brown fine and medium SAND (NORTH DENES FORMATION)				●	003											
		Light brown fine and medium SAND with some fine, medium and coarse flint and quartz gravel. Gravel rounded. (NORTH DENES FORMATION)		1.50			004											
				2.00			005											
				2.50														
				3.00			006											
				3.50														
				4.00			007											
		Light brown fine and medium SAND (NORTH DENES FORMATION)		4.50														
		Dark grey fine and medium SAND, thin		5.00														

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

WINDOW SAMPLER LOG

Sheet 1+ of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Hole No. WS 103
Carried out for Planning & Transportation		Date Started 10/08/2007	Date Finished 10/08/2007
Diameter 128.0 mm	Type of Sampler Dando Terrier		
Remarks:	Depth 5.00	Height 3.330 mAOD	Logged by DJ
	Co-ords 652820E - 305713N		Drawn by Gra
	Checked by MB		

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		dense of black organic silty fine and medium sand on top. (NORTH DENES FORMATION) End of Window Sampler at 5.00 m		5.50														
				6.00														
				6.50														
				7.00														
				7.50														
				8.00														
				8.50														
				9.00														
				9.50														
				10.00														

NORFOLK PARTNERSHIP LABORATORY

WINDOW SAMPLER LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Hole No. WS 104
Carried out for Planning & Transportation		Date Started 06/09/2007	Date Finished 06/09/2007
Diameter 113.0 mm	Type of Sampler Dando Terrier		
Remarks:	Depth 4.00	Height 2.980 mAOD	Logged by DJ
	Co-ords 652853E - 305553N		Drawn by geo
	Checked by MB		

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		Granite COBBLES with some intact concrete at base																
		MADE GROUND : dark brown fine, medium and coarse sand with a little fine, medium and coarse flint and brick gravel (MADE GROUND)																
		Light brown fine and medium SAND (NORTH DENES FORMATION)																
		Brown medium and coarse SAND with some fine, medium and coarse rounded flint and quartz gravel (NORTH DENES FORMATION)																
		Brown medium and coarse SAND with some fine, medium and coarse rounded flint and quartz gravel (NORTH DENES FORMATION)																
		Light brown fine and medium SAND with a little fine, medium and coarse rounded flint and quartz gravel (NORTH DENES FORMATION)																
		Light brown fine and medium SAND (NORTH DENES FORMATION)																
		End of Window Sampler at 4.00 m																

NORFOLK PARTNERSHIP LABORATORY

WINDOW SAMPLER LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Hole No. WS 105
Carried out for Planning & Transportation		Date Started 09/08/2007	Date Finished 09/08/2007
Diameter 128.0 mm	Type of Sampler Dando Terrier		
Remarks: Dry	Depth 5.00	Height 5.410 mAOD	Logged by DJ
	Co-ords 653120E - 305286N		Drawn by Gra
	Checked by MB		

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		Asphalt																
		MADE GROUND : orangey brown fine and medium sand and up to cobble size rounded flint gravel (MADE GROUND)				●	001											
		Light brown fine and medium SAND with a little up to coarse gravel size rounded flint (BLOWN SAND)		0.50		●	002											
		Light brown fine and medium SAND (BLOWN SAND)		1.00		●	003											
		Light brown fine and medium SAND with occasional fine and medium rounded flint gravel (BLOWN SAND)		1.50		●	004											
				2.00		●	005											
				2.50														
				3.00														
		Light brown fine and medium SAND with some fine, medium and coarse flint and quartz gravel. Gravel rounded. Much flint gravel 3.65 - 3.75, 4.80 - 4.95, a little fine and medium flint gravel 4.3 - 4.60 metres. (NORTH DENES FORMATION)		3.50														
				4.00														
				4.50														
				5.00														

End of Window Sampler at 5.00 m

NORFOLK PARTNERSHIP LABORATORY

WINDOW SAMPLER LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Hole No. WS 106
Carried out for Planning & Transportation		Date Started 09/08/2007	Date Finished 09/08/2007
Diameter 128.0 mm	Type of Sampler Dando Terrier		
Remarks: Dry	Depth 5.00	Height 5.320 mAOD	Logged by DJ
	Co-ords 653086E - 305611N		Drawn by Gra
	Checked by MB		

Beckfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Asphalt				●	001										
		MADE GROUND : dark brown fine and medium sand with some up to coarse gravel size flint and brick (MADE GROUND)		0.50		●	002										
		Light brown fine and medium SAND with a little fine, medium and coarse flint gravel. Gravel rounded. (BLOWN SAND)		1.00		●	003										
		Light brown fine and medium SAND with occasional fine, medium and coarse flint gravel. Gravel is rounded. (BLOWN SAND)		1.50			004										
		Light brown fine and medium SAND with occasional fine, medium and coarse flint and quartz gravel. Gravel is rounded. (BLOWN SAND)		2.00			005										
				2.50													
				3.00			006										
				3.50													
		Light brown fine and medium SAND with some fine, medium and coarse flint and quartz gravel. Gravel is rounded and sub rounded (NORTH DENES FORMATION)		4.00			007										
				4.50													
		Light brown fine and medium SAND (NORTH DENES FORMATION)		5.00													

End of Window Sampler at 5.00 m

NORFOLK PARTNERSHIP LABORATORY

WINDOW SAMPLER LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Hole No. WS 107
Carried out for Planning & Transportation		Date Started 07/09/2007	Date Finished 07/09/2007
Diameter 113.0 mm	Type of Sampler Dando Terrier		
Remarks:	Depth 2.00	Height 1.650 mAOD	Logged by DJ
	Co-ords 652641E - 306012N		Drawn by geo
			Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		Intact CONCRETE with some evidence of former rail line (MADE GROUND)																
		Crushed broken CONCRETE (MADE GROUND)																
		MADE GROUND : dark brown fine and medium sand with some fine, medium and coarse flint gravel (MADE GROUND)		0.50	●	001												
		MADE GROUND : brown fine and medium sand with some fine, medium and coarse flint gravel (MADE GROUND)			●	002												
		MADE GROUND : brown fine and medium sand with some fine, medium and coarse flint gravel (MADE GROUND)			●	003												
		Light brown fine and medium SAND with some fine, medium and coarse rounded flint gravel (NORTH DENES FORMATION)		1.00														
				1.50														
				2.00														
		End of Window Sampler at 2.00 m																
				2.50														
				3.00														
				3.50														
				4.00														
				4.50														
				5.00														

NORFOLK PARTNERSHIP LABORATORY

WINDOW SAMPLER LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Hole No. WS 108
Carried out for Planning & Transportation		Date Started 09/08/2007	Date Finished 09/08/2007
Diameter 128.0 mm	Type of Sampler Dando Terrier		
Remarks: Water probably from possible soakaway	Depth 4.00	Height 1.630 mAOD	Logged by DJ
	Co-ords 652677E - 305863N		Drawn by Gra
			Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		CONCRETE																
		MADE GROUND : light brown fine and medium sand with much up to coarse gravel size granite, flint and asphalt (MADE GROUND)		0.50	●	001												
		MADE GROUND : light brown fine and medium SAND with some fine, medium and coarse flint and quartz gravel. Gravel is rounded (MADE GROUND)		1.00	●	002												
		MADE GROUND : brown fine, medium and coarse flint GRAVEL. Gravel is rounded to sub rounded. Geotextile at top and base. Appears to be a french drain / soakaway (MADE GROUND)		2.00	●	003												
		MADE GROUND : brown fine, medium and coarse flint GRAVEL. Gravel is rounded to sub rounded. Geotextile at top and base. Appears to be a french drain / soakaway (MADE GROUND)		2.50	●	004												
		MADE GROUND : brown fine, medium and coarse flint GRAVEL. Gravel is rounded to sub rounded. Geotextile at top and base. Appears to be a french drain / soakaway (MADE GROUND)		3.00	●	005												
		MADE GROUND : brown fine, medium and coarse flint GRAVEL. Gravel is rounded to sub rounded. Geotextile at top and base. Appears to be a french drain / soakaway (MADE GROUND)		3.50	●	006												
		Light brown fine and medium SAND (NORTH DENES FORMATION)		4.00	●	007												
		Light brown fine and medium SAND (NORTH DENES FORMATION)		4.50	●	008												
		End of Window Sampler at 4.00 m		4.00	●	009												
				5.00														

NORFOLK PARTNERSHIP LABORATORY

WINDOW SAMPLER LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008		Hole No. WS 110	
Carried out for Planning & Transportation		Date Started 22/08/2007		Date Finished 22/08/2007	
Diameter 113.0 mm		Type of Sampler Dando Terrier			
Remarks:	Depth 3.00		Height 2.260 mAOD		Logged by DJ
	Co-ords 652776E - 305511N				Drawn by Gra
					Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		Asphalt																
		CONCRETE (MADE GROUND)																
		MADE GROUND : dark brown fine, medium and coarse sand with much fine, medium and coarse rounded flint gravel (MADE GROUND)				●	001											
		Brown fine and medium SAND with some fine, medium and coarse flint gravel (NORTH DENES FORMATION)		0.50		●	002 004											
		Light brown medium and coarse SAND with some fine, medium and coarse rounded and sub-rounded flint gravel (NORTH DENES FORMATION)		1.00		●	003											
		Light brown medium SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		1.50			005											
		Light brown fine, medium and coarse SAND with a little fine, medium and coarse rounded flint gravel (NORTH DENES FORMATION)		2.00			006											
		End of Window Sampler at 3.00 m		3.00														
				3.50														
				4.00														
				4.50														
				5.00														

NORFOLK PARTNERSHIP LABORATORY

WINDOW SAMPLER LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Hole No. WS 111
Carried out for Planning & Transportation		Date Started 10/08/2007	Date Finished 10/08/2007
Diameter 128.0 mm	Type of Sampler Dando Terrier		
Remarks: Dry	Depth 5.00	Height 5.950 mAOD	Logged by DJ
	Co-ords 653041E - 305283N		Drawn by Gra
			Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests												
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other					
		Asphalt																		
		MADE GROUND : orangey brown silty fine and medium sand with some up to coarse gravel size flint and asphalt (MADE GROUND)				●	001													
		Light brown fine and medium SAND (BLOWN SAND)		0.50		●	002													
								●	003											
						1.00		●	004											
								●	005											
						1.50		●	006											
		Light brown fine and medium SAND with some fine, medium and coarse flint gravel. Gravel is rounded (NORTH DENES FORMATION)		2.00		●	007													
						2.50		●	008											
						3.00		●	009											
		Light brown fine and medium SAND (NORTH DENES FORMATION)		3.50		●	010													
				4.00		●	011													
				4.50		●	012													
				5.00		●	013													

End of Window Sampler at 5.00 m

NORFOLK PARTNERSHIP LABORATORY

TRIAL PIT LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Trialpit No. TP 101
Carried out for Planning & Transportation		Date Started 20/09/2007	Date Finished 20/09/2007
Dimensions: 0.45 x 3.00		Type of Excavator JCB	
Remarks: Dry. Concrete slab from 0.1m to 1.1m on one side of pit. TP abandoned due to collapsing sides exposing 200mm pipe		Depth 1.70	Height 0.920 mAOB
		Co-ords 652228E - 305904N	
		Logged by AK	Drawn by geo
		Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	w _p	SO ₂	Cl-	pH	Org.	CBR	Other		
		MADE GROUND : grass, roots, topsoil and brown silty gravelly fine and medium sand. (MADE GROUND)			●	001											
		MADE GROUND : brown gravelly slightly silty fine and medium sand. Gravel is angular to sub-rounded, fine, medium and coarse flint, brick and concrete. Cobbles of concrete, half and whole red bricks (MADE GROUND)		0.50	●	002											
		MADE GROUND : brown and orangey brown gravelly fine and medium sand. Gravel is angular to rounded medium flint (MADE GROUND)		1.00	●	003 3										12.4	
		MADE GROUND : brown slightly silty, slightly clayey, gravelly fine and medium SAND. Gravel is angular to rounded, fine, medium and coarse brick, flint and concrete. Slate, half and whole red and yellow bricks. Cobbles and boulders of concrete. Some lenses of ash and clinker (MADE GROUND)		1.50	●	004 4											0.5
		Firm dark grey very sandy SILT and CLAY. Weak hydrocarbon and chemical odour - possible spent oxide? (BREYDON FORMATION, SILTS AND CLAYS)		2.00													
		End of Trialpit at 1.70 m		2.00													
				2.50													
				3.00													
				3.50													
				4.00													
				4.50													
				5.00													

NORFOLK PARTNERSHIP LABORATORY

TRIAL PIT LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Trialpit No. TP 104	
Carried out for Planning & Transportation	Date Started 20/09/2007	Date Finished 20/09/2007	
Dimensions: 0.45 x 3.00	Type of Excavator JCB		
Remarks: TP abandoned at 3.3m due to collapsing sides	Depth 3.30	Height 1.660 mAOD	Logged by AK
	Co-ords 652370E - 305771N		Drawn by geo
			Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests								
					Type	No.		MC%	p	SO ₂	Cl-	pH	Org.	CBR	Other	
		MADE GROUND : grass, roots, light brown and grey silty, slightly gravelly, fine sand. Gravel is angular to rounded, fine, medium and coarse flint. Some large roots (MADE GROUND)		0.50	●	001										
		MADE GROUND : Light grey and greyish brown slightly silty gravelly fine and medium sand. Gravel is angular to rounded, fine, medium and coarse flint, brick, concrete, glass, tile, slate and clay pipe. Pockets of orangey brown fine and medium sand. Some large sheets of asbestos (MADE GROUND)		1.00	●	002										
		Grey and dark grey gravelly, very sandy, SILT and CLAY. Gravel is angular to sub-rounded, fine and medium flint. Pockets of dark grey and grey silty fine and medium sand. (BREYDON FORMATION.SILTS AND CLAYS)		2.00	●	003 3										
		Brown and grey slightly silty, gravelly, fine, medium and coarse SAND. Gravel is angular to sub-rounded, medium flint. Pockets of grey soft sandy gravelly clay. Gravelly is angular to rounded, fine and medium flint. Some localised pockets of wood, plant remains and monocot reeds (BREYDON FORMATION.SILTS AND CLAYS)		3.00	●	004 4										
		End of Trialpit at 3.30 m		3.50	●	005										
				4.00												
				4.50												
				5.00												

NORFOLK PARTNERSHIP LABORATORY

TRIAL PIT LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Trialpit No. TP 109
Carried out for Planning & Transportation	Date Started 20/09/2007	Date Finished 20/09/2007
Dimensions: 0.45 x 3.00	Type of Excavator JCB	
Remarks: Dry. TP abandoned at 3.5m due to collapsing sides	Depth 3.50	Height 3.090 mAOD
	Co-ords 652438E - 305569N	
	Logged by AK	Drawn by geo
		Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	ρ _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Crushed Asphalt			↑												
		MADE GROUND : brown, yellowish brown and grey slightly silty, gravelly, fine, medium and coarse sand. Gravel is angular to sub-rounded, fine, medium and coarse flint, brick and concrete. Half and whole bricks and pottery fragments (MADE GROUND)		0.50	↓	001											
		Orangey brown slightly silty, slightly gravelly, fine and medium SAND. Gravel is angular to sub-rounded medium and coarse flint (CORTON FORMATION)		1.00	↑	002										6.1	
		Yellowish and yellowish brown fine and medium SAND. Occasional lense of slightly gravelly fine and medium sand. Gravel is angular to sub-rounded, medium and coarse flint (CORTON FORMATION)		1.50	↓	003											
				2.00	↑	004											
				2.50	↓	005											
		End of Trialpit at 3.50 m		3.50													
				4.00													
				4.50													
				5.00													

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 3



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 101
Carried out for Planning & Transportation	Date Started 20/08/2007	Date Finished 22/08/2007
Remarks: 2.0 hours hand dug starter pit. Bomb test redrill - 4.0 hours.	Type of Rig Dando 150	
	Depth 20.45	Height 1.310 mAOD
	Co-ords 652326E - 305931N	
	Logged by AE	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests											
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other				
		MADE GROUND : up to cobble sized brick, flint and concrete in a matrix of orangey brown silty fine and medium sand (MADE GROUND)	[Cross-hatch pattern]		●	001													
		MADE GROUND : up to cobble sized flint and brick in a matrix of brown fine and medium sand (MADE GROUND)	[Cross-hatch pattern]		●	002													
		MADE GROUND : brown clayey silty fine and medium sand with much fine and medium flint and brick (MADE GROUND)	[Cross-hatch pattern]	1.00	●	001													
		MADE GROUND : brown clayey silty fine and medium sand with much fine and medium flint and brick (MADE GROUND)	[Cross-hatch pattern]		●	002	N=3												
		MADE GROUND : brown clayey silty fine and medium sand with much fine and medium flint and brick (MADE GROUND)	[Cross-hatch pattern]		●	003													
		Brown sandy, clayey SILT with much fine and medium flint gravel (BREYDON FORMATION.SILTS AND CLAYS)	[Silt pattern]	2.00	●	004	N=2												
		Soft dark grey amorphous PEAT (BREYDON FORMATION.PEAT)	[Peat pattern]		●	005													
		Soft dark grey amorphous PEAT with beds of black fibrous peat (BREYDON FORMATION.PEAT)	[Peat pattern]	3.00	●	005	N=4												
		Very loose light grey silty fine and medium SAND (CORTON SAND)	[Sand pattern]		●	006													
		Very loose grey fine, medium and coarse SAND with a little fine flint and quartz gravel (CORTON SAND)	[Sand pattern]	4.00	●	006	N=13												
		Medium dense greyish brown fine, medium and coarse SAND with some fine flint and quartz gravel (CORTON SAND)	[Sand pattern]		●	007													
		Medium dense greyish brown fine and medium SAND with some fine and medium flint and quartz gravel (CORTON SAND)	[Sand pattern]	5.00	●	007	N=12												
			[Sand pattern]		●	008													
			[Sand pattern]	6.00	●	008	N=18												
			[Sand pattern]		●	009													
		Dense brown fine, medium and coarse SAND with some fine and medium flint and quartz gravel (CORTON SAND)	[Sand pattern]	7.00	●	009	N=39												
			[Sand pattern]		●	010													
		Dense orangey brown fine and medium SAND (CORTON SAND)	[Sand pattern]	8.00	●	010	N=47												
			[Sand pattern]		●	10													
			[Sand pattern]		●	8													
			[Sand pattern]	9.00	●	011													
		Very dense orangey brown fine and medium SAND with a little fine flint gravel (CORTON SAND)	[Sand pattern]		●	53/235mm													
			[Sand pattern]	10.00															

Continued next sheet

FIG a

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 3



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 101
Carried out for Planning & Transportation	Date Started 20/08/2007	Date Finished 22/08/2007
Remarks: 2.0 hours hand dug starter pit. Bomb test redrill - 4.0 hours.	Type of Rig Dando 150	
	Depth 20.45	Height 1.310 mAOD
	Co-ords 652326E - 305931N	
	Logged by AE	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _v	SO ₃	Cl-	pH	Org.	CBR	Other		
	200 10.50	Very dense orangey brown fine and medium SAND with a little fine flint gravel (SORTON SAND)		11.00	●	009 012	N=36										
		Dense orangey brown clayey, silty fine and medium SAND (CRAG)		12.00	●	013	N=40										
		Very dense		13.00	●	010 014 14	N=37										
		Medium dense		15.00	●	011 015	50/220mm										
		Very dense orangey brown silty fine and medium SAND with numerous shell fragments (CRAG)		16.00	●	012 016	N=18										
				17.00	●	013 017 17	50/290mm										
		Very dense orangey brown silty fine and medium SAND with numerous shell fragments and a little fine flint gravel (CRAG)		18.00	●	014											
				19.00	●	015 018	50/270mm										
		Continued next sheet		20.00													

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 3 of 3



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 101
Carried out for Planning & Transportation	Date Started 20/08/2007	Date Finished 22/08/2007
Remarks: 2.0 hours hand dug starter pit. Bomb test redrill - 4.0 hours.	Type of Rig Dando 150	
	Depth 20.45	Height 1.310 mAOD
	Co-ords 652326E - 305931N	
	Logged by AE	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests												
					Type	No.		MC%	P _a	SO ₃	Cl-	pH	Org.	CBR	Other					
	150 20.00	Very dense orangey brown silty fine and medium SAND with numerous shell fragments and a little fine flint gravel (CRAG) ----- End of Borehole at 20.45 m	⊗ ⊗ ⊗ ⊗		●	016	N=13													
				21.00																
				22.00																
				23.00																
				24.00																
				25.00																
				26.00																
				27.00																
				28.00																
				29.00																
				30.00																

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 4



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Borehole No. BH 102	
Carried out for Planning & Transportation		Date Started 12/09/2007	Date Finished 13/09/2007	
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.25 hours		Type of Rig Dando 150		
		Depth 35.00	Height 2.390 mAOD	Logged by AE
		Co-ords 652410E - 305938N		Drawn by geo
			Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests											
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other				
		Brickweave																	
		MADE GROUND : brown angular and sub-angular fine, medium and coarse concrete and flint gravel and fine, medium and coarse sand (MADE GROUND)																	
		MADE GROUND : brown, red and light grey clayey fine, medium and coarse angular to rounded brick, flint and concrete gravel and fine, medium and coarse sand. Occasional brick cobble (MADE GROUND)		1.00															
		MADE GROUND : soft brown very sandy gravelly clay. Sand is fine, medium and coarse, gravel is angular to rounded fine, medium and coarse flint, brick, concrete and shells (MADE GROUND)		2.00															
		Very loose yellowish brown slightly silty, slightly gravelly fine, medium and coarse SAND. Gravel is angular to sub-rounded fine, medium and coarse flint. Occasional clayey lense. (BREYDON FORMATION.SILTS AND CLAYS)		3.00							37								
		Very soft brown and dark grey very sandy, silty CLAY. Organic odour. Sand is fine, medium and coarse (BREYDON FORMATION.SILTS AND CLAYS) Becoming grey very sandy, silty CLAY. Sand is fine		4.00							29								
		Loose yellowish brown gravelly fine, medium and coarse SAND. Gravel is angular to sub-rounded fine, medium and coarse flint (CORTON SAND)		5.00							25								
		Medium dense		6.00															
		Medium dense yellowish brown and light grey slightly gravelly fine and medium SAND. Gravel is angular to sub-rounded fine and medium flint (CORTON SAND)		7.00															
				8.00															
				9.00															
				10.00															

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 102
Carried out for Planning & Transportation	Date Started 12/09/2007	Date Finished 13/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.25 hours	Type of Rig Dando 150	
	Depth 35.00	Height 2.390 mAOD
	Co-ords 652410E - 305938N	
	Logged by AE	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Medium dense yellowish brown and light grey slightly gravelly fine and medium SAND. Gravel is angular to sub-rounded fine and medium flint (CORTON SAND) Becoming dense		11.00	●	012 013 12	N=22										
		Very dense reddish brown medium SAND. Occasional angular to sub-rounded fine and medium flint gravel and shells (CRAG)		12.00	●	013 014	50/225mm										
		Becoming slightly silty		13.00	●	014 015	N=48										
				14.00													
				15.00													
	200 15.00			15.00	●	015 016 16	50/285mm										
				16.00	●	016 017	50/270mm										
				17.00													
				18.00	●	017 018	50/275mm										
				19.00	●	018 019	50/220mm										
				20.00													

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 3 of 4



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Borehole No. BH 102	
Carried out for Planning & Transportation		Date Started 12/09/2007	Date Finished 13/09/2007	
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.25 hours		Type of Rig Dando 150		
		Depth 35.00	Height 2.390 mAOD	Logged by AE
		Co-ords 652410E - 305938N		Drawn by geo
			Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	p _s	SO ₂	Cl-	pH	Org.	CBR	Other		
		Very dense reddish brown medium SAND. Occasional angular to sub-rounded fine and medium flint gravel and shells (CRAG)		21.00	●	019 020	50/200mm										
		Dense reddish brown medium SAND. Occasional angular to sub-rounded fine and medium flint gravel. Some to many shell fragments (CRAG)		22.00	●	020 021	N=47										
		Dense grey slightly silty fine and medium SAND. Occasional crushed shells (CRAG)		23.00	●	021											
				24.00	●	022	N=40										
		Very dense		25.00	●	023 23	50/285mm										
				26.00													
				27.00	●	024	50/130mm										
				28.00	●	025 31.0	50/215mm 39										
				29.00	●	026											
		Very stiff grey thinly laminated CLAY. Bands of soft grey fine clayey sand (CRAG)		29.00	●	026 027	50/290mm										
				30.00	●	27		19									

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NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

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Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 102
Carried out for Planning & Transportation	Date Started 12/09/2007	Date Finished 13/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.25 hours	Type of Rig Dando 150	
	Depth 35.00	Height 2.390 mAOD
	Co-ords 652410E - 305938N	
	Logged by AE	
	Drawn by geo	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Very stiff grey thinly laminated CLAY. Bands of soft grey fine clayey sand (CRAG)		31.00	●	027 028	50/295mm										
				32.00													
				33.00	●	29 028 029	N=32	21									
		Very dense grey slightly silty fine and medium SAND. Occasional shell fragments (CRAG)		34.00	●	029 030 29	69/275mm										
				35.00	●	030											
		End of Borehole at 35.00 m		35.00	●	031	50/215mm										
				36.00													
				37.00													
				38.00													
				39.00													
				40.00													

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 103
Carried out for Planning & Transportation	Date Started 07/08/2007	Date Finished 16/08/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.5 hours	Type of Rig Dando 3000	
	Depth 35.00	Height 1.390 mAOD
	Co-ords 652581E - 306023N	
	Logged by RW	Drawn by geo
		Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Asphalt				01											
		MADE GROUND : crushed concrete and fine SAND (MADE GROUND)				1											
		Light brown and light grey fine and medium SAND (TIDAL AND RIVER CREEK DEPOSITS)				02											
		Dark grey slightly clayey fine and medium SAND (TIDAL AND RIVER CREEK DEPOSITS)		1.00		03											
		Soft to firm dark grey and grey CLAY (TIDAL AND RIVER CREEK DEPOSITS)				04		34									
		Very soft dark grey very sandy, silty CLAY (TIDAL AND RIVER CREEK DEPOSITS)				05											
		Medium dense dark grey, grey and light brown fine, medium and coarse SAND with occasional sub-rounded coarse flint gravel (NORTH DENES FORMATION)				06	N=11										
				2.00		07											
						08											
						09											
				3.00		10	N=30										
						11											
				4.00		13											
						14	N=12										
						15											
				5.00		16	N=29										
						17											
						18											
				6.00		19	N=34										
						20											
						21											
				7.00		22	N=17										
						23											
						24											
		Dense dark grey slightly gravelly silty fine SAND. Gravel is angular to sub-rounded. Fine to coarse flint. Occasional lenses of firm grey clay (NORTH DENES FORMATION)		8.00		26	N=37										
						27											
		Dense brown and grey gravelly, cobbly fine, medium and coarse SAND. Gravel is angular to rounded. Fine, medium and coarse flint (NORTH DENES FORMATION)		9.00		29	N=45										
						30											
		Dense brown and greyish brown slightly silty GRAVEL. Angular to sub-rounded fine, medium and coarse flint and fine, medium															
		Continued next sheet		10.00													

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

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Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 103
Carried out for Planning & Transportation	Date Started 07/08/2007	Date Finished 16/08/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.5 hours	Type of Rig Dando 3000	
	Depth 35.00	Height 1.390 mAOD
	Co-ords 652581E - 306023N	
	Logged by RW	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		and coarse sand (NORTH DENES FORMATION)			●	32	N=46										
				11.00	●	33											
		Very dense			●	35	N=57										
				12.00	●	36											
		Dense			●	38	N=45	30									
		Laminae of soft to firm greenish grey SILT with lenses of firm grey clay			●	39		24									
				14.00	●	41	N=51										
		Very dense			●	42		33									
		Firm to stiff greyish greenish brown sandy CLAY (CRAG)															
		Grey sandy fine, medium and coarse angular to sub-rounded flint GRAVEL (CRAG)															
200	15.90	Dense grey silty fine and medium SAND (CRAG)			●	43											
		Medium dense to dense slightly clayey fine and medium SAND (CRAG)			●	44											
				17.00	●	45											
							N=10										
				18.00	●	47											
					●	48											
				19.00	●	49	N=50										
		Very dense grey fine and medium SAND with occasional cobble (CRAG)			●	50											
				20.00													

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

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Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 103
Carried out for Planning & Transportation	Date Started 07/08/2007	Date Finished 16/08/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.5 hours	Type of Rig Dando 3000	
	Depth 35.00	Height 1.390 mAOD
	Co-ords 652581E - 306023N	
	Logged by RW	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _a	SO ₃	Cl-	pH	Org.	CBR	Other			
		Very dense grey fine and medium SAND with occasional cobble (CRAG)		21.00	●	51	N=64											
		Grey clayey fine and medium SAND (CRAG)			↕	52												
					22.00													
		Weak grey clay stone		23.00														
						●	53											
		Medium dense		24.00														
					25.00	●	54 55	N=16										
						●	56											
		Stiff grey sandy CLAY with occasional fine shell fragments (CRAG)		26.00														
					27.00													
					28.00	●	57 58	N=66	26									
					↕	59												
				29.00														
				30.00														

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 4 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 103
Carried out for Planning & Transportation	Date Started 07/08/2007	Date Finished 16/08/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.5 hours	Type of Rig Dando 3000	
	Depth 35.00	Height 1.390 mAOD
	Co-ords 652581E - 306023N	
	Logged by RW	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests											
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other				
		Stiff grey sandy CLAY with occasional fine shell fragments (CRAG)		150															
					30.75														
					31.00														
						●	60	N=55											
						●	61												
					32.00	●	62												
					33.00														
					34.00														
						●	63	72/225mm 27											
						●	64												
		End of Borehole at 35.00 m		35.00	●	65													
				36.00															
				37.00															
				38.00															
				39.00															
				40.00															

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 104
Carried out for Planning & Transportation	Date Started 14/09/2007	Date Finished 19/09/2007
Remarks: 0.5 hours hand dug starter pit. Bomb test redrill - 1.5 hours.	Type of Rig Dando 150	Logged by JE
	Depth 30.45	Height 1.480 mAOD
	Co-ords 652390E - 305914N	Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Reinforced CONCRETE				001											
		MADE GROUND : Greyish brown silty fine, medium and coarse sand and gravel. Gravel is fine, medium and coarse angular to sub-angular flint (MADE GROUND)				002											
		MADE GROUND : greyish brown slightly clayey, gravelly, fine, medium and coarse sand. Gravel is fine, medium and coarse angular to sub-rounded flint and brick (MADE GROUND)		1.00		003											
		MADE GROUND : mottled greyish brown, grey and orangey brown sandy, gravelly, soft clay. Gravel is fine, medium and coarse angular to rounded flint and brick. Some black organic pockets. (MADE GROUND) Slight oil odour		2.00		005	N=2										
		Medium dense brown silty fine, medium and coarse SAND (BREYDON FORMATION.SILTS AND CLAYS)		3.00		006	N=11										
		Some angular to rounded, fine, medium and coarse flint gravel		4.00		007	N=12										
		Greyish brown and light grey very sandy thinly laminated CLAY (BREYDON FORMATION.SILTS AND CLAYS)		5.00		008	N=10										
		Medium dense orangey brown silty fine, medium and coarse SAND (CORTON SAND)		6.00		009	N=18										
		Occasional thin orangey brown and light grey CLAY and SILT bands		7.00		010	N=18										
				8.00		011	N=22										
				9.00		012	N=22										
				10.00													

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NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

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Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 104
Carried out for Planning & Transportation	Date Started 14/09/2007	Date Finished 19/09/2007
Remarks: 0.5 hours hand dug starter pit. Bomb test redrill - 1.5 hours.	Type of Rig Dando 150	
	Depth 30.45	Height 1.480 mAOD
	Co-ords 652390E - 305914N	
	Logged by JE	
	Drawn by geo	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests												
					Type	No.		MC%	P _s	SO ₂	Cl-	pH	Org.	CBR	Other					
		Medium dense orangey brown silty fine, medium and coarse SAND (CORTON SAND)	X																	
		Very dense	X	11.00	●	013	N=45													
			X	12.00	●	014	N=54													
			X	14.00	●	015	N=51													
		Dense to very dense grey silty fine, medium and coarse SAND. Rare thin clay and silt lenses (CRAG)	X	15.00	●	016	N=45													
			X	16.00		16														
			X	17.00	●	017	N=42													
			X	18.00	●	018	N=42													
			X	19.00																
			X	20.00	●	019	50/185mm													

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NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

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Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 104
Carried out for Planning & Transportation	Date Started 14/09/2007	Date Finished 19/09/2007
Remarks: 0.5 hours hand dug starter pit. Bomb test redrill - 1.5 hours.	Type of Rig Dando 150	
	Depth 30.45	Height 1.480 mAOD
	Co-ords 652390E - 305914N	
	Logged by JE	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Dense to very dense grey silty fine, medium and coarse SAND. Rare thin clay and silt lenses (CRAG)	X	21.00	●	020	N=50										
			X	22.00	●	021	50/290mm										
			X	23.00	●	022	280/145mm										
			X	24.00	●	023	N=48										
			X	25.00	●	23											
			X	26.00	●	024	N=62										
			X	27.00	●	025	N=42										
		Occasional thin firm grey CLAY bands	X	28.00													
			X	29.00													
			X	30.00													

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NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

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Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 104
Carried out for Planning & Transportation	Date Started 14/09/2007	Date Finished 19/09/2007
Remarks: 0.5 hours hand dug starter pit. Bomb test redrill - 1.5 hours.	Type of Rig Dando 150	
	Depth 30.45	Height 1.480 mAOD
	Co-ords 652390E - 305914N	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Dense to very dense grey silty fine, medium and coarse SAND. Rare thin clay and silt lenses (CRAG)	X X X X X X		●	026	N=38										
		End of Borehole at 30.45 m															
	150			31.00													
	31.00			32.00													
				33.00													
				34.00													
				35.00													
				36.00													
				37.00													
				38.00													
				39.00													
				40.00													

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 105
Carried out for Planning & Transportation	Date Started 23/08/2007	Date Finished 03/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 1.5 hours	Type of Rig Dando 3000	
	Depth 40.00	Height 1.620 mAOD
	Co-ords 652602E - 305923N	
	Logged by AJ	
	Drawn by Gra	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests											
					Type	No.		MC%	P _a	SO ₃	Cl-	pH	Org.	GBR	Other				
		Asphalt																	
		Flint COBBLES (MADE GROUND)																	
		CONCRETE (MADE GROUND)																	
		MADE GROUND : reddish brown and grey sandy silty clay with some fine, medium and coarse flint, concrete and brick (MADE GROUND)		1.00		001 002 003													
		Light brown fine and medium SAND with a little fine and medium flint gravel (TIDAL AND RIVER CREEK DEPOSITS)		2.00		004 005	N=2												
		Brown and black sandy SILT with some organic material (TIDAL AND RIVER CREEK DEPOSITS)		3.00		006 007	N=4												
		Very soft mottled grey, brown and brownish grey sandy, clayey SILT (TIDAL AND RIVER CREEK DEPOSITS)		4.00		008 009 010	N=16												
		Very soft brown and brownish grey very sandy, clayey SILT (TIDAL AND RIVER CREEK DEPOSITS)		5.00		011 012 013	N=21												
		Medium dense black, greyish brown and dark grey slightly clayey, slightly organic, fine, medium and coarse SAND (TIDAL AND RIVER CREEK DEPOSITS)		6.00		014 015 016	N=20												
		Medium dense brown fine and medium SAND (NORTH DENES FORMATION)		7.00		017 018 019	N=30												
		Medium dense brown and dark grey fine and medium SAND (NORTH DENES FORMATION)		8.00		020 021 022	N=30												
		Medium dense brown fine and medium SAND with a little fine and medium flint gravel (NORTH DENES FORMATION)		9.00		023 024	N=36												
		Dense brown fine and medium SAND with some fine, medium and coarse flint gravel (NORTH DENES FORMATION)		10.00		025 026													
		Dense brown fine and medium SAND with occasional flint cobbles (NORTH DENES FORMATION)				027 028													
		Dense brown fine, medium and coarse SAND (NORTH DENES FORMATION)																	
		Dense brown fine, medium and coarse SAND with some fine, medium and coarse flint gravel (NORTH DENES FORMATION)																	

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 105
Carried out for Planning & Transportation	Date Started 23/08/2007	Date Finished 03/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 1.5 hours	Type of Rig Dando 3000	
	Depth 40.00	Height 1.620 mAOD
	Co-ords 652602E - 305923N	
	Logged by AJ	
	Drawn by Gra	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₂	Cl-	pH	Org.	CBR	Other			
		Dense brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)				●	029											
				11.00		●	030 031	N=40										
				12.00		●	032	N=42										
				13.00		●	033											
				14.00		●	034 035	N=37										
		Dense orangey brown fine, medium and coarse SAND with some fine, medium and coarse flint gravel (NORTH DENES FORMATION) Bone		15.00		●	036 036A 037											
				16.00		●	038	49/295mm										
250	16.42	Dense orange fine and medium SAND (CRAG)		17.00		●	039											
				18.00		●	040	N=42										
				19.00		●	041											
		Dense reddish brown fine SAND with laminae of brown soft silty clay (CRAG)		19.00		●	042	N=41										
				20.00		●	043											

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 3 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 105
Carried out for Planning & Transportation	Date Started 23/08/2007	Date Finished 03/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 1.5 hours	Type of Rig Dando 3000	
	Depth 40.00	Height 1.620 mAOD
	Co-ords 652602E - 305923N	
	Logged by AJ	
	Drawn by Gra	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₂	Cl-	pH	Org.	CBR	Other		
		Dense grey fine SAND (CRAG)			●	044	N=39										
				21.00	↑	045											
		Dense orange fine SAND (CRAG)			●	046	N=46										
				22.00	↑	047											
		Dense grey fine SAND (CRAG)			●	048	N=34										
				23.00	↑	049											
		Dense grey fine and medium SAND (CRAG)			●	050	N=35										
				24.00	↑	051											
				25.00	↑	052	N=41										
				26.00	↑	053											
				27.00	↑	054	N=45										
				28.00	↑	055											
				29.00	↑	056	38/225mm										
		Stiff to firm grey silty CLAY (CRAG)			— x —												
				30.00	— x —												

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 4 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 105
Carried out for Planning & Transportation	Date Started 23/08/2007	Date Finished 03/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 1.5 hours	Type of Rig Dando 3000	
	Depth 40.00	Height 1.620 mAOD
	Co-ords 652602E - 305923N	
		Logged by AJ
		Drawn by Gra
		Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Stiff to firm grey silty CLAY (CRAG)			●	057											
		Soft grey sandy, silty CLAY (CRAG)		31.00	●	058	N=50										
		Grey fine and medium SAND with laminae of soft grey silty clay (CRAG)		32.00	●	059 060											
		Very dense grey fine and medium SAND with some shell fragments (CRAG)		33.00	●	061	51/285mm										
				34.00	●	063	50/285mm										
				35.00	●	064											
				36.00	●	065	50/225mm										
				37.00	●	067	N=49										
		Dense grey slightly clayey fine and medium SAND with some shell fragments (CRAG)		38.00	●	068											
				39.00	●	069	N=48										
		Dense grey fine and medium SAND with some shell fragments (CRAG)		40.00	●	070											
150	39.80	End of Borehole at 40.00 m		40.00													

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 106
Carried out for Planning & Transportation	Date Started 29/08/2007	Date Finished 05/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill 3.0 hours	Type of Rig Dando 150	
	Depth 30.45	Height 1.690 mAOD
	Co-ords 652655E - 305947N	
	Logged by AE	Drawn by Gra
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		MADE GROUND : dark brown fine, medium and coarse sand with some up to coarse gravel sized flint and concrete (MADE GROUND)			●	001											
		Light brown fine, medium and coarse SAND (TIDAL AND RIVER CREEK DEPOSITS)			●	002											
		Brown fine, medium and coarse SAND with lenses of dark brown and black organic silt (TIDAL AND RIVER CREEK DEPOSITS)		1.00	●	003	N=5										
		Mottled brown, orangey brown and dark grey very clayey fine, medium and coarse SAND with a little fine and medium flint gravel. Lenses of dark brown and black organic silt (TIDAL AND RIVER CREEK DEPOSITS)		2.00	●	002	N=7										
		Very soft mottled orangey brown, reddish brown and grey, very sandy, clayey SILT (TIDAL AND RIVER CREEK DEPOSITS)		3.00	●	003	N=22										
		Loose brown fine, medium and coarse SAND (NORTH DENES FORMATION)		4.00	●	008	N=2										
		Loose light brown fine, medium and coarse SAND with a little fine and medium rounded flint gravel (NORTH DENES FORMATION)		5.00	●	005	N=7										
		Loose to medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse rounded flint and quartz gravel (KESGRAVE FORMATION)		6.00	●	006	N=13										
				7.00	●	007	N=21										
				8.00	●	008	N=9										
				9.00	●	009	N=11										
				10.00	●	010											

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 106
Carried out for Planning & Transportation	Date Started 29/08/2007	Date Finished 05/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill 3.0 hours	Type of Rig Dando 150	
	Depth 30.45	Height 1.690 mAOD
	Co-ords 652655E - 305947N	
	Logged by AE	Drawn by Gra
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Loose to medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse rounded flint and quartz gravel (KESGRAVE FORMATION)				011	N=16										
		Loose orangey brown fine, medium and coarse rounded flint and quartz GRAVEL with much medium and coarse sand (KESGRAVE FORMATION)		11.00		012	N=5										
		Dense		12.00													
		Very soft mottled reddish brown, orangey brown and grey sandy, silty CLAY (KESGRAVE FORMATION)		13.00		013	N=50										
				14.00													
				15.00		009 014 010	N=29										
	200 15.00	Medium dense orange fine and medium SAND (CRAG)		16.00		011 015	N=19										
				17.00													
				18.00		012 016	N=37										
				19.00		013 017	N=48										
		Dense orange fine, medium and coarse SAND (CRAG)		20.00													

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 3 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 106
Carried out for Planning & Transportation	Date Started 29/08/2007	Date Finished 05/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill 3.0 hours	Type of Rig Dando 150	
	Depth 30.45	Height 1.690 mAOD
	Co-ords 652655E - 305947N	
	Logged by AE	
	Drawn by Gra	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₂	Cl-	pH	Org.	CBR	Other			
		Dense orange fine, medium and coarse SAND (CRAG)																
		Medium dense grey fine and medium SAND (CRAG) Up to coarse gravel sized sandstone nodules		21.00	●	014 018 015	N=35											
				22.00	●	016 019	N=18											
		Laminae of soft grey silty CLAY		23.00														
				24.00	●	017 020	N=24											
		Dense		25.00	●	021	50/15mm											
				26.00	●	022												
		Dense		27.00	●	018 023	50/190mm											
				28.00														
		Laminated firm grey slightly sandy, clayey SILT (CRAG)	X X	29.00	●	019	N=46											
		Continued next sheet		30.00														

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 4 of 4



Scheme Great Yarmouth Third River Crossing Job No. PTPZ0008 Borehole No. BH 106

Carried out for Planning & Transportation Date Started 29/08/2007 Date Finished 05/09/2007

Remarks: 1.5 hours hand dug starter pit. Bomb test redrill 3.0 hours
 Type of Rig Dando 150
 Depth 30.45 Height 1.690 mAOD
 Co-ords 652655E - 305947N
 Logged by AE
 Drawn by Gra
 Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _a	SO ₃	Cl-	pH	Org.	CBR	Other			
		Laminated firm grey slightly sandy, clayey SILT (CRAG)	X · X · X · X · X X · X · X				N=30											
		----- End of Borehole at 30.45 m																
				31.00														
				32.00														
				33.00														
				34.00														
				35.00														
				36.00														
				37.00														
				38.00														
				39.00														
				40.00														

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 3



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 107
Carried out for Planning & Transportation	Date Started 05/09/2007	Date Finished 07/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.0 hours	Type of Rig Dando 150	
	Depth 30.00	Height 3.030 mAOD
	Co-ords 652801E - 305961N	
	Logged by AE	Drawn by Gra
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		MADE GROUND : dark brown sandy topsoil (MADE GROUND)			●	001												
		MADE GROUND : dark brown fine and medium sand (MADE GROUND)			●	002												
		MADE GROUND : light brown fine and medium SAND (MADE GROUND)		1.00	●	003	N=16											
		MADE GROUND : fine and medium sand with some up to coarse gravel sized brick, flint and granite (MADE GROUND)			●	004	N=16											
		Medium dense light brown fine and medium SAND with some fine, medium and coarse flint gravel (NORTH DENES FORMATION)		2.00	●	005	N=16											
		Loose light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		3.00	●	006	N=5											
		Loose light brown fine, medium and coarse flint and quartz GRAVEL with much fine, medium and coarse sand (NORTH DENES FORMATION)		4.00	●	006	N=7											
		Medium dense		5.00	●	007	N=14											
		Medium dense light brown fine, medium and coarse SAND with much fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		6.00	●	008	N=25											
		Medium dense light brown fine, medium and coarse SAND with much fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		7.00	●	009	N=19											
		Medium dense light brown fine, medium and coarse flint GRAVEL with some fine, medium and coarse sand (NORTH DENES FORMATION)		8.00	●	010	N=16											
		Medium dense light brown fine, medium and coarse SAND with much fine, medium and coarse flint gravel (NORTH DENES FORMATION)		9.00	●	011	N=12											
		Continued next sheet		10.00														

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 3



Scheme Great Yarmouth Third River Crossing Job No. PTPZ0008 Borehole No. BH 107

Carried out for Planning & Transportation Date Started 05/09/2007 Date Finished 07/09/2007

Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.0 hours
 Type of Rig Dando 150
 Depth 30.00 Height 3.030 mAOD
 Co-ords 652801E - 305961N
 Logged by AE
 Drawn by Gra
 Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Medium dense light brown fine, medium and coarse SAND with much fine, medium and coarse flint gravel (NORTH DENES FORMATION)			●	012	N=21										
		Light grey soft clayey SILT (NORTH DENES FORMATION)		11.00	●	007											
		Orangey brown medium and coarse SAND with much fine and medium rounded flint gravel (NORTH DENES FORMATION)			●	008											
		Medium dense orangey brown medium and coarse SAND with some fine, medium and coarse rounded flint gravel. Lenses of soft light grey silty clay (NORTH DENES FORMATION)		12.00	●	009	N=29										
		Dense orangey brown fine and medium SAND. Lenses of soft orangey brown sandy silt (NORTH DENES FORMATION)		13.00	●	010	N=30										
				14.00													
		Medium dense laminated orangey brown fine and medium SAND. Lenses of soft orangey brown sandy silt (NORTH DENES FORMATION)		15.00	●	011	N=28										
				16.00													
		Dense orangey brown fine and medium SAND (CRAG)		17.00	●	012	N=43										
				18.00													
		Dense laminated greyish brown, reddish brown and orange fine and medium SAND (CRAG)		19.00	●	013	N=43										
				20.00													
		Dense laminated greyish brown, reddish brown and orange fine and medium SAND. Some organic material (CRAG)		19.00	●	014	N=39										
				20.00													

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 3 of 3



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Borehole No. BH 107
Carried out for Planning & Transportation		Date Started 05/09/2007	Date Finished 07/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.0 hours		Type of Rig Dando 150	
		Depth 30.00	Height 3.030 mAOD
		Co-ords 652801E - 305961N	
		Logged by AE	
		Drawn by Gra	
		Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Dense laminated greyish brown, reddish brown and orange fine and medium SAND. Some organic material (CRAG)		21.00	●	015 019	N=43										
		Firm grey silty CLAY (CRAG)			●	017											
		Medium dense greyish brown fine and medium SAND with lenses of soft grey silty clay (CRAG)		22.00	●	016 020	N=17										
		Very dense greyish brown fine and medium SAND (CRAG)		24.00	●	018 021	50/225mm										
				25.00	●	019 022	50/225mm										
				26.00													
				27.00	●	020 023	50/225mm										
		Firm to stiff light grey silty CLAY (CRAG)			●	021											
		Dense greyish brown fine and medium SAND (CRAG)		28.00	●	022 024	N=37										
				29.00													
		Firm grey silty CLAY (CRAG)			●	023 025	N=46										
				30.00													

End of Borehole at 30.00 m

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 2



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 108
Carried out for Planning & Transportation	Date Started 23/08/2007	Date Finished 28/08/2007
Remarks: 2.5 hours hand dug starter pit. Bomb test redrill - 4.0 hours	Type of Rig Dando 150	
	Depth 20.00	Height 0.950 mAOD
	Co-ords 652319E - 305799N	
	Logged by AE	Drawn by Gra
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		MADE GROUND : brown fine and medium sand with some fine, medium and coarse flint and quartz gravel. Occasional brick fragments (MADE GROUND)	[Cross-hatch pattern]	1.00	●	001											
		MADE GROUND : coarse flint and quartz gravel. Probably pipe bedding (MADE GROUND)	[Cross-hatch pattern]		●	002	N=10										
		Soft grey organic silty CLAY with lenses of black fibrous peat (BREYDON FORMATION.PEAT)	[Wavy pattern]	2.00	●	003	N=11										
		Loose greyish brown silty fine and medium SAND with lenses of dark brown fibrous peat (BREYDON FORMATION.SILTS AND CLAYS)	[X pattern]	3.00	●	004	N=9										
		Loose brown clayey, silty fine SAND with occasional quartzite gravel (CORTON FORMATION)	[X pattern]	4.00	●	005											
		Medium dense brown silty fine SAND with some fine, medium and coarse flint and quartz gravel (CORTON FORMATION)	[X pattern]	5.00	●	006	N=5										
		Very loose orangey brown silty fine and medium SAND with lenses of orange silty clay (CORTON FORMATION)	[X pattern]	6.00	●	007	N=15										
		Very loose laminated brown silty fine SAND, brown clayey SILT and orangey brown silty CLAY (CORTON FORMATION)	[X pattern]	7.00	●	008	N=3										
		Medium dense orangey brown silty fine and medium SAND (CORTON FORMATION)	[X pattern]	8.00	●	009	N=28										
		Dense brown medium SAND (CORTON FORMATION)	[X pattern]	9.00	●	010	N=36										
				10.00	●	011	N=36										

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NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

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Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 108
Carried out for Planning & Transportation	Date Started 23/08/2007	Date Finished 28/08/2007
Remarks: 2.5 hours hand dug starter pit. Bomb test redrill - 4.0 hours	Type of Rig Dando 150	
	Depth 20.00	Height 0.950 mAOD
	Co-ords 652319E - 305799N	
	Logged by AE	Drawn by Gra
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
	200 10.50	Very dense orangey brown silty fine and medium SAND (CRAG)	X	11.00	●	011 012	50/255mm										
			X	12.00	●	012 013	50/210mm										
			X	13.00													
			X	14.00	●	013 014	50/185mm										
			X	15.00	●	014 015	50/255mm										
		Medium dense	X	16.00													
			X	17.00	●	015 016	N=11										
		Very dense brown silty fine and medium SAND with lenses of grey clayey silt (CRAG)	X	18.00	●	016 017	50/295mm										
			X	19.00													
		Very dense brown silty fine and medium SAND with lenses of soft orangey brown Continued next sheet	X	20.00	●	017 018	50/295mm										

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2+ of 2



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Borehole No. BH 108	
Carried out for Planning & Transportation		Date Started 23/08/2007	Date Finished 28/08/2007	
Remarks: 2.5 hours hand dug starter pit. Bomb test redrill - 4.0 hours		Type of Rig Dando 150		
		Depth 20.00	Height 0.950 mAOD	Logged by AE
		Co-ords 652319E - 305799N		Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
	150 20.00	clay (CRAG) End of Borehole at 20.00 m		20.00														
				21.00														
				22.00														
				23.00														
				24.00														
				25.00														
				26.00														
				27.00														
				28.00														
				29.00														
				30.00														

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 109
Carried out for Planning & Transportation	Date Started 09/08/2007	Date Finished 16/08/2007
Remarks: 1.5 hour hand dug starter pit. Bomb test redrill - 4.0 hours	Type of Rig Dando 3000	
	Depth 40.00	Height 1.650 mAOD
	Co-ords 652609E - 305856N	
	Logged by RW	Drawn by geo
		Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests											
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other				
		CONCRETE (MADE GROUND)																	
		Yellowish brown fine and medium SAND (TIDAL AND RIVER CREEK DEPOSITS)	X X																
		Mottled brown, grey and dark grey clayey, silty fine SAND (TIDAL AND RIVER CREEK DEPOSITS)	X X	1.00		01-05		25											
		Very loose soft brown and grey clayey SILT and fine SAND (TIDAL AND RIVER CREEK DEPOSITS)	X X	2.00		06-08	N=3												
		Loose dark grey slightly clayey fine and medium SAND. Organic odour (TIDAL AND RIVER CREEK DEPOSITS)	X X	3.00		09-12	N=6												
		Dense brown and grey slightly gravelly fine and medium SAND. Gravel is angular to rounded. Some fine flint (NORTH DENES FORMATION)	X X	4.00		13-14	N=35												
		Dense dark grey slightly clayey, silty, slightly gravelly fine and medium SAND. Gravel is sub-angular to rounded. Some fine and medium flint (NORTH DENES FORMATION)	X X	6.00		19-21	N=32												
		Dense brown fine, medium and coarse SAND. Becoming slightly sandy angular to sub-rounded fine and medium flint gravel (NORTH DENES FORMATION)	X X	7.00		22-23	N=47												
		Very dense brownish grey sandy, fine and medium flint, angular to sub-rounded flint GRAVEL (NORTH DENES FORMATION)	X X	8.00		25-27		50/285mm											
		Dense brown and grey fine and medium SAND and fine, medium and coarse angular to sub-rounded flint gravel (NORTH DENES FORMATION)	X X	9.00		29-30	N=37												
		Medium dense light brown, brown and greyish brown fine, medium and coarse SAND and angular to sub-rounded fine and medium flint gravel (NORTH DENES FORMATION)	X X	10.00		31	N=24												

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 4



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Borehole No. BH 109
Carried out for Planning & Transportation		Date Started 09/08/2007	Date Finished 16/08/2007
Remarks: 1.5 hour hand dug starter pit. Bomb test redrill - 4.0 hours		Type of Rig Dando 3000	
		Depth 40.00	Height 1.650 mAOD
		Co-ords 652609E - 305856N	
		Logged by RW	
		Drawn by geo	
		Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₂	Cl-	pH	Org.	CBR	Other		
		Medium dense light brown, brown and greyish brown fine, medium and coarse SAND and angular to sub-rounded fine and medium flint gravel (NORTH DENES FORMATION)		11.00	32	N=23											
				12.00	33												
	250 13.00	Very dense brown and grey very gravelly fine, medium and coarse SAND. Gravel is angular to sub-rounded fine and medium flint (NORTH DENES FORMATION)		13.00	34 35	50/210mm											
				14.00	36												
		Dense		15.00	37 38	N=34											
		Dense brown and grey very gravelly fine, medium and coarse SAND. Gravel is angular to sub-rounded fine and medium flint. Occasional thin lenses of firm to stiff very sandy gravelly clay (NORTH DENES FORMATION)		16.00	39 40 41	N=47											
		Very dense greenish blueish grey and brown silty fine and medium SAND (CRAG)		17.00	42												
				18.00	43 44	50/180mm											
		Very dense brown and orangey brown fine and medium SAND with occasional clay lense. (CRAG)		19.00	45	50/210mm											
				20.00	46												

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 3 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 109
Carried out for Planning & Transportation	Date Started 09/08/2007	Date Finished 16/08/2007
Remarks: 1.5 hour hand dug starter pit. Bomb test redrill - 4.0 hours	Type of Rig Dando 3000	
	Depth 40.00	Height 1.650 mAOD
	Co-ords 652609E - 305856N	
	Logged by RW	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl ⁻	pH	Org.	CBR	Other			
		Very dense dark grey medium SAND. Occasional clayey lense and lense of weak mudstone (CRAG)	x x			●	47											
		Very dense grey slightly silty fine SAND (CRAG)	x x			●	48											
		Medium dense grey slightly clayey fine and medium SAND (CRAG)	x x	21.00		●	49	25/150mm										
				22.00		●	50											
			x x			●	51	50/170mm										
								●	52									
			x x	23.00														
						24.00		●	53	N=50								
			x x				54											
						25.00				N=54								
			x x															
						26.00												
	200	Very dense grey clayey fine and medium SAND (CRAG)	x x			●	56	50/180mm										
	26.00					27.00		●	57									
		Dense grey slightly clayey fine and medium SAND with occasional soft to firm thin grey clay lenses (CRAG)	x x			●	58											
						28.00		●	59	N=47								
						●	60											
				29.00														
				30.00														

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 4 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 109
Carried out for Planning & Transportation	Date Started 09/08/2007	Date Finished 16/08/2007
Remarks: 1.5 hour hand dug starter pit. Bomb test redrill - 4.0 hours	Type of Rig Dando 3000	
	Depth 40.00	Height 1.650 mAOD
	Co-ords 652609E - 305856N	
	Logged by RW	
	Drawn by geo	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Firm to stiff grey sandy CLAY (CRAG)			●	61 62	N=49										
				31.00	●	63											
					▭	64											
		Some shell fragments		32.00	●	65		19									
					↕	66											
		Dense slightly clayey fine and medium SAND and occasional fine shell fragments (CRAG)		33.00	●	67 68	N=39										
				34.00													
					↕	69											
				35.00													
					↕	70 71	27/150mm										
				36.00													
					↕	72 73	48/150mm										
				37.00													
				38.00													
		Very dense			●	74	50/155mm										
				39.00													
				40.00													

End of Borehole at 40.00 m

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 110
Carried out for Planning & Transportation	Date Started 14/09/2007	Date Finished 19/09/2007
Remarks: 3.0 hours hand dug starter pit. 2.0 hours chiselling 1.2 - 1.7 metres. Bomb test redrill - 1.75 hours	Type of Rig Dando 150	
	Depth 31.00	Height 2.870 mAOD
	Co-ords 652470E - 305740N	
	Logged by AE	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Dense orangey brown slightly silty fine and medium SAND and occasional fine and medium, angular to rounded flint gravel (CRAG)		11.00	●	007 012	N=38										
				12.00	●	008 013 8	N=25										
				13.00	●	009 014 9	N=26										
				14.00	●	010 015	N=46										
		Very dense		16.00	●	011 016	50/150mm										
				17.00	●	012 017	50/210mm										
				18.00													
				19.00	●	013 018	50/210mm										
				20.00													

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 3 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 110
Carried out for Planning & Transportation	Date Started 14/09/2007	Date Finished 19/09/2007
Remarks: 3.0 hours hand dug starter pit. 2.0 hours chiselling 1.2 - 1.7 metres. Bomb test redrill - 1.75 hours	Type of Rig Dando 150	
	Depth 31.00	Height 2.870 mAOD
	Co-ords 652470E - 305740N	
	Logged by AE	
	Drawn by geo	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests								
					Type	No.		MC%	ρ_s	SO ₃	Cl-	pH	Org.	CBR	Other	
		Dense orangey brown slightly silty fine and medium SAND and occasional fine and medium, angular to rounded flint gravel (CRAG) Very dense		21.00	●	014 019	50/220mm									
		Dense grey silty fine and medium SAND. Occasional lense of clayey fine sand (CRAG)		22.00	●	015 020	N=40									
				23.00												
				24.00	●	016 021	N=40									
				25.00	●	017 022	N=30									
				26.00												
		Very dense		27.00	●	018 023	50/295mm									
				28.00	●	019 024	50/75mm									
				29.00												
				30.00	●	020 025	50/215mm									

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 2



Scheme Great Yarmouth Third River Crossing

Job No. PTPZ0008

Borehole No. BH 111

Carried out for Planning & Transportation

Date Started 16/08/2007

Date Finished 20/08/2007

Remarks:

1.0 hour hand dug starter pit. Bomb test redrill - 3.0 hours.

Type of Rig Dando 150

Depth 20.00

Height 2.830 mAOD

Logged by AE

Drawn by geo

Co-ords 652467E - 305628N

Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₂	Cl-	pH	Org.	CBR	Other			
		MADE GROUND : very dense angular to rounded fine, medium and coarse flint, brick and concrete gravel and fine, medium and coarse sand (MADE GROUND)				1 01 02 2												
		MADE GROUND : brown dense gravelly fine and medium sand. Gravel is angular to sub-rounded, fine and medium flint (MADE GROUND)		1.00		01 03 3												
		MADE GROUND : brown slightly silty gravelly fine and medium sand. Gravel is angular to sub-rounded, fine, medium and coarse granite, flint, asphalt and concrete (MADE GROUND)		2.00		02 04 05 2	N=4											1.4
		Loose dark grey slightly silty fine SAND (BREYDON FORMATION. SILTS AND CLAYS)				03 06 2 3	N=7											
		Loose brown slightly clayey fine SAND (BREYDON FORMATION. SILTS AND CLAYS)				07 7		20										
		Loose gravelly brown fine, medium and coarse SAND (CORTON FORMATION)		3.00		04 08 4	N=5											
				4.00		05 09 5	N=7											
				5.00			N=14											
		Medium dense gravelly brown fine, medium and coarse SAND and angular to rounded fine, medium and coarse flint gravel (CORTON FORMATION)				06												
				6.00		07	N=13											
		Loose gravelly brown fine and medium SAND (CRAG)		7.00		08 10	N=6											
		Medium dense		8.00		09 11	N=21											
		Dense		9.00		10	N=43											
				10.00														

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 2



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 111
Carried out for Planning & Transportation	Date Started 16/08/2007	Date Finished 20/08/2007
Remarks: 1.0 hour hand dug starter pit. Bomb test redrill - 3.0 hours.	Type of Rig Dando 150	
	Depth 20.00	Height 2.830 mAOD
	Co-ords 652467E - 305628N	
	Logged by AE	
	Drawn by geo	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	ρ_s	SO ₃	Cl-	pH	Org.	CBR	Other		
	200	Loose gravelly brown fine and medium SAND (CRAG)		10.50	●	11	N=40										
		Very dense Greyish brown		11.00	●	12	50/245mm										
				12.00	●	13	50/200mm										
		Medium dense Slightly silty		13.00	●	14	50/215mm										
				14.00	●	15	N=24										
		Very dense		15.00	●	16	50/280mm										
				16.00	●	17	50/225mm										
		Very dense reddish brown slightly silty fine and medium SAND (CRAG)		19.00	●	15	50/225mm										
				20.00	●	17											

End of Borehole at 20.00 m

FIG b

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Borehole No. BH 111A	
Carried out for Planning & Transportation		Date Started 15/08/2007	Date Finished 15/08/2007	
Remarks: 0.75 hour hand dug starter pit. Hole abandoned at 5.0m - bomb survey		Type of Rig Dando 150		
		Depth 5.00	Height 2.650 mAOD	Logged by NB
		Co-ords 652454E - 305655N		Drawn by Gra
			Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		MADE GROUND : brown silty fine sand with much fine, medium and coarse gravel sized brick, flint and concrete (MADE GROUND)		1.00	●	001												
		MADE GROUND : dark brown silty fine and medium sand with much fine and medium flint gravel. Occasional brick fragments (MADE GROUND)		1.00 - 2.00	●	001 002	N=13											
		Loose brown silty fine SAND with laminae of grey very clayey silty fine sand (BREYDON FORMATION.SILTS AND CLAYS)		2.00 - 3.00	●	002 003	N=5											
		Loose to medium dense orangey brown fine and medium SAND with much fine and medium flint and quartz gravel (CORTON FORMATION)		3.00 - 4.00	●	003 004	N=9											
		End of Borehole at 5.00 m		4.00 - 5.00	●	004 005	N=11											
	200 5.00			5.00 - 10.00														

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Borehole No. BH 111B	
Carried out for Planning & Transportation		Date Started 14/08/2007	Date Finished 14/08/2007	
Remarks: 0.75 hour hand dug starter pit. Hole abandoned at 1.25m - foul sewer pipe encountered		Type of Rig Dando 150		
		Depth 1.25	Height 2.540 mAOD	Logged by NB
		Co-ords 652462E - 305648N		Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		MADE GROUND : brown silty fine sand with much fine, medium and coarse gravel sized brick, flint and concrete (MADE GROUND)		1.00	↑	001											
	200 1.25	End of Borehole at 1.25 m		●		002	N=11										
				2.00													
				3.00													
				4.00													
				5.00													
				6.00													
				7.00													
				8.00													
				9.00													
				10.00													

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 3



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 112
Carried out for Planning & Transportation	Date Started 07/09/2007	Date Finished 13/09/2007
Remarks: 0.3 hour hand dug starter pit. 6.5 hours chiseling 1.05 - 1.80 metres. Bomb test redrill - 1.25 hours	Type of Rig Dando 150	
	Depth 30.00	Height 3.070 mAOD
	Co-ords 652503E - 305581N	
	Logged by JE	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		MADE GROUND : dark brown fine and medium sand with much up to cobble sized brick and plastic (MADE GROUND)		1.00	●	001											
	250 1.05				●	002											
				1.00	●	003											
					●	002											
					●	004											
		MADE GROUND : light brown fine and medium sand with much fine and medium concrete and brick (MADE GROUND)		2.00	●	005											24.0
					●	003											
					●	006											
				2.00	●	003	N=14										
					●	004											
					●	007											
		Loose orangey brown fine and medium SAND (CORTON FORMATION)		3.00	●	004	N=4										42.7
					●	007											
					●	004											
				4.00	●	005	N=6										56.5
					●	008											
					●	005											
					●	008											
				4.00	●	005	N=6										
					●	008											
					●	005											
					●	008											
				5.00	●	006	N=4										
					●	009											
					●	006											
					●	009											
				6.00	●	007	N=7										
					●	010											
					●	007											
					●	010											
				7.00	●	008	N=9										
					●	011											
					●	008											
					●	011											
				8.00	●	008	N=9										
					●	011											
					●	008											
					●	011											
				9.00	●	009	N=14										
					●	012											
					●	009											
					●	012											
				10.00	●	009	N=14										
					●	012											

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NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 3



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 112
Carried out for Planning & Transportation	Date Started 07/09/2007	Date Finished 13/09/2007
Remarks: 0.3 hour hand dug starter pit. 6.5 hours chiseling 1.05 - 1.80 metres. Bomb test redrill - 1.25 hours	Type of Rig Dando 150	
	Depth 30.00	Height 3.070 mAOD
	Co-ords 652503E - 305581N	
	Logged by JE	
	Drawn by geo	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		Loose to medium dense orangey brown fine, medium and coarse SAND with some fine, medium and coarse flint gravel (CORTON FORMATION)																
		Medium dense to dense orangey brown fine and medium SAND (CORTON FORMATION)		11.00		010 013	N=29											
		Very dense orangey brown fine and medium SAND with a little fine and medium flint gravel (CRAG)		12.00		011 014	50/225mm											
				13.00														
				14.00		012 015	50/245mm											
				15.00		013 016	50/200mm											
		Dense orangey brown fine, medium and coarse SAND with a little fine and medium rounded flint gravel (CRAG)		16.00														
				17.00		014 017	N=40											
		Very dense brown fine and medium SAND (CRAG)		18.00		015 018	51/225mm											
				19.00														
		Dense orangey brown fine and medium SAND with a little fine, medium and coarse		20.00		016 019	N=40											
		Continued next sheet				020												

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 113
Carried out for Planning & Transportation	Date Started 19/09/2007	Date Finished 27/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 1.75 hours.	Type of Rig Dando 3000	
	Depth 40.00	Height 2.560 mAOD
	Co-ords 652595E - 305535N	
	Logged by RW	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _r	SO ₃	Cl-	pH	Org.	CBR	Other			
		MADE GROUND : compact dark reddish brown silty, gravelly fine and medium sand. Gravel is angular brick, concrete, flint and metal (MADE GROUND)	[Cross-hatch pattern]		●	002												
		MADE GROUND : dark brown silty, gravelly fine and medium sand. Gravel is angular to sub-angular fine, medium and coarse flint and brick (MADE GROUND)	[Cross-hatch pattern]	1.00	●	003												
		MADE GROUND : reddish brown silty, gravelly fine and medium sand. Gravel is angular to sub-angular fine, medium and coarse brick and flint (MADE GROUND)	[Cross-hatch pattern]	2.00	●	006												
		Stiff greyish brown slightly sandy, silty CLAY (BREYDON FORMATION.SILTS AND CLAYS)	[X pattern]	3.00	●	007												
		Firm greyish brown slightly sandy, silty CLAY (BREYDON FORMATION.SILTS AND CLAYS)	[X pattern]	3.00	●	008												
		Soft dark grey slightly sandy, clayey SILT (BREYDON FORMATION.SILTS AND CLAYS)	[X pattern]	3.00	●	009												
		Medium dense yellowish brown slightly silty, medium SAND with some fine and medium flint gravel (CORTON FORMATION)	[X pattern]	4.00	●	010												
		Medium dense yellowish brown slightly silty, gravelly fine, medium and coarse SAND. Gravel is angular to sub-rounded fine and medium flint (CORTON FORMATION)	[X pattern]	5.00	●	011												
		Dense yellowish brown slightly silty, slightly gravelly fine and medium SAND. Gravel is angular to sub-rounded fine and medium flint (CORTON FORMATION)	[X pattern]	7.00	●	012	15											
		Dense slightly silty, gravelly fine and medium SAND. Gravel is angular to sub-angular fine and medium flint (CRAG)	[X pattern]	9.00	●	013												
					●	014												
					●	015												
					●	016	N=11											
					●	017												
					●	018	N=7											
					●	019												
					●	020	N=33											
					●	021												
					●	022	N=35											
					●	023	N=34											
					●	024												
					●	025	N=30											
					●	026												
					●	027	N=40											
				10.00														

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 113
Carried out for Planning & Transportation	Date Started 19/09/2007	Date Finished 27/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 1.75 hours.	Type of Rig Dando 3000	
	Depth 40.00	Height 2.560 mAOD
	Co-ords 652595E - 305535N	
	Logged by RW	
	Drawn by geo	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests											
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other				
		Dense slightly silty, gravelly fine and medium SAND. Gravel is angular to sub-angular fine and medium flint (CRAG)			●	028													
					↑	029	N=39												
				11.00															
					●	030													
					↑	031	N=35												
				12.00															
			●	032															
				13.00															
					↑	033	N=37												
				14.00		33													
				15.00															
		Very dense yellowish brown silty fine and medium SAND (CRAG)			↑	034	N=53												
					●	035													
				17.00															
		Dense greyish, yellowish brown silty fine SAND (CRAG)			↑	036	N=36												
					●	037													
				18.00															
		Very dense grey silty fine SAND (CRAG)			●	038	N=53												
	250 19.00				↑	039													
				19.00															
				20.00															

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

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Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 113
Carried out for Planning & Transportation	Date Started 19/09/2007	Date Finished 27/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 1.75 hours.	Type of Rig Dando 3000	Logged by RW
	Depth 40.00	Height 2.560 mAOD
	Co-ords 652595E - 305535N	Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests													
					Type	No.		MC%	P _s	SO ₂	Cl-	pH	Org.	CBR	Other						
		Very dense grey silty fine SAND (CRAG)	X	21.00	●	040															
		Very dense grey silty fine SAND with occasional flint cobble and shell fragments (CRAG)	X	22.00	●	041 042 42	N=75														
					●			043													
		Very dense grey slightly silty fine SAND. Occasional clay bands (CRAG)	X	23.00	●	044 045	N=60														
					●			046													
					●			047 048	N=58												
		●	049																		
		Dense	X	27.00	●	050 051	N=62														
					●			052													
					●			053 054 54	N=37												
				29.00																	
				30.00																	

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 4 of 4



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Borehole No. BH 113	
Carried out for Planning & Transportation		Date Started 19/09/2007	Date Finished 27/09/2007	
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 1.75 hours.		Type of Rig Dando 3000		
		Depth 40.00	Height 2.560 mAOD	Logged by RW
		Co-ords 652595E - 305535N		Drawn by geo
			Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other			
	200	Very dense grey slightly silty fine SAND. Occasional clay bands (CRAG)	[Symbol]	30.00	●	055												
	30.00																	
		Stiff grey CLAY (CRAG)	[Symbol]	31.00	●	056	100											
					●	057												
					●	058												
		Stiff grey sandy, clayey SILT (CRAG)	[Symbol]	32.00	●	059												
		Stiff grey CLAY (CRAG)	[Symbol]	34.00	■	060	150											
					●	061												
					●	062												
		Very dense grey silty fine SAND (CRAG)	[Symbol]	35.00	●	063												
		Very dense grey slightly silty fine and medium SAND with a little shell fragment (CRAG)	[Symbol]	36.00	●	064	55/225mm											
					●	065												
		Very dense grey silty fine SAND (CRAG)	[Symbol]	37.00	●	066												
			[Symbol]	38.00														
	150	38.50	[Symbol]	39.00	●	067	N=86											
					●	068												
				40.00	●													

End of Borehole at 40.00 m

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 1



Scheme Great Yarmouth Third River Crossing Job No. PTPZ0008 Borehole No. BH 114

Carried out for Planning & Transportation Date Started 04/09/2007 Date Finished 06/09/2007

Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 2.0 hours. Hole abandoned at 4.50m - bomb survey.

Type of Rig Dando 3000

Depth 4.50 Height 2.240 mAOD

Co-ords 652723E - 305509N

Logged by RW
 Drawn by geo
 Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		Intact CONCRETE (MADE GROUND)			●	001												
		MADE GROUND : crushed concrete (MADE GROUND)			●	002												
		MADE GROUND : dark brown fine and medium sand with some up to coarse gravel sized flint and concrete. Some shell fragments (MADE GROUND)		1.00	●	003												
		MADE GROUND : dark brown silty fine and medium sand with some up to coarse gravel sized flint and concrete. Some shell fragments (MADE GROUND)			●	004												
		MADE GROUND : dark brown silty fine and medium sand with some up to coarse gravel sized flint and concrete. Some shell fragments (MADE GROUND)			●	005												
		MADE GROUND : dark brown silty fine and medium sand with some up to coarse gravel sized flint and concrete. Some shell fragments (MADE GROUND)			●	006												
		MADE GROUND : dark brown silty fine and medium sand with some up to coarse gravel sized flint and concrete. Some shell fragments (MADE GROUND)			●	007												
		MADE GROUND : dark brown silty fine and medium sand with some up to coarse gravel sized flint and concrete. Some shell fragments (MADE GROUND)			●	008												
		MADE GROUND : dark brown silty fine and medium sand with some up to coarse gravel sized flint and concrete. Some shell fragments (MADE GROUND)			●	8												
		MADE GROUND : brown fine and medium sand with much up to coarse gravel sized flint. Some shell fragments (MADE GROUND)		2.00	●	009												
		MADE GROUND : brown fine and medium sand with much up to coarse gravel sized flint. Some shell fragments (MADE GROUND)			●	010												
		MADE GROUND : brown silty fine and medium sand with some up to coarse gravel sized brick (MADE GROUND)			●	011												
		MADE GROUND : brown silty fine and medium sand with some up to coarse gravel sized brick (MADE GROUND)			●	11												
		MADE GROUND : brown silty fine and medium sand with some up to coarse gravel sized brick (MADE GROUND)			●	012												
		MADE GROUND : brown silty fine and medium sand with some up to coarse gravel sized brick (MADE GROUND)		3.00	●	013												
		MADE GROUND : brown silty fine and medium sand with some up to coarse gravel sized brick (MADE GROUND)			●	12												
		MADE GROUND : soft to firm brown very sandy, silty clay with some fine, medium and coarse flint gravel (MADE GROUND)			●	014												
		MADE GROUND : soft to firm brown very sandy, silty clay with some fine, medium and coarse flint gravel (MADE GROUND)			●	015												
		MADE GROUND : soft to firm brown very sandy, silty clay with some fine, medium and coarse flint gravel (MADE GROUND)			●	15												
		Medium dense brown and dark grey silty fine and medium SAND with some fine, medium and coarse flint gravel. Some organic material (TIDAL AND RIVER CREEK DEPOSITS)		4.00	●	016												
		Medium dense brown and dark grey silty fine and medium SAND with some fine, medium and coarse flint gravel. Some organic material (TIDAL AND RIVER CREEK DEPOSITS)			●	16												
		Medium dense brown and dark grey silty fine and medium SAND with some fine, medium and coarse flint gravel. Some organic material (TIDAL AND RIVER CREEK DEPOSITS)			●	017												
		Medium dense brown and dark grey silty fine and medium SAND with some fine, medium and coarse flint gravel. Some organic material (TIDAL AND RIVER CREEK DEPOSITS)			●	17												
		Medium dense orangey brown medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		5.00														
		Medium dense orangey brown medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)																
		Medium dense greyish brown medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		6.00														
		Medium dense greyish brown medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)																
		Medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		7.00														
		Medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)																
		Medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		8.00														
		Medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)																
		Medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		9.00														
		Medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)																
		Medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		10.00														

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 3



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 115
Carried out for Planning & Transportation	Date Started 04/09/2007	Date Finished 13/09/2007
Remarks: 1.5 hours hand dug starter pit. 3.0 hours chiselling 2.0 - 2.4 metres. Bomb test redrill - 1.5 hours.	Type of Rig Dando 3000	
	Depth 30.00	Height 3.290 mAOD
	Co-ords 652851E - 305280N	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Asphalt			●	001											
		MADE GROUND : concrete, aggregate and metal (MADE GROUND)			●	002											
		MADE GROUND : Grey, brown and brick red angular to rounded, fine, medium and coarse brick, concrete and flint gravel and fine, medium and coarse sand. Occasional plastic fragments and brick cobbles (MADE GROUND)		1.00	●	003											
					●	004											
					●	005											
					4												
		Medium dense brown, light brown and grey slightly gravelly fine, medium and coarse SAND. Gravel is sub-angular to sub-rounded fine, medium and coarse flint (NORTH DENES FORMATION)		2.00	↑	006	N=42										
					↓	007											
					●	008											
		Dense		3.00	●	009	N=19										
					↑	010											
					●	011											
					↑	012	N=25										
					↓	013											
		250 6.00		4.00	↑	014	N=19										
					↓	015	N=22										
					●	016											
					●	017											
		Dense		5.00	↑	018	N=22										
					↓	019											
					●	020	N=43										
				6.00	↑	021	N=43										
				7.00	↓	022	N=43										
				8.00	●	023	N=43										
				9.00	●	024	N=43										
				10.00	●	025	N=43										

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 3



Scheme Great Yarmouth Third River Crossing Job No. PTPZ0008 Borehole No. BH 115

Carried out for Planning & Transportation Date Started 04/09/2007 Date Finished 13/09/2007

Remarks: 1.5 hours hand dug starter pit. 3.0 hours chiselling 2.0 - 2.4 metres. Bomb test redrill - 1.5 hours. Type of Rig Dando 3000
 Depth 30.00 Height 3.290 mAOD
 Co-ords 652851E - 305280N
 Logged by PW
 Drawn by gso
 Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	p _s	SO ₂	Cl-	pH	Org.	CBR	Other			
		Medium dense brown, light brown and grey slightly gravelly fine, medium and coarse SAND. Gravel is sub-angular to sub-rounded fine, medium and coarse flint (NORTH DENES FORMATION)			021													
				11.00	022													
		Dense reddish orangey brown slightly silty, slightly clayey fine and medium SAND (CRAG)			023	N=39												
				12.00														
				13.00	024	N=47												
	200 13.00				025													
				14.00														
				15.00	026	N=39												
					027													
				16.00														
				17.00	028	N=37												
					28													
					029													
				18.00														
				19.00	030	N=44												
					031													
				20.00														

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 3 of 3



Scheme Great Yarmouth Third River Crossing		Job No. PTPZ0008	Borehole No. BH 115	
Carried out for Planning & Transportation		Date Started 04/09/2007	Date Finished 13/09/2007	
Remarks: 1.5 hours hand dug starter pit. 3.0 hours chiselling 2.0 - 2.4 metres. Bomb test redrill - 1.5 hours.		Type of Rig Dando 3000		
		Depth 30.00	Height 3.290 mAOD	Logged by PW
		Co-ords 652851E - 305280N		Drawn by geo
			Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests								
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other	
		Dense reddish orangey brown slightly silty, slightly clayey fine and medium SAND (CRAG)	X	21.00	●	032 033	N=44									
		Fine and medium shell fragments	X	22.00	●	034 035 036	N=42									
			X	23.00	●	037										
			X	24.00												
		Very dense grey and greenish brown silty fine and medium SAND with some fine and medium shell fragments (CRAG)	X	25.00	●	038 039	N=68									
		Dense	X	26.00	●	040 041	N=65									
			X	27.00	●	042										
			X	28.00	●	043 044	N=40									
		Medium dense	X	29.00	●	045 046	N=16									
			X	30.00	●											

150
28.50

End of Borehole at 30.00 m

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 3



Scheme Great Yarmouth Third River Crossing

Job No. PTPZ0008

Borehole No. BH 116

Carried out for Planning & Transportation

Date Started 28/08/2007

Date Finished 03/09/2007

Remarks:

1.5 hours hand dug starter pit. 0.6 hours chiselling GL - 0.08 metre.

Type of Rig Dando 3000

Depth 30.00

Height 2.430 mAOD

Logged by RW

Drawn by Gra

Co-ords 652774E - 305340N

Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests											
					Type	No.		MC%	P _s	SO ₃	Cl-	pH	Org.	CBR	Other				
		CONCRETE (MADE GROUND)				●	001												
		MADE GROUND : dark brown fine and medium sand with much fine, medium and coarse asphalt, flint and concrete (MADE GROUND)				●	002												
						●	003												
						●	004												
						●	005												
		Medium dense light brown fine and medium SAND with a little fine and medium flint gravel (NORTH DENES FORMATION)		1.00		●	007												
						●	008												
						●	006												
						●	009												
						●	010	N=19											
						●	011												
		Medium dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint gravel (NORTH DENES FORMATION)		2.00		●	012												
						●	013												
						●	014	N=25											
		Medium dense light brown fine and medium SAND with a little fine and medium flint gravel (NORTH DENES FORMATION)		3.00		●	015												
						●	016												
						●	017	N=14											
		Medium dense light brown fine and medium SAND with some fine and medium flint gravel (NORTH DENES FORMATION)		4.00		●	018												
						●	019	N=17											
		Medium dense light brown fine, medium and coarse flint GRAVEL with a little fine and medium sand (NORTH DENES FORMATION)		5.00		●	020												
						●	021	N=17											
		Medium dense light brown medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (NORTH DENES FORMATION)		6.00		●	022												
						●	023												
						●	024	N=8											
		Loose dark brown silty fine and medium SAND with a little fine, medium and coarse flint gravel (NORTH DENES FORMATION)		7.00		●	025												
						●	026	N=26											
		Loose light brown fine and medium SAND with some fine and medium flint gravel (NORTH DENES FORMATION)		8.00		●	027												
						●	028	N=39											
		Medium dense light brown fine, medium and coarse flint GRAVEL with a little fine and medium sand (NORTH DENES FORMATION)		9.00		●	029												
						●	030	N=44											
		Dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (KESGRAVE FORMATION)		10.00		●													

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 3



Scheme Great Yarmouth Third River Crossing Job No. PTPZ0008 Borehole No. BH 116

Carried out for Planning & Transportation Date Started 28/08/2007 Date Finished 03/09/2007

Remarks: 1.5 hours hand dug starter pit. 0.6 hours chiselling GL - 0.08 metre.

Type of Rig Dando 3000

Depth 30.00 Height 2.430 mAOD

Co-ords 652774E - 305340N

Logged by RW
 Drawn by Gra
 Checked by MB

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	P _a	SO ₃	Cl-	pH	Org.	CBR	Other		
		Dense light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel (KESGRAVE FORMATION)			●	030											
		Medium dense orangey brown fine, medium and coarse SAND with a little fine, medium and coarse flint gravel (KESGRAVE FORMATION)		11.00	↑	031	N=19										
		Very dense		12.00	●	032											
				13.00	↑	033	50/175mm										
		Dense orangey brown fine and medium SAND (CRAG)		14.00	●	034											
		Very dense		15.00	●	035	N=47										
				16.00	↑	036	50/235mm										
		Very dense		17.00	●	037											
				18.00	↑	038	50/265mm										
		Dense orangey brown slightly silty fine SAND (CRAG)		19.00	●	039											
		Very dense		20.00	●	040											
				20.00	↑	041	N=47										
		Very dense		20.00	●	042											

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 1 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 117
Carried out for Planning & Transportation	Date Started 07/09/2007	Date Finished 14/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.0 hours.	Type of Rig Dando 3000	
	Depth 39.45	Height 2.340 mAOD
	Co-ords 652673E - 305652N	
	Logged by RW	
	Drawn by geo	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		CONCRETE (MADE GROUND)																
		MADE GROUND : brown, grey and white slightly clayey, gravelly, fine, medium and coarse sand. Gravel is angular to rounded, fine, medium and coarse flint, brick and concrete (MADE GROUND)		1.00		001 002 003 006												
		MADE GROUND : soft brown very sandy, gravelly clay. Gravel is fine, medium and coarse, angular to sub-rounded flint, brick and concrete (MADE GROUND)		2.00		004 005 007 4												
		MADE GROUND : soft brown very sandy, gravelly clay. Gravel is fine, medium and coarse, angular to sub-rounded flint, brick and concrete (MADE GROUND)		2.00		008 009 010	N=4											
		Very loose brown and grey clayey, slightly gravelly, fine, medium and coarse SAND. Gravel is angular to sub-rounded, fine, medium and coarse flint gravel (TIDAL AND RIVER CREEK DEPOSITS)		3.00		011 012												
		Very loose dark grey silty fine, medium and coarse SAND and angular to sub-rounded fine, medium and coarse flint gravel (TIDAL AND RIVER CREEK DEPOSITS)		3.00		013 014 14												
		Very loose dark grey fine, medium and coarse SAND and angular to sub-rounded fine, medium and coarse flint gravel (TIDAL AND RIVER CREEK DEPOSITS)		4.00		015 016 017 16 17	N=3	39										
		Dark grey organic SILT (TIDAL AND RIVER CREEK DEPOSITS)		5.00		018 019	N=26											
		Medium dense dark brownish grey medium SAND (NORTH DENES FORMATION)		6.00		020 20	N=16											
		Medium dense brownish grey fine, medium and coarse SAND and sub-angular to rounded fine and medium flint gravel (NORTH DENES FORMATION)		7.00		021 022 22	N=23											
		Dense yellowish brown fine and medium SAND (NORTH DENES FORMATION)		8.00		023 024	N=42											
				9.00		025	N=37											
				10.00														

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 2 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 117
Carried out for Planning & Transportation	Date Started 07/09/2007	Date Finished 14/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.0 hours.	Type of Rig Dando 3000	
	Depth 39.45	Height 2.340 mAOD
	Co-ords 652673E - 305652N	
	Logged by RW	
	Drawn by geo	
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other			
	250	Dense yellowish brown fine and medium SAND (NORTH DENES FORMATION)		10.10	●	026 26												
				11.00	●	027 028	N=38											
		Dense reddish brown slightly gravelly medium SAND. Occasional lenses of clayey medium sand. Gravel is sub-angular to sub-rounded, fine and medium flint. (CRAG)		12.00	●	029 030	N=49											
		Very dense		13.00														
		Becoming slightly silty		14.00	●	031 032	50/180mm											
				15.00	●	033 034	50/245mm											
				16.00														
		Dense		17.00	●	035 036 36	N=39											
				18.00	●	037 038	50/235mm											
		Very dense		19.00														
		Becoming silty		20.00	●	040												
		Continued next sheet																

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 3 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 117
Carried out for Planning & Transportation	Date Started 07/09/2007	Date Finished 14/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.0 hours.	Type of Rig Dando 3000	
	Depth 39.45	Height 2.340 mAOD
	Co-ords 652673E - 305652N	
	Logged by RW	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests									
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other		
		Stiff grey sandy CLAY (CRAG)	X X X X		●	039	50/275mm										
		Very dense grey slightly silty fine and medium SAND with many fine shell fragments (CRAG)	X X X X	21.00	●	041											
		Very dense brown and grey fine SAND (CRAG)	X X X X	22.00	●	042	50/275mm										
		Dense	X X X X	23.00	●	043											
			X X X X	23.00	●	044	N=47										
			X X X X	24.00		045											
		Medium dense	X X X X	25.00	●	046	N=18										
		Fine and medium sand	X X X X	25.00		047											
		Very dense brown and grey slightly silty fine and medium SAND (CRAG)	X X X X	26.00	●	048	50/240mm										
			X X X X	27.00		049											
			X X X X	28.00	●	050	49/235mm										
		Stiff thinly laminated grey SILT and CLAY (CRAG)	X X X X	28.00	●	051											
		Dense grey medium SAND (CRAG)	X X X X	29.00	●	052	N=45										
			X X X X	29.00		053											
			X X X X	30.00													

200
29.50

Continued next sheet

NORFOLK PARTNERSHIP LABORATORY

BOREHOLE LOG

Sheet 4 of 4



Scheme Great Yarmouth Third River Crossing	Job No. PTPZ0008	Borehole No. BH 117
Carried out for Planning & Transportation	Date Started 07/09/2007	Date Finished 14/09/2007
Remarks: 1.5 hours hand dug starter pit. Bomb test redrill - 3.0 hours.	Type of Rig Dando 3000	
	Depth 39.45	Height 2.340 mAOD
	Co-ords 652673E - 305652N	
	Logged by RW	Drawn by geo
	Checked by MB	

Backfill	Water	Description	Legend	Depth (m)	Sample		Field Tests	Laboratory Tests										
					Type	No.		MC%	p _s	SO ₃	Cl-	pH	Org.	CBR	Other			
		Dense grey medium SAND (CRAG)																
		Very dense				●	054	N=55										
		Becoming slightly clayey		31.00		●	055											
		Stiff grey sandy, SILT and CLAY (CRAG)				●	056	N=41										
				32.00		●	057											
				33.00														
				34.00		■	058	150										
		Very dense grey slightly silty fine and medium SAND (CRAG)				●	059											
				35.00		●	060	50/245mm										
						●	061											
				36.00														
				37.00		●	062	49/150mm										
						●	063											
				38.00		●	064	57/150mm										
						●	065											
				39.00		●	066	55/150mm										
		End of Borehole at 39.45 m																
				40.00														

Appendix D

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Our Project No PTPZ0008
Our Report and sample No 99692
Your Sample Ref **D4**
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

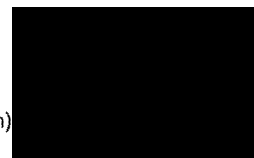
Scheme	Great Yarmouth Third River Crossing		
Location	BH 101	Depth	2 m
Date sampled		Date received	31-Aug-07
Date tested	05-Sep-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	MADE GROUND brown sandy clayey SILT with much fine and medium flint gravel.		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Ridffied
	Oven dried @ 105 -110°C
PASSING 2mm BS TEST SIEVE (%)	96
ORGANIC MATTER (%)	16

Test Code:620



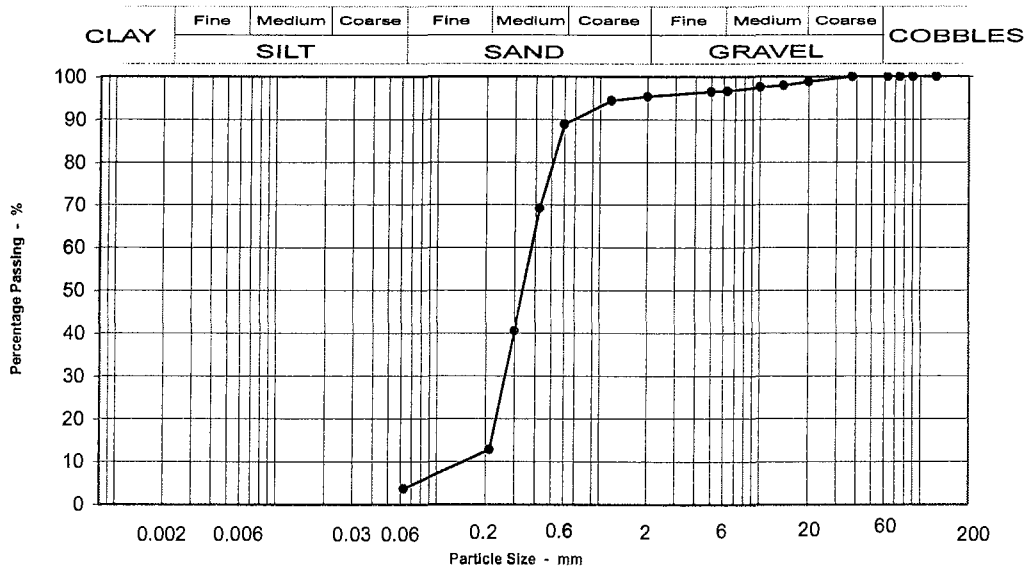
David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 101 3 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1B Suitable
90	100	
75	100	
63	100	
37.5	100	
20	99	
14	98	
10	98	
6.3	97	
5	97	
2	95	6E/6R Suitable
1.18	94	6M Suitable
0.6	89	
0.425	69	
0.3	40	
0.212	13	
0.063	4	
Moisture content %		23

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	1
Medium GRAVEL	2
Fine GRAVEL	7
Coarse SAND	1
Medium SAND	76
Fine Sand	9
Silt & Clay	4

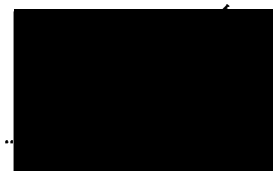
Grading Analysis	
D100	20
D60	0.4
D10	0.17
Uniformity Coefficient	2

Description	
Grey fine, medium and coarse SAND with some fine flint and quartz gravel.	

Test Code = 610

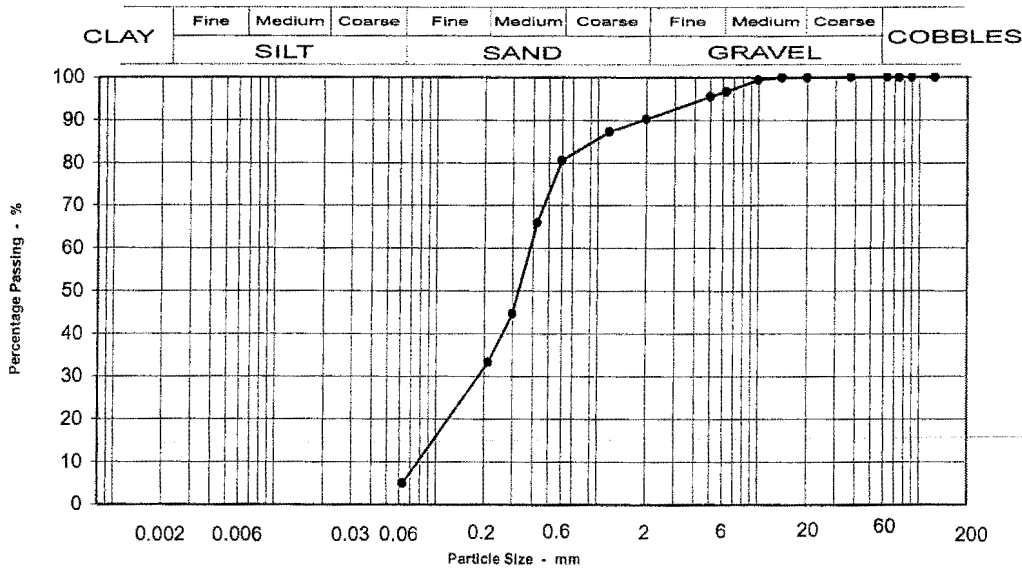


R J Noakes (Group Manager)
M L Bumstead (Section Engineer)
I D Brown (Section Engineer)
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 101 17.5 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	1B Suitable
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	99	
6.3	97	
5	96	
2	90	6E/6R Suitable
1.18	87	
0.600	81	
0.425	66	
0.300	45	
0.212	33	
0.063	5	6M Suitable
Moisture content %		21

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	3
Fine GRAVEL	10
Coarse SAND	7
Medium SAND	47
Fine SAND	28
Silt & Clay	5

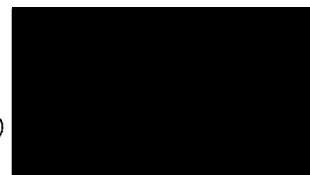
Grading Analysis	
D100	20
D60	0.39
D10	0.090
Uniformity Coefficient	4

Description	
Orangey brown clayey and silty fine and medium SAND with numerous shell fragments.	

Test Code = 610



D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No
Your Sample Ref D6
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

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DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 102	Depth	2.7 - m
Date sampled		Date received	29-Sep-07
Sample type	D	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Very soft brown and dark grey very sandy silty CLAY. Organic odour. Sand is fine, medium and coarse.		
Supplier	Source		
Conveyance note No.			

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
	Not applicable
	PREPARATION DETAILS
METHOD OF DIVISION	Riffled
PREPARATION METHOD	Oven dried @ 105 -110°C
NATURAL MC (%)	37

REMARKS

Test Code = 602



K Lawes (Lead Technician)



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Our Report and sample No 100310
Your Sample Ref D7
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

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**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

Scheme	Great Yarmouth Third River Crossing		
Location	BH 102	Depth	3 m
Date sampled		Date received	29-Sep-07
Date tested	05-Oct-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Very soft brown and dark grey very sandy silty CLAY. Organic odour. Sand is fine, medium and coarse		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

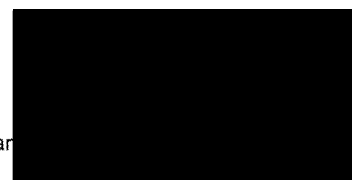
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Ridffled
	Oven dried @ 105 -110°C

PASSING 2mm BS TEST SIEVE (%)	95
ORGANIC MATTER (%)	3

Test Code:620



David Houseago (Lead Technician)

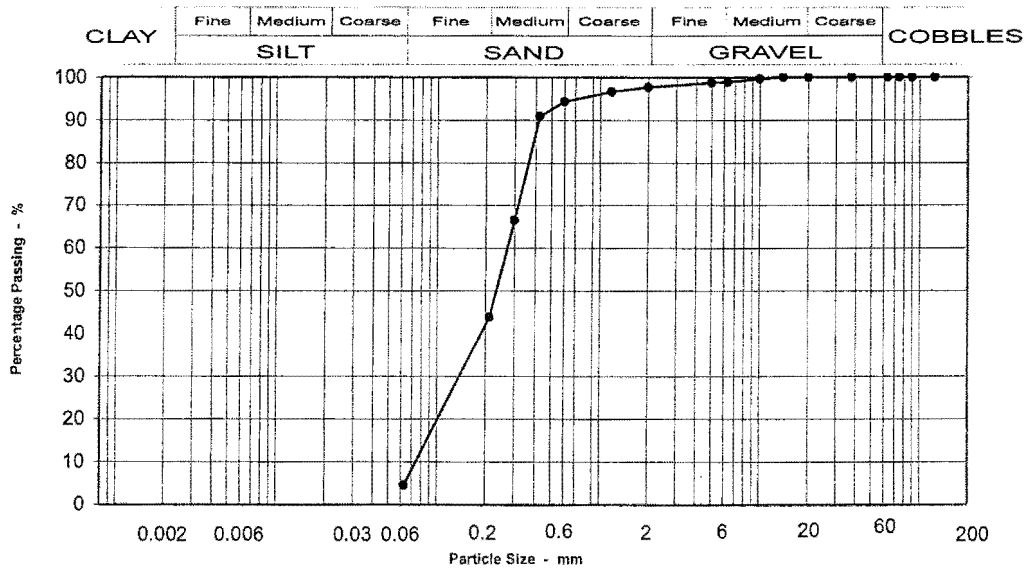


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Our Project No PTP20008
Our Report and sample No 99681
Your Sample Ref B10
Your Project or Order No
P&T Project No.
Date Report Issued 10 September 2007

Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 101 8 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	1B Suitable
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	99	
5	99	
2	98	6E/6R Suitable
1.18	97	
0.6	94	
0.425	91	
0.3	67	
0.212	44	
0.063	5	6M Suitable
Moisture content %		25

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	1
Fine GRAVEL	3
Coarse SAND	1
Medium SAND	51
Fine Sand	39
Silt & Clay	5

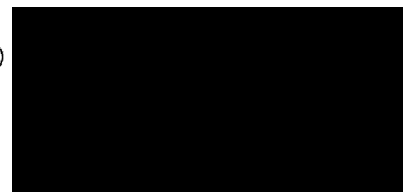
Grading Analysis	
D100	10
D60	0.3
D10	0.08
Uniformity Coefficient	3

Description	
Orangey brown fine and medium SAND.	

Test Code = 610



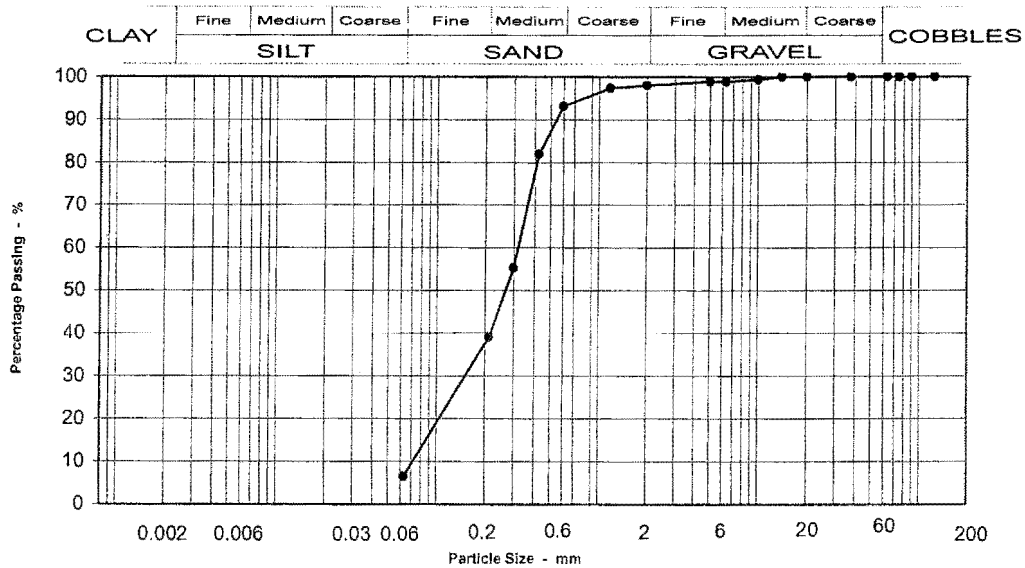
R J Noakes (Group Manager)
M L Bumstead (Section Engineer)
I D Brown (Section Engineer)
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: Great Yarmouth Third River Crossing

Location: BH 101 13 - m



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	99
6.3	99
5	99
2	98
1.18	97
0.6	93
0.425	82
0.3	55
0.212	39
0.063	6

Specification for Highway Works Classification	
1B	Suitable
6E/6R	Suitable
6M	Suitable
Moisture content %	24

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	1
Fine GRAVEL	5
Coarse SAND	1
Medium SAND	54
Fine Sand	33
Silt & Clay	6

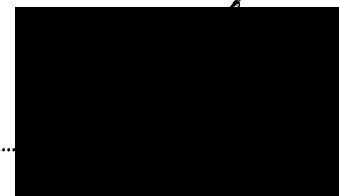
Grading Analysis	
D100	10
D60	0.3
D10	0.08
Uniformity Coefficient	4

Description
Orangey brown clayey and silty fine and medium SAND.

Test Code = 610



R J Noakes (Group Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 99806
Your Sample Ref D7
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

Page 1 of 1

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH 102	Depth	3 - m
Date sampled		Date received	21-Sep-07
Date tested	12-Sep-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Very soft brown and dark grey very sandy silty CLAY. Organic odour. Sand is fine, medium and coarse		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

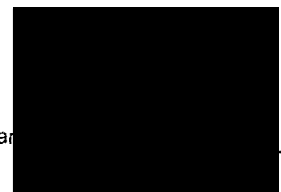
LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	0		
NATURAL MC (%)	29	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	30		
PLASTIC LIMIT (%)	13		
PLASTICITY INDEX (%)	17		
MODIFIED PI *(%)	17	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	CL		

REMARKS

Test Code = 604



David Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 100367
Your Sample Ref B7
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

Scheme	Great Yarmouth Third River Crossing		
Location	BH 102	Depth	4 m
Date sampled		Date received	01-Oct-07
Date tested	05-Oct-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Very soft grey very sandy silty CLAY. Organic odour. Sand is fine		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

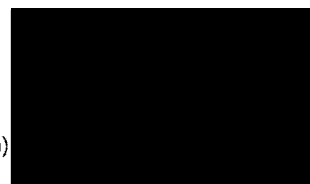
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
	Not applicable
	PREPARATION DETAILS
METHOD OF DIVISION	Ridffied
PREPARATION METHOD	Oven dried @ 105 -110°C

PASSING 2mm BS TEST SIEVE (%)	83
ORGANIC MATTER (%)	1

Test Code:620



David Houseago (Lead Technician)

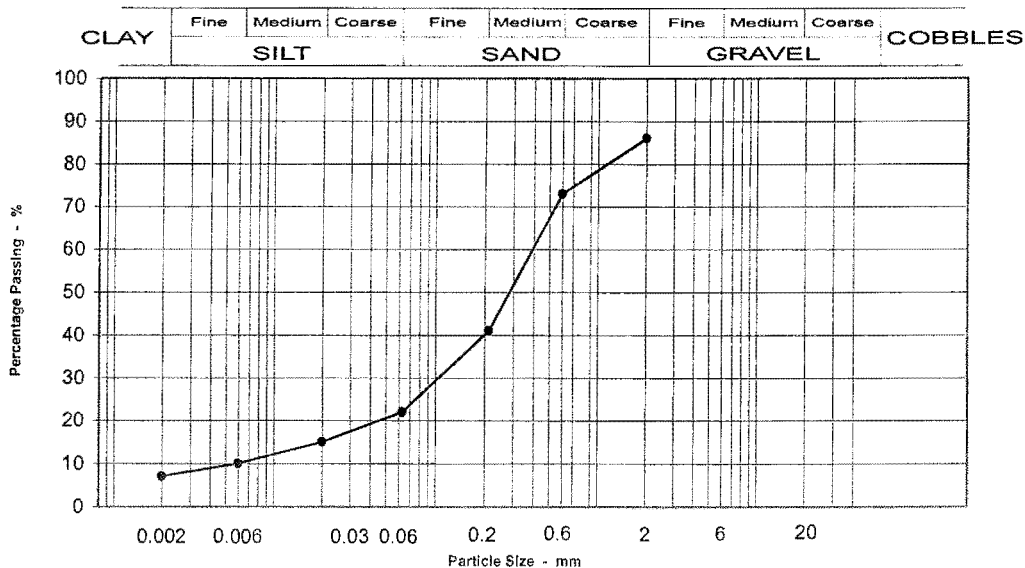


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Our Report and sample No 100312
Your Sample Ref D8
Your Project or Order No
P&T Project No.
Date Report Issued 12 October 2007

**Particle Size Distribution to BS 1377 : Part2 : 1990
Sedimentation Method Section 9.4**

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 102 4 - m**



Sieving	
Particle Size mm	% Passing
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	86
0.6	73
0.212	41
0.063	22
0.02	15
0.006	10
0.002	7

Moisture content % 29

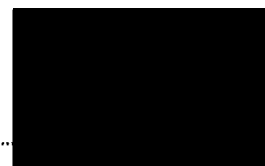
Sample Proportions	
GRAVEL	14
Coarse SAND	13
Medium SAND	32
Fine SAND	19
Coarse SILT	5
FINE SILT	3
CLAY	7

Description
Very soft grey very sandy silty CLAY. Organic odour. Sand is fine

Test Code = 612



D N Houseago (Lead Technician)



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Norwich
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FAO I Brown

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Our Report and sample No
Your Sample Ref D8
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

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DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 102	Depth	4 - m
Date sampled		Date received	29-Sep-07
Sample type	D	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Very soft grey very sandy silty CLAY. Organic odour. Sand is fine		
Supplier	Source		
Conveyance note No.			

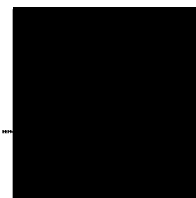
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Riffled
	Oven dried @ 105 -110°C
NATURAL MC (%)	25

REMARKS

Test Code = 602

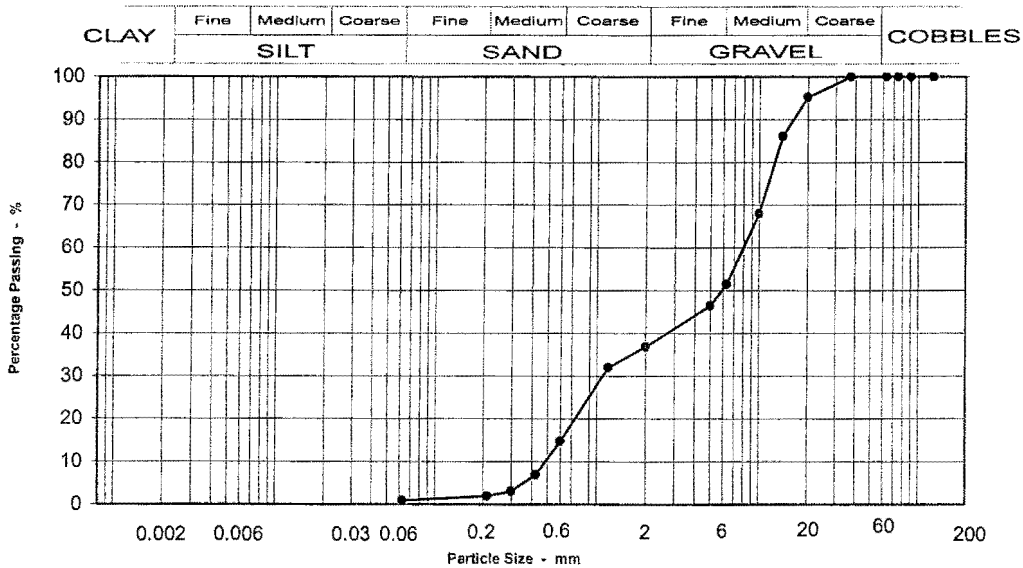


K Lawes (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 102 6 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1A Suitable
90	100	
75	100	
63	100	
37.5	100	
20	95	
14	86	6A Suitable
10	68	
6.3	51	
5	46	
2	37	6E/6R Suitable
1.18	32	6F1 Suitable
0.600	15	
0.425	7	
0.300	3	6I Suitable
0.212	2	
0.063	1	
		6M Suitable
		6N/6P Suitable
Moisture content %		4

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	5
Medium GRAVEL	44
Fine GRAVEL	22
Coarse SAND	15
Medium SAND	13
Fine SAND	1
Silt & Clay	1

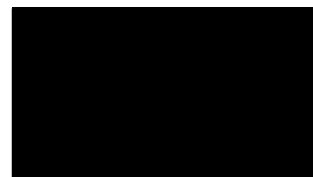
Grading Analysis	
D100	20
D60	8.23
D10	0.495
Uniformity Coefficient	17

Description
Loose yellowish brown gravelly fine, medium and coarse SAND. Gravel is angular to sub-rounded fine, medium and coarse flint

Test Code = 610

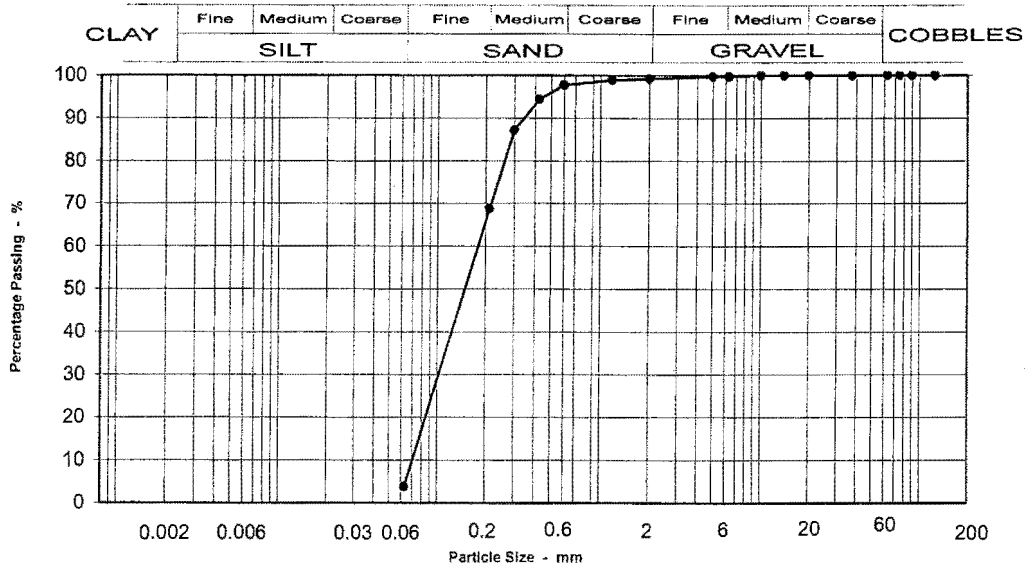


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 102 14.5 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	1B Suitable
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	99	6E/6R Suitable
1.18	99	
0.600	98	
0.425	94	
0.300	87	
0.212	69	
0.063	4	6M Suitable
Moisture content %		23

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	2
Coarse SAND	1
Medium SAND	29
Fine SAND	65
Silt & Clay	4

Grading Analysis	
D100	6
D60	0.19
D10	0.077
Uniformity Coefficient	2

Description	
Very dense reddish brown slightly silty medium SAND. Occasional angular to sub-rounded fine and medium flint gravel and shells	

Test Code = 610



D N Houseago (Lead Technician)

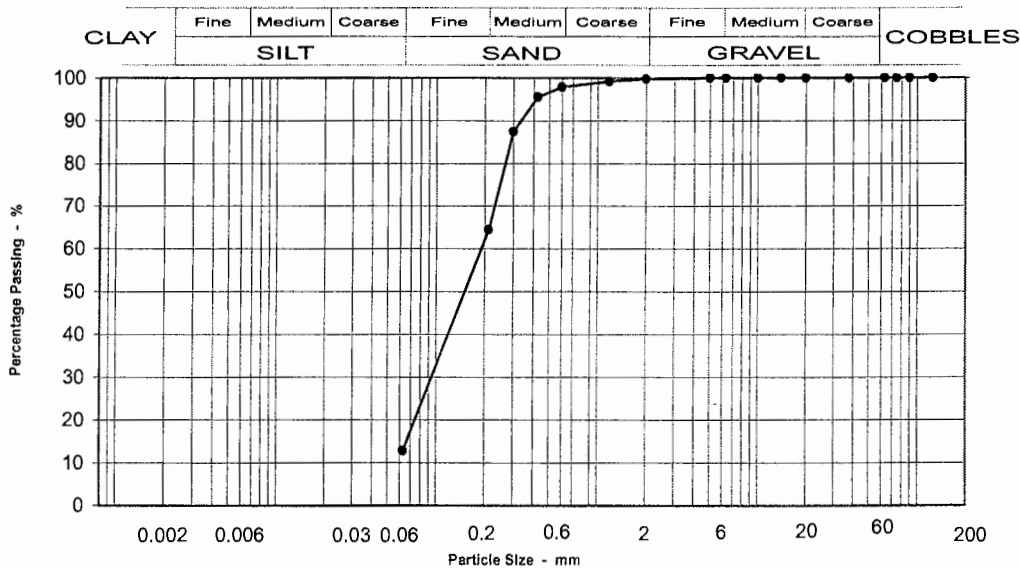




Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 102 25 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1B Suitable
90	100	
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	99	
0.600	98	
0.425	96	
0.300	87	
0.212	64	
0.063	13	

Moisture content % 21

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	2
Coarse SAND	0
Medium SAND	33
Fine SAND	52
Silt & Clay	13

Grading Analysis	
D100	2
D60	0.20
D10	0.034
Uniformity Coefficient	6

Description
Very dense grey slightly silty fine and medium SAND. Occasional crushed shells

Test Code = 610



D N Houseago (Lead Technician)



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Martineau Lane
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NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 100309
Your Sample Ref D31
Your Project or Order No
P&T Project No.
Date Report Issued 25-Oct-07

FAO I Brown

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DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH 102	Depth	28 - m
Date sampled		Date received	09-Oct-07
Date tested	02-Oct-07		
Sample type	Small disturbed sample	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material			
Description	Very soft grey thinly laminated CLAY. Bands of soft grey fine clayey SAND		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
METHOD OF DIVISION	Not applicable		
PREPARATION METHOD	PREPARATION DETAILS		
RETAINED 425µm (%)	0		
NATURAL MC (%)	39		OVEN DRIED @ 105°C
LIQUID LIMIT (%)	38		
PLASTIC LIMIT (%)	23		
PLASTICITY INDEX (%)	15		
MODIFIED PI *(%)	15		*BRE Digest 240 : 1993
SOIL CLASSIFICATION	C I		

REMARKS

Test Code = 604



David Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No
Your Sample Ref D29
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

Page 1 of 1

DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 102	Depth	32.45 - m
Date sampled		Date received	29-Sep-07
Sample type	D	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Very soft grey thinly laminated CLAY. Bands of soft grey fine clayey SAND		
Supplier	Source		
Conveyance note No.			

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Riffled
	Oven dried @ 105 -110°C

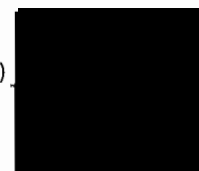
NATURAL MC (%) 21

REMARKS

Test Code = 602



K Lawes (Lead Technician)

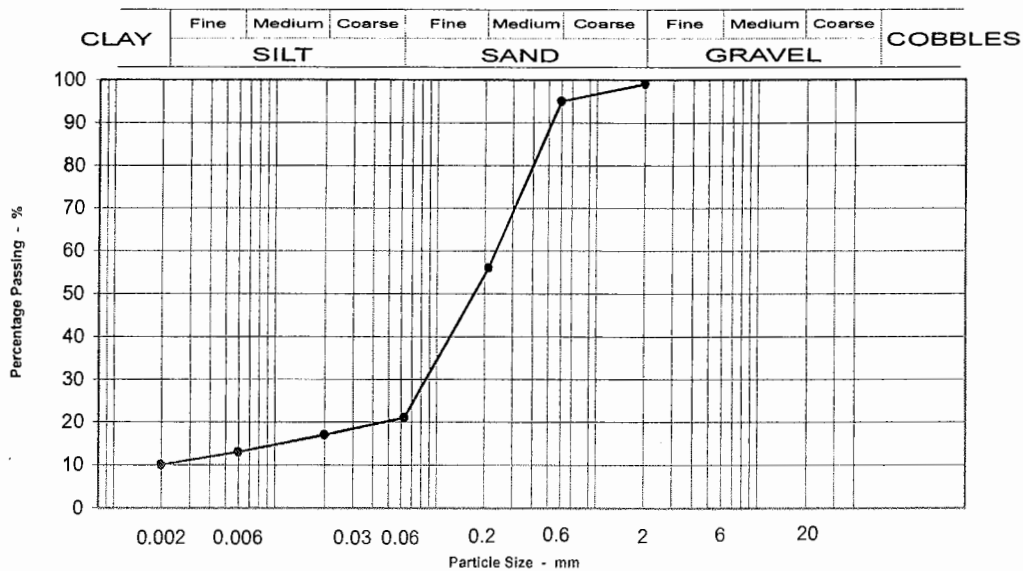


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Our Project No PTPZ0008
Our Report and sample No 100314
Your Sample Ref D31.0
Your Project or Order No
P&T Project No.
Date Report Issued 12 October 2007

**Particle Size Distribution to BS 1377 : Part2 : 1990
Sedimentation Method Section 9.4**

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 102 28 - m**



Sieving	
Particle Size mm	% Passing
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	99
0.6	95
0.212	56
0.063	21
0.02	17
0.006	13
0.002	10

Moisture content % 21

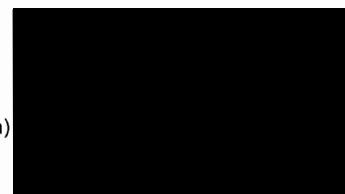
Sample Proportions	
GRAVEL	1
Coarse SAND	4
Medium SAND	39
Fine SAND	35
Coarse SILT	4
FINE SILT	3
CLAY	10

Description
Very soft grey thinly laminated CLAY. Bands of soft grey fine clayey SAND

Test Code = 612



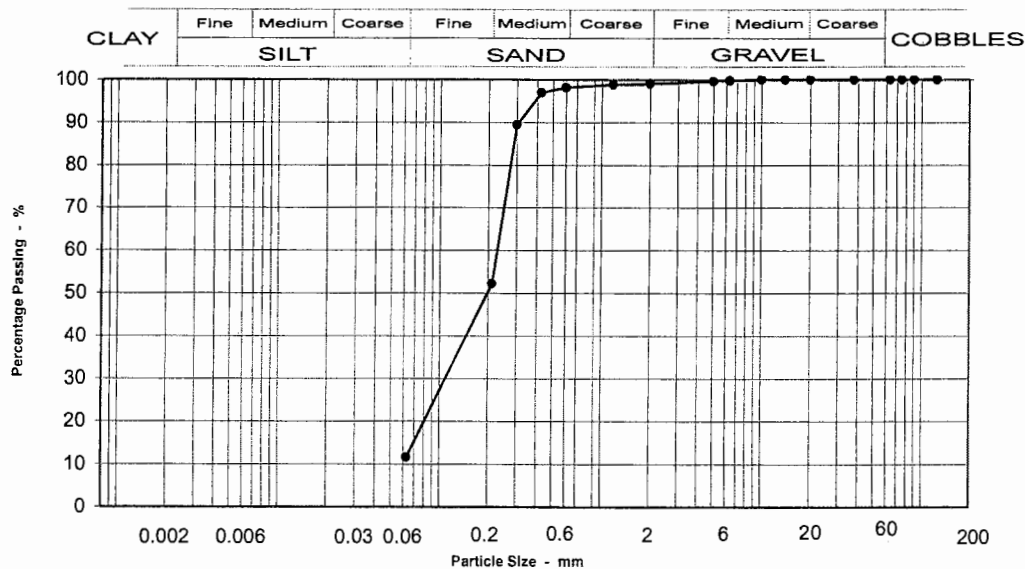
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 102 34 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	
75	100	1B Suitable
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	99	6E/6R Suitable
1.18	99	
0.600	98	
0.425	97	
0.300	89	
0.212	52	
0.063	12	

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	1
Coarse SAND	1
Medium SAND	46
Fine SAND	41
Silt & Clay	12

Grading Analysis	
D100	6
D60	0.23
D10	0.041
Uniformity Coefficient	6

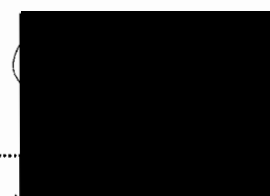
Description	
Very dense grey slightly silty fine and medium SAND. Occasional shell fragments	

Moisture content % 24

Test Code = 610



D N Houseago (Lead Technician)



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Your Project or Order No
P&T Project No.
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Page 1 of 1

DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 103	Depth	1.2 - 1.2m
Date sampled	7-Aug-07	Date received	22-Aug-07
Sample type	D	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Soft dark grey CLAY.		
Supplier			Source
Conveyance note No.			

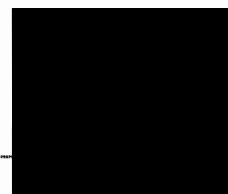
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Riffled
	Oven dried @ 105 -110°C
NATURAL MC (%)	34

REMARKS

Test Code = 602



D N Houseago (Lead Technician)





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Our Report and sample No 99323
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P&T Project No.
Date Report Issued 24-Oct-07

FAO I Brown

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

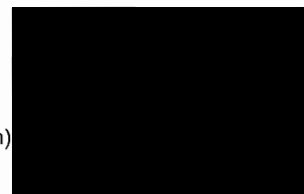
Scheme	Great Yarmouth Third River Crossing		
Location	BH 103	Depth	1.7 m
Date sampled	07-Aug-07	Date received	20-Aug-07
Date tested	21-Aug-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Grey fine sandy SILT.		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
	Not applicable
	PREPARATION DETAILS
METHOD OF DIVISION	Ridffled
PREPARATION METHOD	Oven dried @ 105 -110°C
PASSING 2mm BS TEST SIEVE (%)	100
ORGANIC MATTER (%)	3

Test Code:620



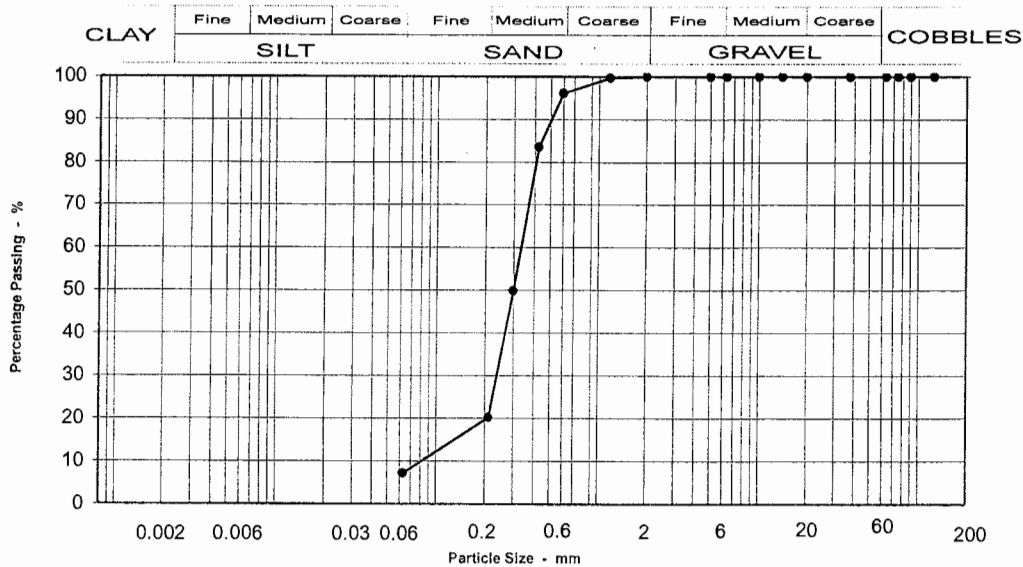
David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 103 4.2 - 4.2m**



Seiving Particle Size (mm)	% Passing	Specification for Highway Works Classification
125	100	1B Suitable
90	100	
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	100	
0.6	96	6M Suitable
0.425	84	
0.3	50	
0.212	20	
0.063	7	
Moisture content %		22

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	4
Coarse SAND	0
Medium SAND	76
Fine Sand	13
Silt & Clay	7

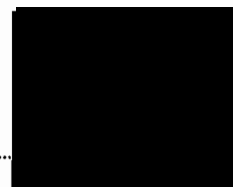
Grading Analysis	
D100	1
D60	0.3
D10	0.10
Uniformity Coefficient	4

Description	
Grey brown sltly silty medium SAND	

Test Code = 610



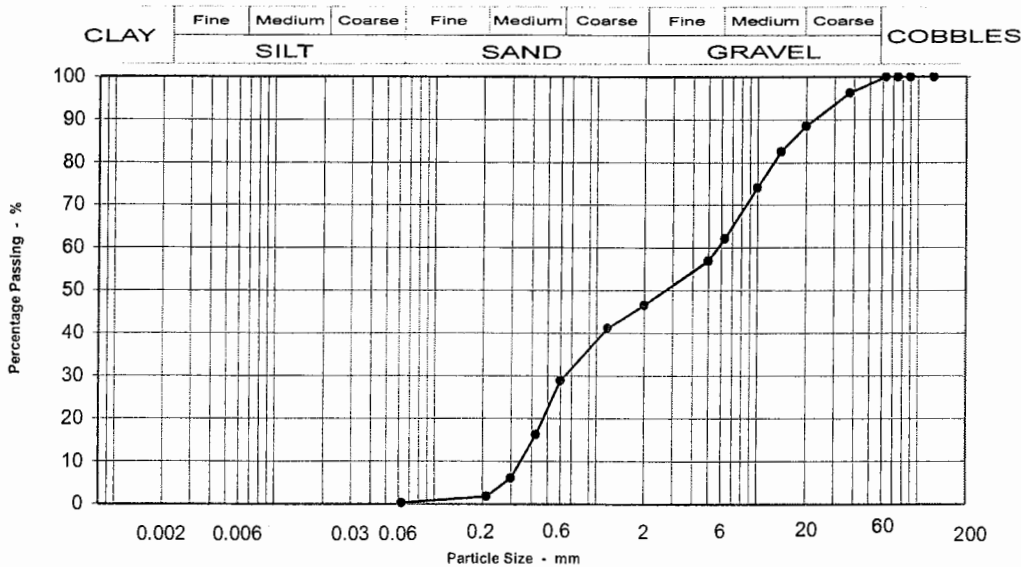
R J Noakes (Group Manager)
M L Bumstead (Section Engineer)
I D Brown (Section Engineer)
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 103 10 - 10m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1A Suitable
90	100	
75	100	
63	100	
37.5	96	
20	89	
14	83	6A Suitable
10	74	
6.3	62	
5	57	
2	47	6E/6R Suitable
1.18	41	6F1 Suitable
0.6	29	
0.425	16	
0.3	6	6I Suitable
0.212	2	
0.063	0	
		6M Suitable
		6N/6P Suitable
		Moisture content % 8

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	12
Medium GRAVEL	26
Fine GRAVEL	18
Coarse SAND	16
Medium SAND	27
Fine Sand	2
Silt & Clay	0

Grading Analysis	
D100	38
D60	5.8
D10	0.35
Uniformity Coefficient	17

Description
Grey SAND and GRAVEL

Test Code = 610



R J Noakes (Group Manager)
M L Bumstead (Section Engineer)
I D Brown (Section Engineer)
D N Houseago (Lead Technician)



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Our Report and sample No 96924
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Your Project or Order No
P&T Project No.
Date Report Issued 25-Oct-07

FAO I Brown

Page 1 of 1

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH 103	Depth	15 - 15m
Date sampled	07-Aug-07	Date received	09-Oct-07
Date tested	08-Oct-07		
Sample type	Small disturbed sample	Sample Mass	

Sampled by RW who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.

Material			
Description	Soft grey CLAY with occasional gravel.		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

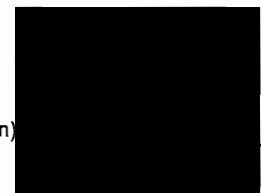
LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	0		
NATURAL MC (%)	33	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	48		
PLASTIC LIMIT (%)	20		
PLASTICITY INDEX (%)	28		
MODIFIED PI *(%)	28	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	C I		

REMARKS

Test Code = 604



David Houseago (Lead Technician)

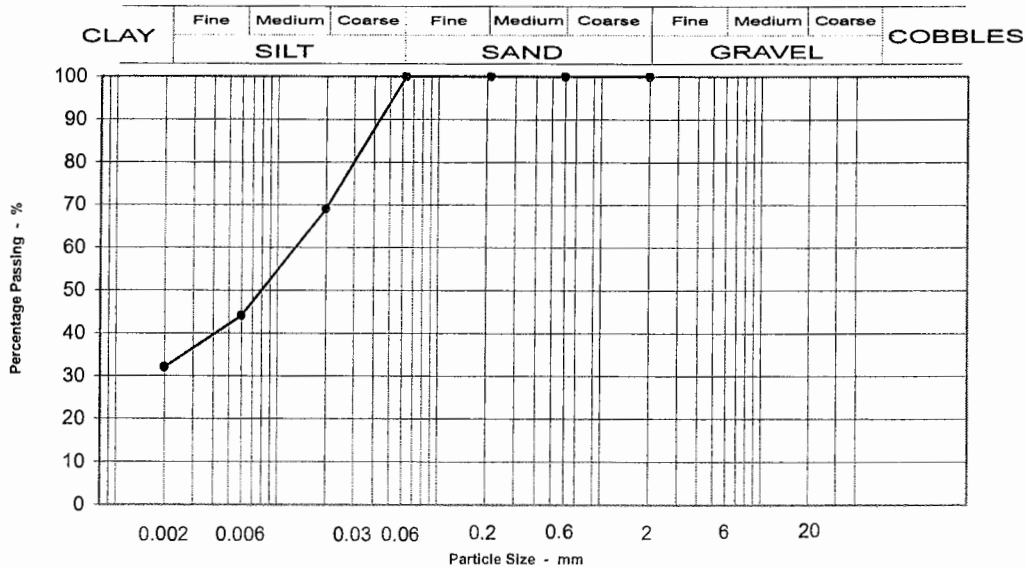


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Date Report Issued 12 October 2007

**Particle Size Distribution to BS 1377 : Part2 : 1990
Sedimentation Method Section 9.4**

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 103 15 - 15m**



Seiving	
Particle Size mm	% Passing
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
0.6	100
0.212	100
0.063	100
0.02	69
0.006	44
0.002	32

Moisture content % 35

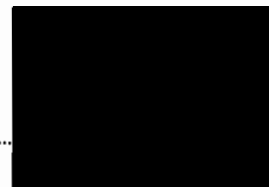
Sample Proportions	
GRAVEL	0
Coarse SAND	0
Medium SAND	0
Fine SAND	0
Coarse SILT	25
FINE SILT	12
CLAY	32

Description
Soft grey CLAY with occasional gravel.

Test Code = 612



D N Houseago (Lead Technician)



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Our Report and sample No
Your Sample Ref B38
Your Project or Order No
P&T Project No.
Date Report Issued 25-Oct-07

Page 1 of 1

DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 103	Depth	13 - 13m
Date sampled	7-Aug-07	Date received	22-Aug-07
Sample type	B	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Greenish grey soft to firm SILT with lenses of firm grey clay.		
Supplier	Source		
Conveyance note No.			

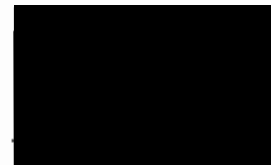
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Riffled
	Oven dried @ 105 -110°C
NATURAL MC (%)	30

REMARKS

Test Code = 602



D N Houseago (Lead Technician)



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Your Project or Order No
P&T Project No.
Date Report Issued 25-Oct-07

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DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 103	Depth	13.5 - 13.5m
Date sampled	7-Aug-07	Date received	22-Aug-07
Sample type	D	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Grey green brown sandy CLAY.		
Supplier	Source		
Conveyance note No.			

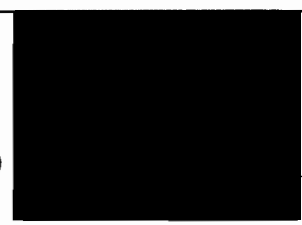
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Riffled
	Oven dried @ 105 -110°C
NATURAL MC (%)	24

REMARKS

Test Code = 602



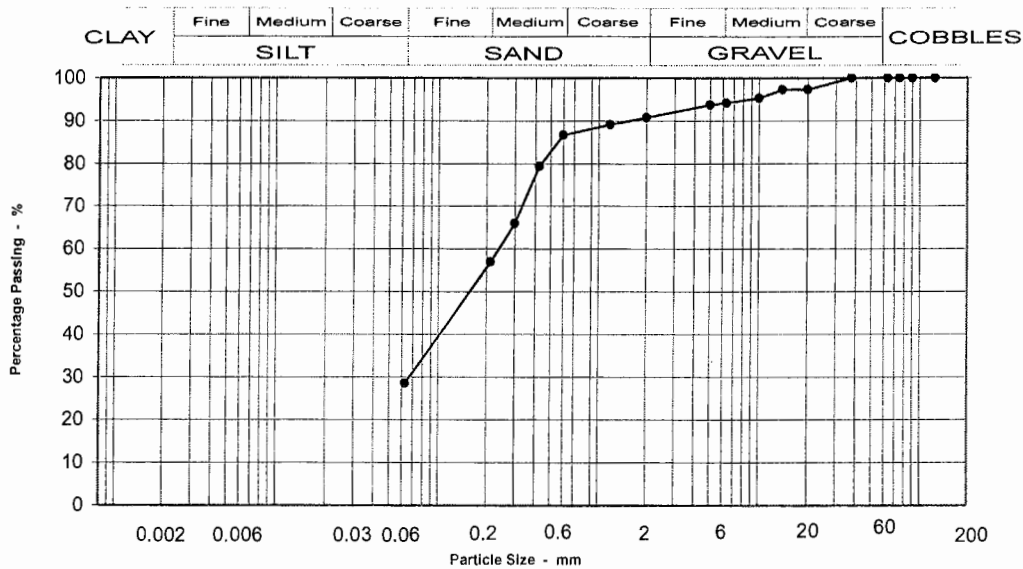
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 103 18 - 18m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	97
14	97
10	95
6.3	94
5	94
2	91
1.18	89
0.6	87
0.425	79
0.3	66
0.212	57
0.063	29

Specification for Highway Works Classification
2A/2B Suitable

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	3
Medium GRAVEL	3
Fine GRAVEL	4
Coarse SAND	4
Medium SAND	30
Fine Sand	28
Silt & Clay	29

Grading Analysis	
D100	20
D60	0.2
D10	0.00
Uniformity Coefficient	>10

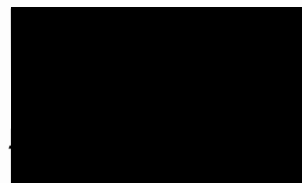
Description
Grey silty fine and medium SAND

Moisture content % 148

Test Code = 610

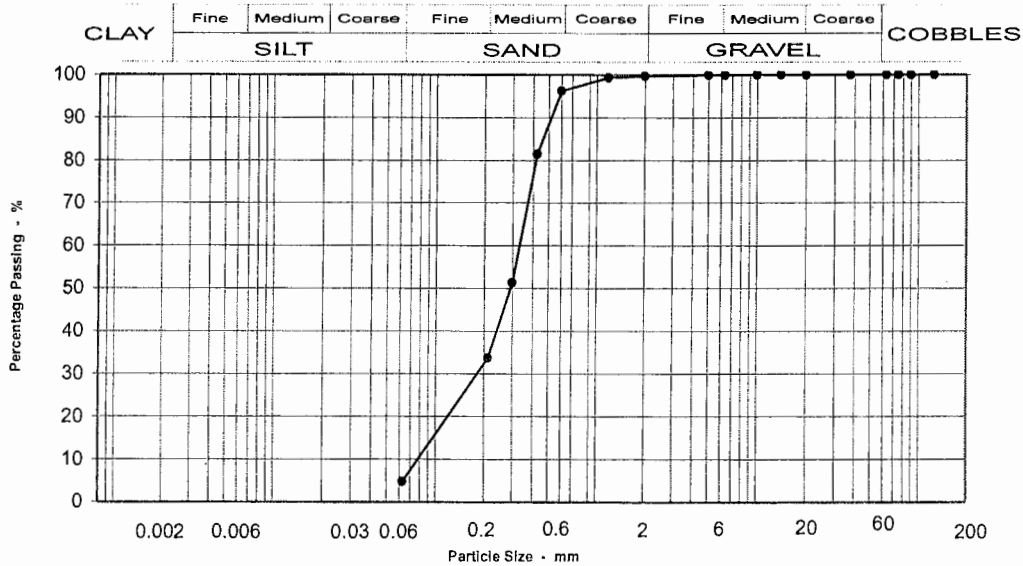


R J Noakes (Group Manager)
M L Bumstead (Section Engineer)
I D Brown (Section Engineer)
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 103 21.5 - 21.5m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1B Suitable
90	100	
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	99	
0.6	96	
0.425	81	6M Suitable
0.3	51	
0.212	34	
0.063	5	
Moisture content %		19

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	4
Coarse SAND	0
Medium SAND	63
Fine Sand	29
Silt & Clay	5

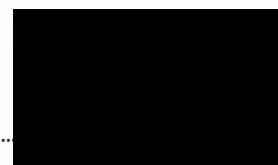
Grading Analysis	
D100	6
D60	0.3
D10	0.09
Uniformity Coefficient	4

Description	
Grey silty fine and medium SAND	

Test Code = 610



R J Noakes (Group Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer) ✓
 D N Houseago (Lead Technician)



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Our Report and sample No 99321
Your Sample Ref D57
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

Page 1 of 1

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH 103	Depth	28 - 28m
Date sampled	07-Aug-07	Date received	20-Sep-07
Date tested	24-Aug-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Stiff grey sandy CLAY with occasional fine shell fragments.		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

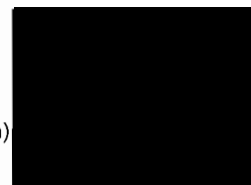
LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	7		
NATURAL MC (%)	26	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	33		
PLASTIC LIMIT (%)	15		
PLASTICITY INDEX (%)	18		
MODIFIED PI *(%)	17	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	CL		

REMARKS

Test Code = 604



David Houseago (Lead Technician)

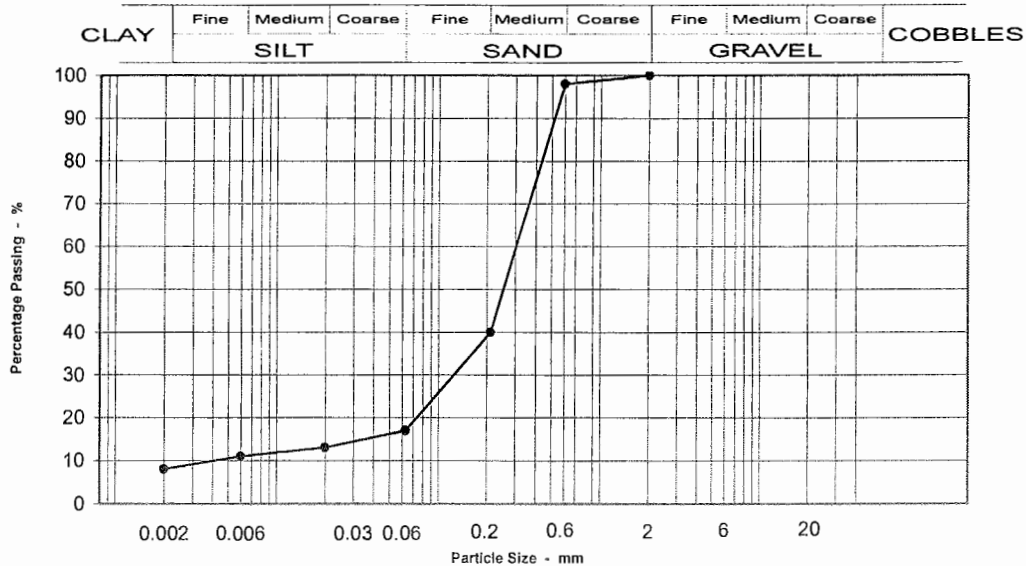


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Our Report and sample No
Your Sample Ref D60
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P&T Project No.
Date Report Issued 12 October 2007

**Particle Size Distribution to BS 1377 : Part2 : 1990
Sedimentation Method Section 9.4**

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 103 31.5 - 31.5m**



Seiving	
Particle Size	% Passing
mm	
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
0.6	98
0.212	40
0.063	17
0.02	13
0.006	11
0.002	8

Moisture content % 7

Sample Proportions	
GRAVEL	0
Coarse SAND	2
Medium SAND	58
Fine SAND	23
Coarse SILT	2
FINE SILT	3
CLAY	8

Description
Stiff grey sandy CLAY with occasional fine shell fragments.

Test Code = 612



D N Houseago (Lead Technician)



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Our Report and sample No
Your Sample Ref D63
Your Project or Order No
P&T Project No.
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Page 1 of 1

DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 103	Depth	34.5 - 34.5m
Date sampled	7-Aug-07	Date received	22-Aug-07
Sample type	D	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Stiff grey sandy CLAY with occasional fine shell fragments.		
Supplier	Source		
Conveyance note No.			

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Riffled
	Oven dried @ 105 -110°C
NATURAL MC (%)	27

REMARKS

Test Code = 602



D N Houseago (Lead Technician)





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Our Report and sample No 100290
Your Sample Ref B3
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	BH 104	Depth	0.7 m
Date sampled		Date received	24-Sep-07
Sample type	B	Sample Mass	

Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.

Material	Bulk Disturbed
Description	Mottled greyish brown, grey and orangey brown sandy gravelly soft CLAY. Gravel is fine, medium and coarse angular to rounded flint and brick. Some black organic pockets. Slight hydrocarbon odour from 0.7 to 1.0 metre

Supplier	Source
Conveyance note No.	

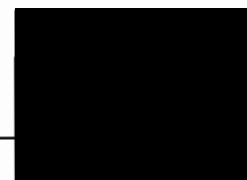
LOCATION	TEST SPECIMEN				
ORIENTATION	NOT APPLICABLE				
	NOT APPLICABLE				
	PREPARATION DETAILS				
METHOD OF DIVISION	QUARTERING				
PREPARATION METHOD	7.2.4.4 Rammer Compaction with specified effort				
RETAINED 37.5mm	%	0			
RETAINED 20mm	%	3			
NO OF LAYERS		3	CBR VALUE TOP	%	1.1
BLOWS PER LAYER		62 Blows	CBR VALUE BOTTOM	%	1.7
METHOD		2.5kg	AVERAGE CBR VALUE	%	1.4
CONDITION		UNSOAKED			
BULK DENSITY	Mg/m ³	1.992	MOISTURE CONT. TOP	%	22
DRY DENSITY	Mg/m ³	1.617	MOISTURE CONT. BOT	%	25
INITIAL MOISTURE CONT.	%	23	MOISTURE CONT. METHOD	Oven dried @ 105 -110°C	

REMARKS

Test Code = 642



David Houseago (Lead Technician)

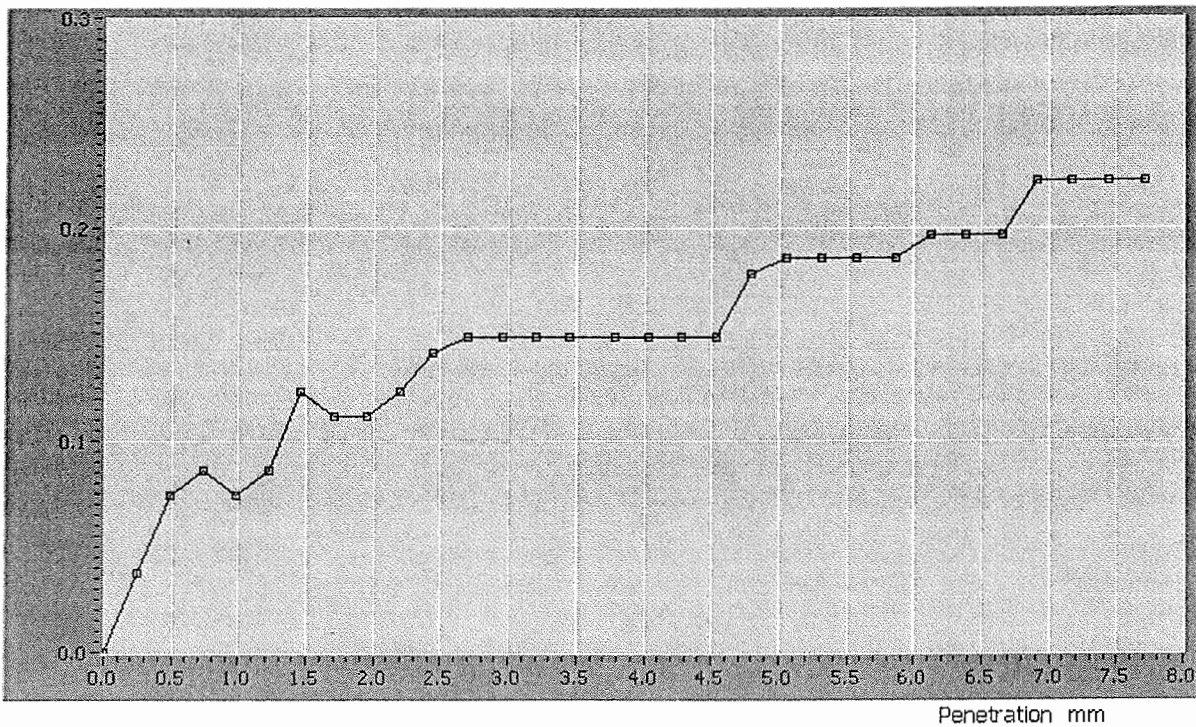


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	BH104 - B3	Sample	0000100290

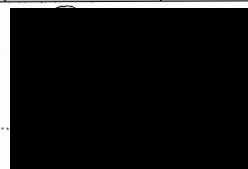
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	0.14	0.18	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	1.08	0.92	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)

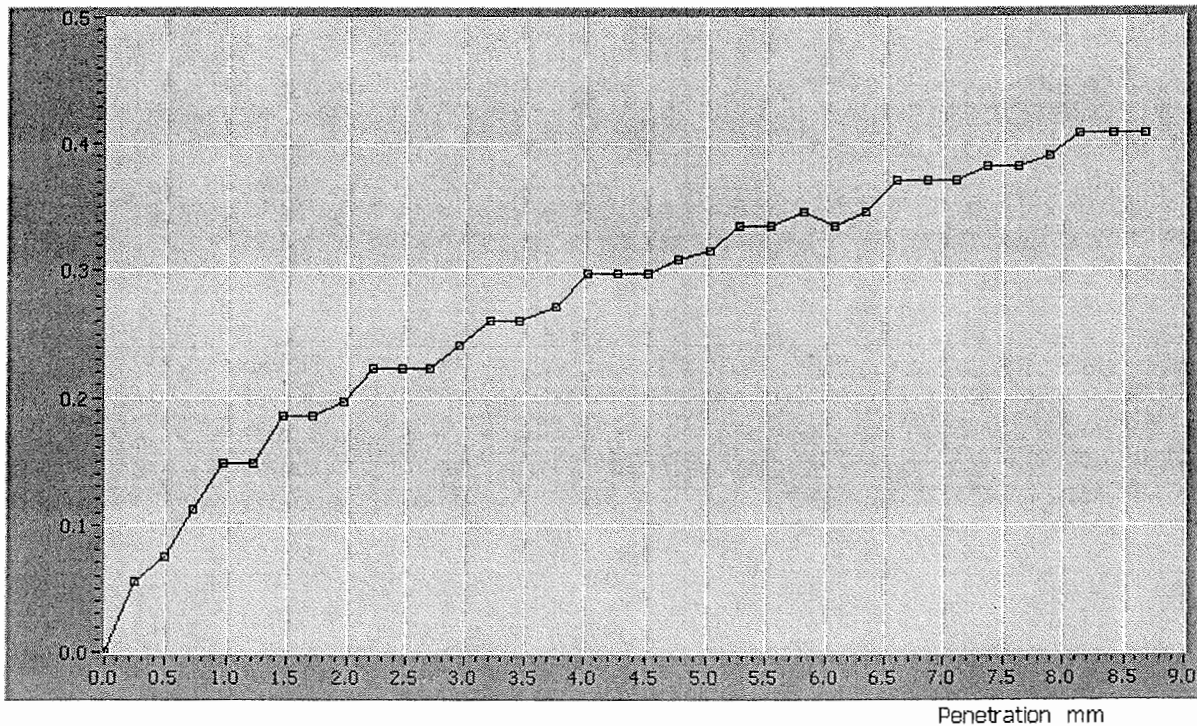


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	BH104 - B3	Sample	0000100290

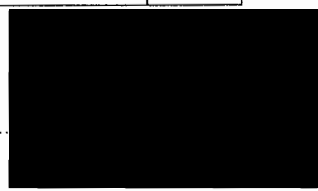
Penetration Stage (side 2)

Load kN



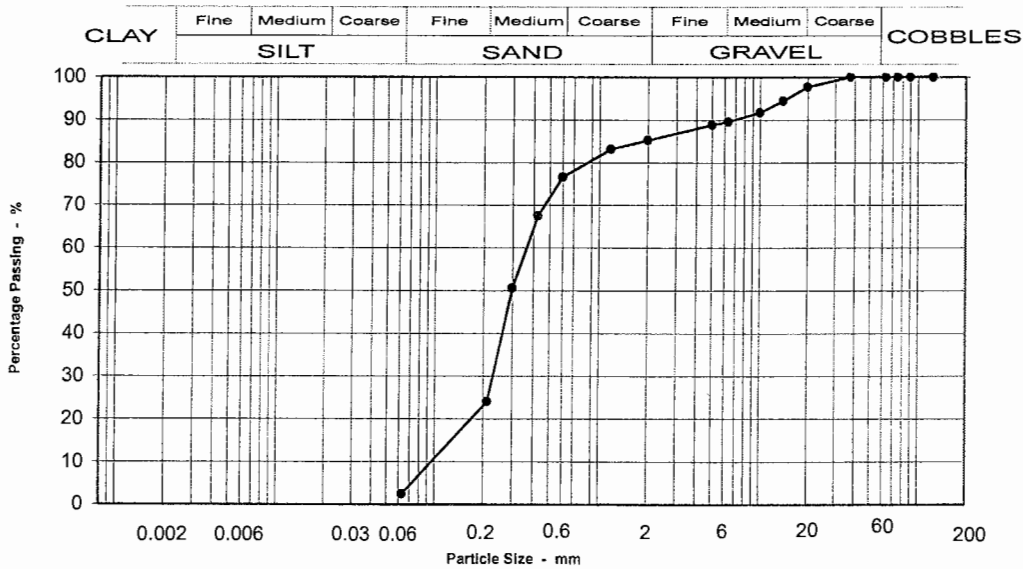
Results - Bottom			
Penetration	2.50	5.00	mm
Load	0.22	0.32	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	1.69	1.58	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician) ...



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 104 3 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	98
14	94
10	92
6.3	90
5	89
2	85
1.18	83
0.600	77
0.425	67
0.300	51
0.212	24
0.063	2

Specification for Highway Works Classification

1B Suitable

6E/6R Suitable

6M Suitable

Moisture content % 17

Sample Proportions

BOULDERS	0
COBBLES	0
Coarse GRAVEL	2
Medium GRAVEL	8
Fine GRAVEL	9
Coarse SAND	4
Medium SAND	53
Fine SAND	22
Silt & Clay	2

Grading Analysis

D100	20
D60	0.37
D10	0.115
Uniformity Coefficient	3

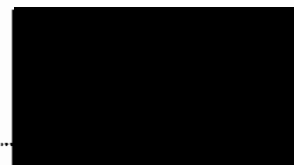
Description

Loose to medium dense brown silty fine, medium and coarse SAND

Test Code = 610



D N Houseago (Lead Technician)



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Norwich
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Our Project No PTPZ0008
Our Report and sample No 100301
Your Sample Ref B9
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

Page 1 of 1

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH 104	Depth	5.5 - m
Date sampled		Date received	24-Sep-07
Date tested	02-Oct-07		
Sample type	B	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Bulk Disturbed		
Description	Greyish brown and light grey very sandy thinly layered CLAY		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	4		
NATURAL MC (%)	24	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	35		
PLASTIC LIMIT (%)	17		
PLASTICITY INDEX (%)	18		
MODIFIED PI *(%)	17	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	CL		

REMARKS

Test Code = 604



David Houseago (Lead Technician)



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Our Report and sample No 100302
Your Sample Ref B9
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

Scheme	Great Yarmouth Third River Crossing		
Location	BH 104	Depth	5.5 m
Date sampled		Date received	24-Sep-07
Date tested	05-Oct-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Greyish brown and light grey very sandy thinly laminated CLAY		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

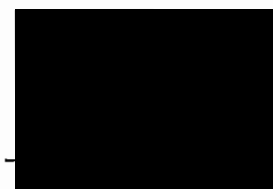
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
	Not applicable
	PREPARATION DETAILS
METHOD OF DIVISION	Ridffled
PREPARATION METHOD	Oven dried @ 105 -110°C

PASSING 2mm BS TEST SIEVE (%)	98
ORGANIC MATTER (%)	0

Test Code:620



David Houseago (Lead Technician)



working with



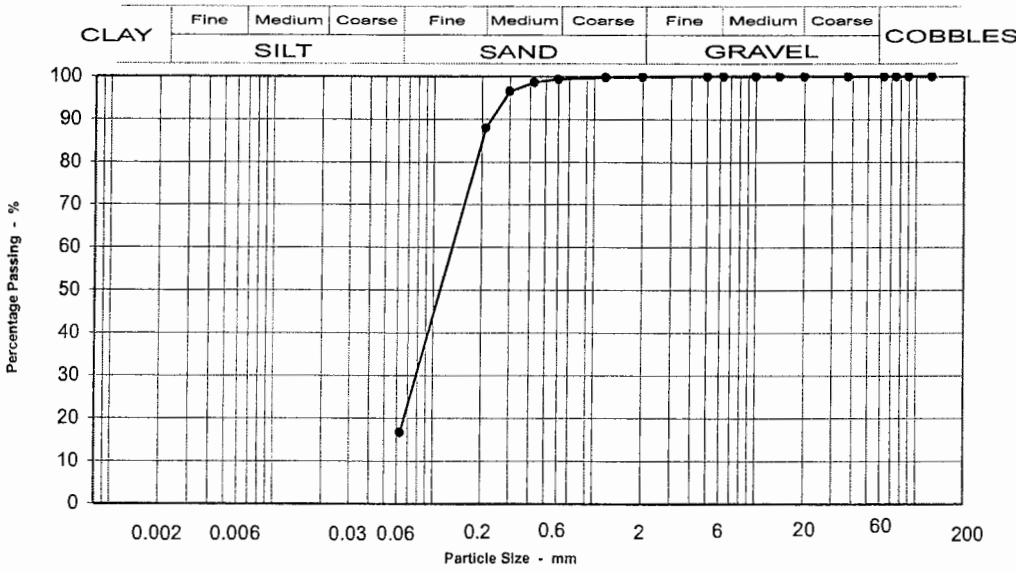
Norfolk Partnership Laboratory
 County Hall, Martineau Lane
 NORWICH, Norfolk NR1 2SG
 Tel: 01603 222416
 Fax: 01603 222457

Planning & Transportation
 County Hall
 Martineau Lane
 Norwich
 NR1 2SG

Email: civil.laboratory@norfolk.gov.uk
 Our Project No PTPZ0008
 Our Report and sample No 100353
 Your Sample Ref B16
 Your Project or Order No
 P&T Project No.
 Date Report Issued 12 October 2007

Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 104 15 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
1.18	100
0.600	99
0.425	99
0.300	97
0.212	88
0.063	17

Specification for Highway Works Classification
2A/2B Suitable

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	1
Coarse SAND	0
Medium SAND	11
Fine SAND	71
Silt & Clay	17

Grading Analysis	
D100	2
D60	0.15
D10	0.025
Uniformity Coefficient	6

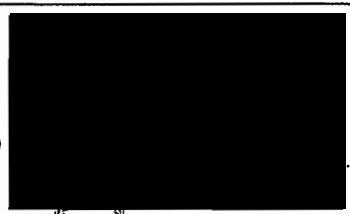
Description
 Dense to very dense orangey brown silty fine to medium SAND

Moisture content % 32

Test Code = 610

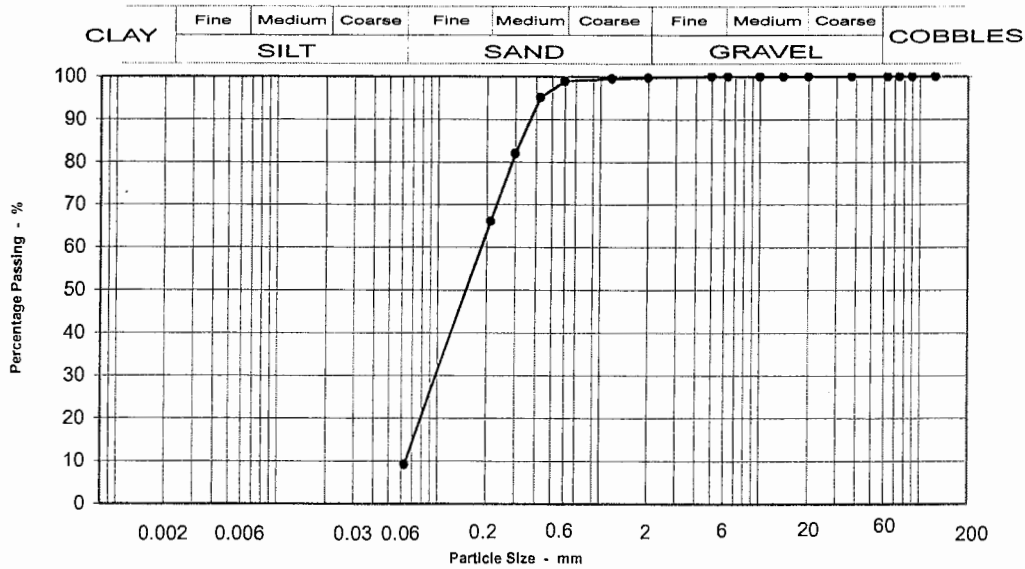


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 104 25.5 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	1B Suitable
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	100	
0.600	99	
0.425	95	
0.300	82	
0.212	66	
0.063	9	6M Suitable
Moisture content %		23

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	1
Coarse SAND	0
Medium SAND	33
Fine SAND	57
Silt & Clay	9

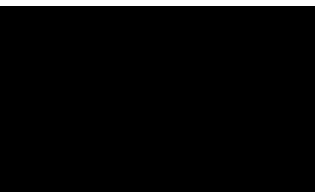
Grading Analysis	
D100	2
D60	0.20
D10	0.065
Uniformity Coefficient	3

Description	
Dense to very dense grey silty fine, medium and coarse SAND with thin clayey silty lenses	

Test Code = 610



D N Houseago (Lead Technician)





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County Hall

Martineau Lane

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NR1 2SG

FAO I Brown

Our Project No PTPZ0008

Our Report and sample No 99791

Your Sample Ref D4

Your Project or Order No

P&T Project No.

Date Report Issued 10-Oct-07

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

Scheme	Great Yarmouth Third River Crossing		
Location	BH105	Depth	0.95 m
Date sampled		Date received	10-Sep-07
Date tested	10-Sep-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Brown and black sandy SILT with some organic material		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

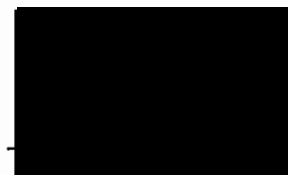
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Ridffled
	Oven dried @ 105 -110°C

PASSING 2mm BS TEST SIEVE (%)	99
ORGANIC MATTER (%)	3

Test Code:620



David Houseago (Lead Technician)



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FAO I Brown

Our Project No PTPZ0008
Our Report and sample No 99806
Your Sample Ref D6
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

Page 1 of 1

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH105	Depth	1.5 - 1.95m
Date sampled		Date received	20-Sep-07
Date tested	12-Sep-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Mottled grey and greyish brown sandy clayey SILT		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

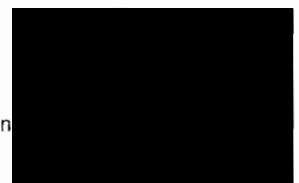
LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	0		
NATURAL MC (%)	29	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	30		
PLASTIC LIMIT (%)	18		
PLASTICITY INDEX (%)	12		
MODIFIED PI *(%)	12	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	CL		

REMARKS

Test Code = 604



David Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 99805
Your Sample Ref D9
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

Page 1 of 1

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH105	Depth	2.5 - m
Date sampled		Date received	20-Sep-07
Date tested	11-Sep-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Very soft brown and brownish grey very sandy, clayey SILT		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

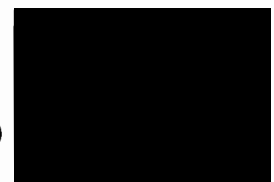
LOCATION	TEST SPECIMEN	
ORIENTATION	Not applicable	
	PREPARATION DETAILS	
METHOD OF DIVISION	Whole	
PREPARATION METHOD	Hand picking	
RETAINED 425µm (%)	0	
NATURAL MC (%)	28	OVEN DRIED @ 105°C
LIQUID LIMIT (%)	25	
PLASTIC LIMIT (%)	12	
PLASTICITY INDEX (%)	13	
MODIFIED PI *(%)	13	*BRE Digest 240 : 1993
SOIL CLASSIFICATION	CL	

REMARKS

Test Code = 604



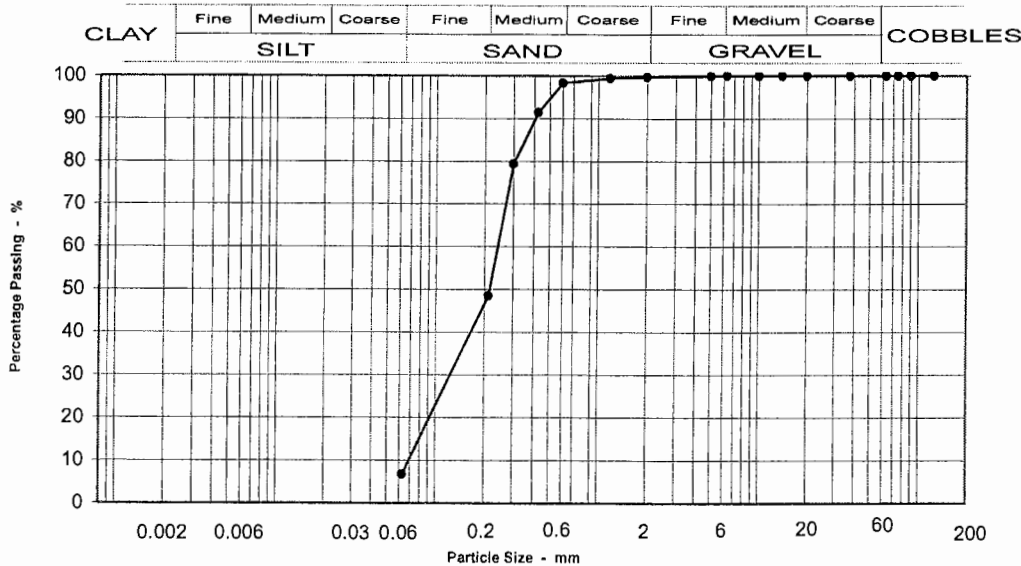
David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: Great Yarmouth Third River Crossing

Location: BH105 27.5 - m



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
1.18	99
0.600	98
0.425	91
0.300	79
0.212	48
0.063	7

Specification for Highway Works Classification

1B Suitable

6E/6R Suitable

6M Suitable

Moisture content % 17

Sample Proportions

BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	1
Coarse SAND	0
Medium SAND	50
Fine SAND	42
Silt & Clay	7

Grading Analysis

D100	5
D60	0.25
D10	0.075
Uniformity Coefficient	3

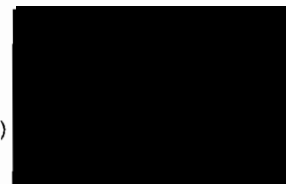
Description

Grey fine and medium SAND

Test Code = 610



D N Houseago (Lead Technician)



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County Hall
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Norwich
NR1 2SG
FAO I Brown

Our Project No PTPZ0008
Our Report and sample No 99804
Your Sample Ref D56
Your Project or Order No
P&T Project No.
Date Report Issued 09-Oct-07

Page 1 of 1

**DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY
INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5**

Scheme	Great Yarmouth Third River Crossing		
Location	BH105	Depth	29.2 - m
Date sampled		Date received	20-Sep-07
Date tested	11-Sep-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Soft to firm grey silty CLAY		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN	
ORIENTATION	Not applicable	
METHOD OF DIVISION	PREPARATION DETAILS	
PREPARATION METHOD	Whole	
RETAINED 425µm (%)	Hand picking	
NATURAL MC (%)	34	OVEN DRIED @ 105°C
LIQUID LIMIT (%)	42	
PLASTIC LIMIT (%)	19	
PLASTICITY INDEX (%)	23	
MODIFIED PI *(%)	23	*BRE Digest 240 : 1993
SOIL CLASSIFICATION	C I	

REMARKS

Test Code = 604



David Houseago (Lead Technician)

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Our Project No PTPZ0008
Our Report and sample No 99803
Your Sample Ref D58
Your Project or Order No
P&T Project No.
Date Report Issued 09-Oct-07

Page 1 of 1

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH105	Depth	31 - m
Date sampled		Date received	20-Sep-07
Date tested	12-Sep-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material Description	Small disturbed sample Soft grey sandy silty CLAY		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

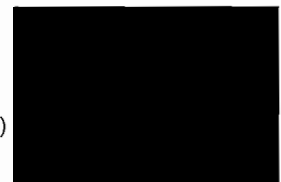
LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
METHOD OF DIVISION	PREPARATION DETAILS		
PREPARATION METHOD	Whole		
RETAINED 425µm (%)	Hand picking		
NATURAL MC (%)	0	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	19		
PLASTIC LIMIT (%)	29		
PLASTICITY INDEX (%)	13		
MODIFIED PI *(%)	16	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	16	CL	

REMARKS

Test Code = 604

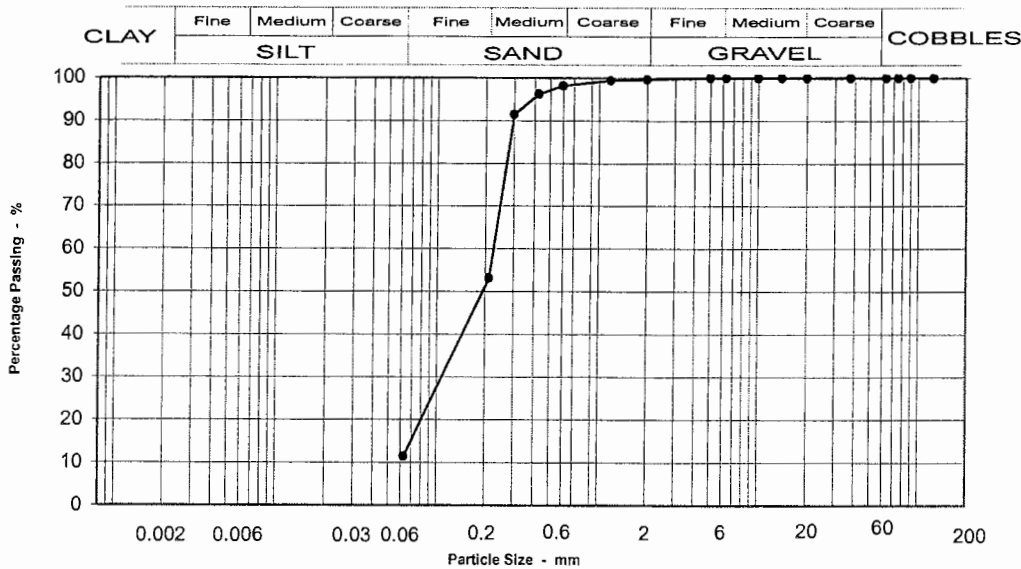


David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH105 33.3 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	
75	100	1B Suitable
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	99	
0.600	98	
0.425	96	
0.300	91	
0.212	53	
0.063	11	

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	2
Coarse SAND	0
Medium SAND	45
Fine SAND	42
Silt & Clay	11

Grading Analysis	
D100	2
D60	0.23
D10	0.041
Uniformity Coefficient	6

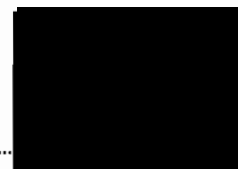
Description	
Grey fine and medium SAND with some shell fragments	

Moisture content % 26

Test Code = 610



D N Houseago (Lead Technician)





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County Hall
Martineau Lane
Norwich
NR1 2SG
FAO I Brown

Our Project No PTPZ0008
Our Report and sample No 99792
Your Sample Ref D3
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 : Part 3 : SECTION 3.1

Scheme	Great Yarmouth Third River Crossing		
Location	BH106	Depth	1 m
Date sampled		Date received	10-Sep-07
Date tested	10-Sep-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Brown fine, medium and coarse SAND. Lenses of dark brown and black organic silt		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

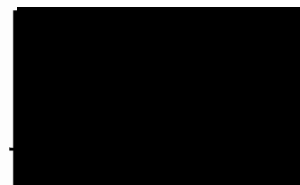
TEST SPECIMEN	
LOCATION	Not applicable
ORIENTATION	Not applicable
PREPARATION DETAILS	
METHOD OF DIVISION	Ridffled
PREPARATION METHOD	Oven dried @ 105 -110°C

PASSING 2mm BS TEST SIEVE (%)	98
ORGANIC MATTER (%)	2

Test Code:620



David Houseago (Lead Technician)



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Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 99885
Your Sample Ref 3
Your Project or Order No
P&T Project No.
Date Report Issued 25-Oct-07

FAO I Brown

Page 1 of 1

**DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP
TO BS 1377 : PART 4 : 1990 : SECTION 3**

Scheme Great Yarmouth Third River Crossing

Location BH106

Depth 2

Date received 25-Oct-07

Date tested

Sample type B

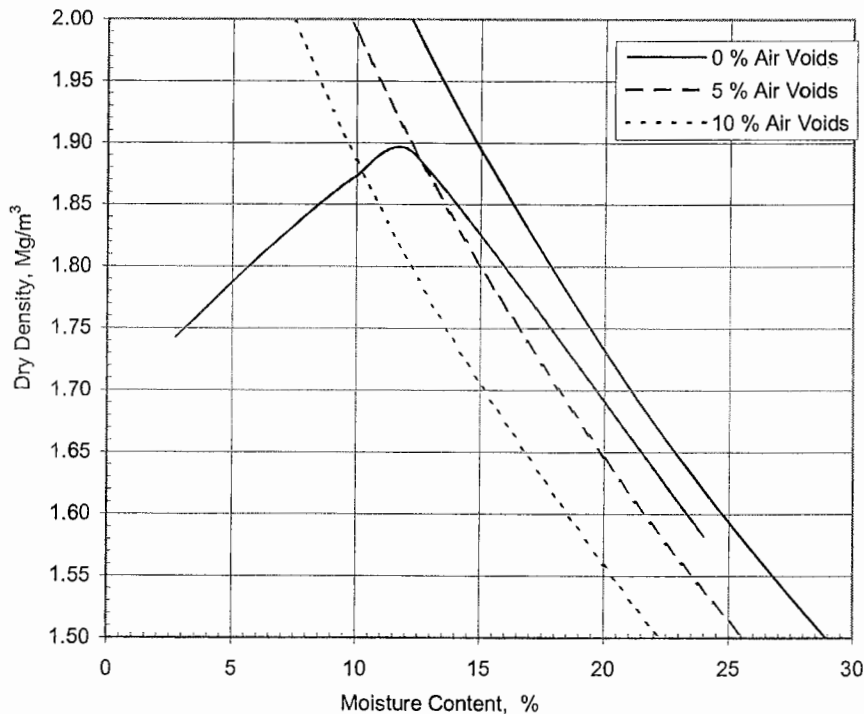
Sample Mass

Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.

Description Brown fine, medium and coarse SAND

Supplier

Source



Method of division	Quartering	Retained on 37.5 mm Sieve	%	0
Preparation	3.7	Retained on 20.0 mm Sieve	%	7
Test Method	Vib. Hammer	Particle Density		2.65
Mould Type	CBR	Maximum Dry Density	Mg/m ³	1.89
Samples Used	Separate	Optimum Moisture Content	%	12

Test Code = 640

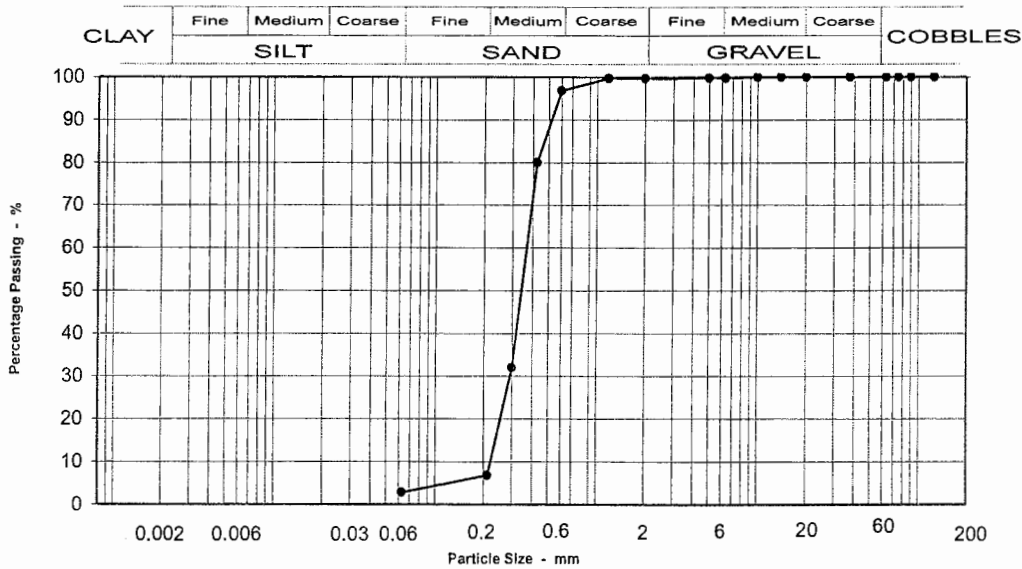


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH106 3 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
1.18	100
0.600	97
0.425	80
0.300	32
0.212	7
0.063	3

Specification for Highway Works Classification

1B	Suitable
6E/6R	Suitable
6M	Suitable

Moisture content % 18

Sample Proportions

BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	3
Coarse SAND	0
Medium SAND	90
Fine SAND	4
Silt & Clay	3

Grading Analysis

D100	6
D60	0.37
D10	0.223
Uniformity Coefficient	2

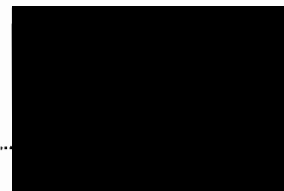
Description

Brown fine, medium and coarse SAND

Test Code = 610

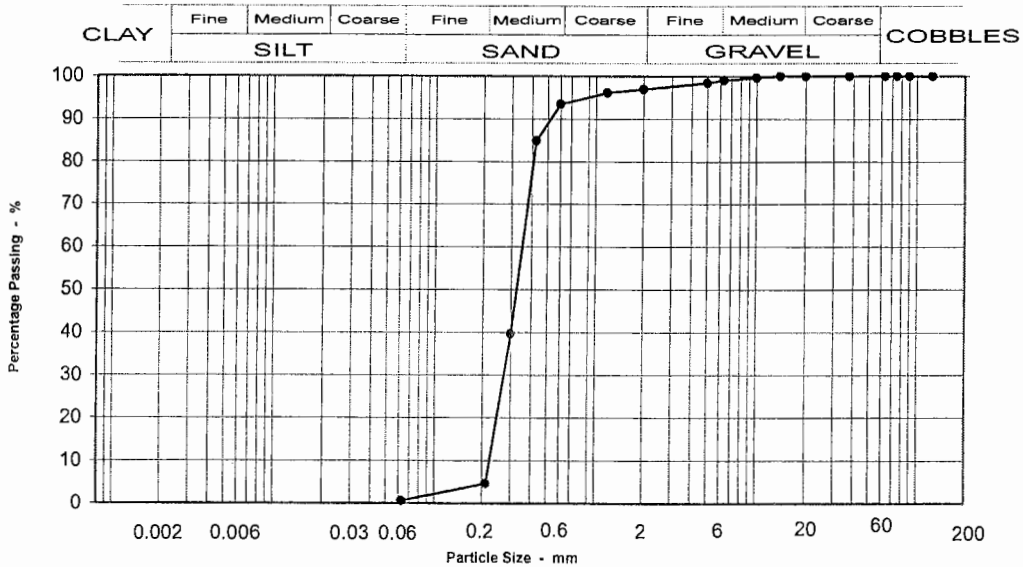


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH106 5 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	
75	100	1B Suitable
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	99	
5	98	
2	97	6E/6R Suitable
1.18	96	
0.600	93	
0.425	85	
0.300	40	
0.212	5	
0.063	1	6M Suitable
Moisture content %		15

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	1
Fine GRAVEL	4
Coarse SAND	2
Medium SAND	89
Fine SAND	4
Silt & Clay	1

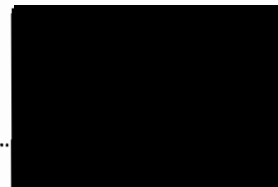
Grading Analysis	
D100	10
D60	0.36
D10	0.226
Uniformity Coefficient	2

Description	
Light brown fine, medium and coarse SAND with a little rounded flint gravel	

Test Code = 610

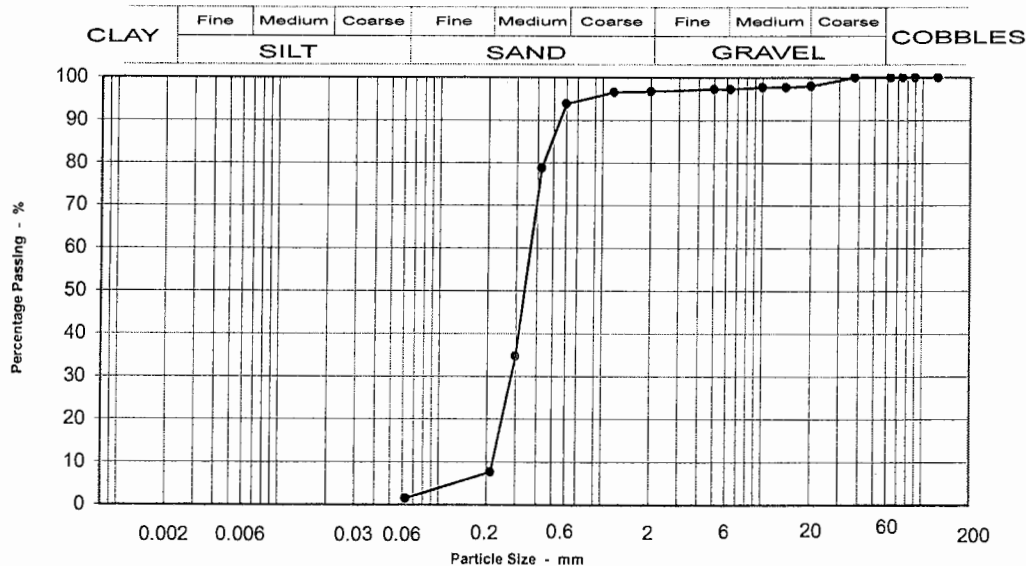


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH107 0.55 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	1B Suitable
75	100	
63	100	
37.5	100	
20	98	
14	98	
10	98	
6.3	97	
5	97	
2	97	6E/6R Suitable
1.18	97	
0.600	94	
0.425	79	
0.300	35	
0.212	8	
0.063	1	6M Suitable
Moisture content %		3

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	2
Medium GRAVEL	1
Fine GRAVEL	3
Coarse SAND	1
Medium SAND	86
Fine SAND	6
Silt & Clay	1

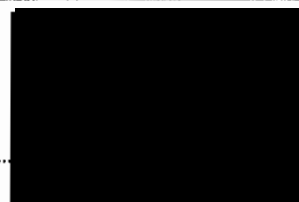
Grading Analysis	
D100	20
D60	0.37
D10	0.220
Uniformity Coefficient	2

Description	
Light brown fine and medium SAND	

Test Code = 610

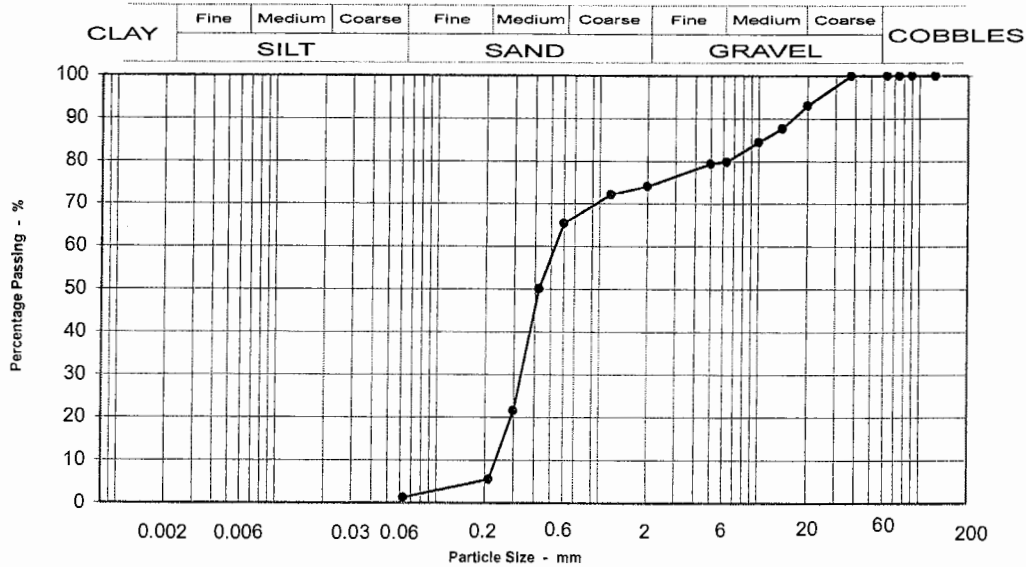


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH107 2 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	93
14	88
10	84
6.3	80
5	79
2	74
1.18	72
0.600	65
0.425	50
0.300	22
0.212	6
0.063	1

Specification for Highway Works Classification	
1B	Suitable
6E/6R	Suitable
6M	Suitable
Moisture content % 12	

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	7
Medium GRAVEL	13
Fine GRAVEL	9
Coarse SAND	6
Medium SAND	60
Fine SAND	4
Silt & Clay	1

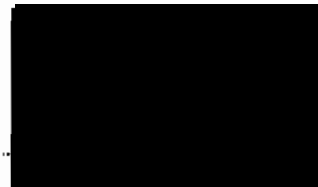
Grading Analysis	
D100	20
D60	0.54
D10	0.237
Uniformity Coefficient	2

Description
Light brown fine and medium SAND with some fine, medium and coarse flint gravel

Test Code = 610



D N Houseago (Lead Technician)



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Date Report Issued 25-Oct-07

FAO I Brown

Page 1 of 1

**DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP
TO BS 1377 : PART 4 : 1990 : SECTION 3**

Scheme Great Yarmouth Third River Crossing

Location BH107

Depth 3

Date received 25-Oct-07

Date tested

Sample type B

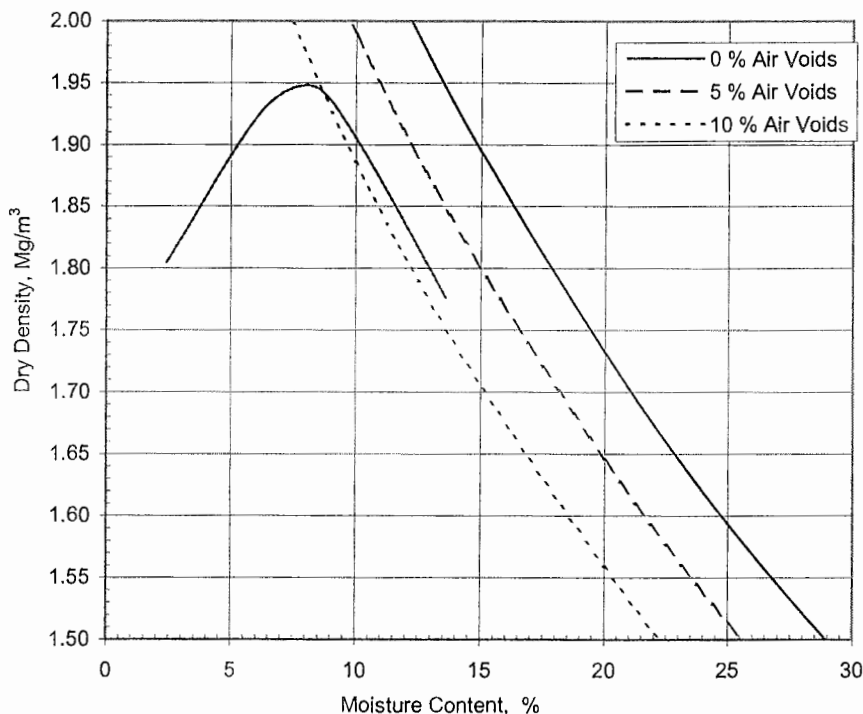
Sample Mass

Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.

Description Light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel

Supplier

Source



Method of division	Quartering	Retained on 37.5 mm Sieve	%	0
Preparation	3.7	Retained on 20.0 mm Sieve	%	0
Test Method	Vib.Hammer	Particle Density		2.65
Mould Type	CBR	Maximum Dry Density	Mg/m ³	1.95
Samples Used	Separate	Optimum Moisture Content	%	8

Test Code = 640



D N Houseago (Lead Technician)



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 Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	BH107	Depth	3 m
Date sampled		Date received	10-Sep-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Light brown fine, medium and coarse SAND with some fine, medium and coarse flint and quartz gravel		

Supplier _____ **Source** _____
Conveyance note No. _____

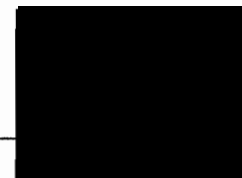
LOCATION	TEST SPECIMEN				
ORIENTATION	NOT APPLICABLE				
	NOT APPLICABLE				
	PREPARATION DETAILS				
METHOD OF DIVISION	QUARTERING				
PREPARATION METHOD	7.2.4.4 Rammer Compaction with specified effort				
RETAINED 37.5mm	%	43			
RETAINED 20mm	%	114			
NO OF LAYERS		3	CBR VALUE TOP	%	113
BLOWS PER LAYER		N/A	CBR VALUE BOTTOM	%	154
METHOD		Vib.Hammer	AVERAGE CBR VALUE	%	134
CONDITION		UNSOAKED			
BULK DENSITY	Mg/m ³	2.174	MOISTURE CONT. TOP	%	6
DRY DENSITY	Mg/m ³	2.07	MOISTURE CONT. BOT	%	4
INITIAL MOISTURE CONT.	%	5	MOISTURE CONT. METHOD	Oven dried @ 105 -110°C	

REMARKS

Test Code = 642



David Houseago (Lead Technician)

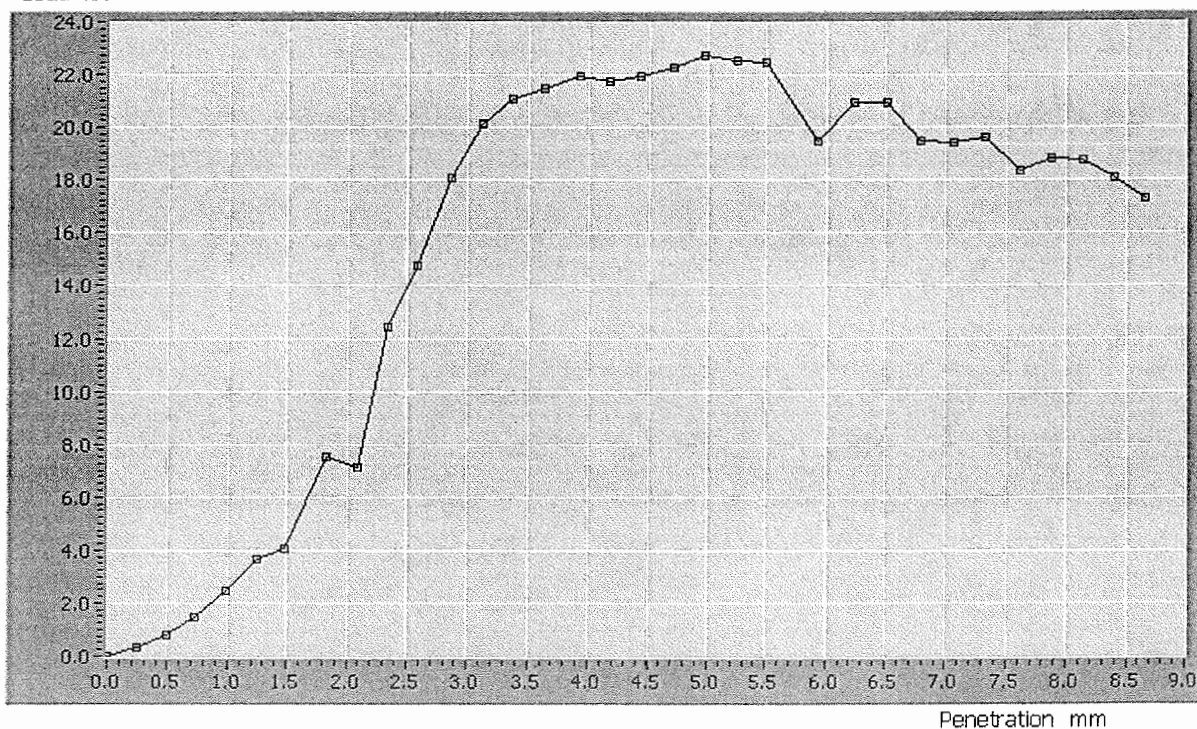


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	BH107 -B5	Sample	0000099857

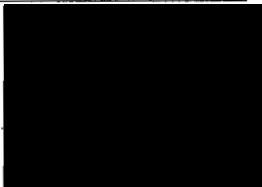
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	13.91	22.69	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	105.38	113.45	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)

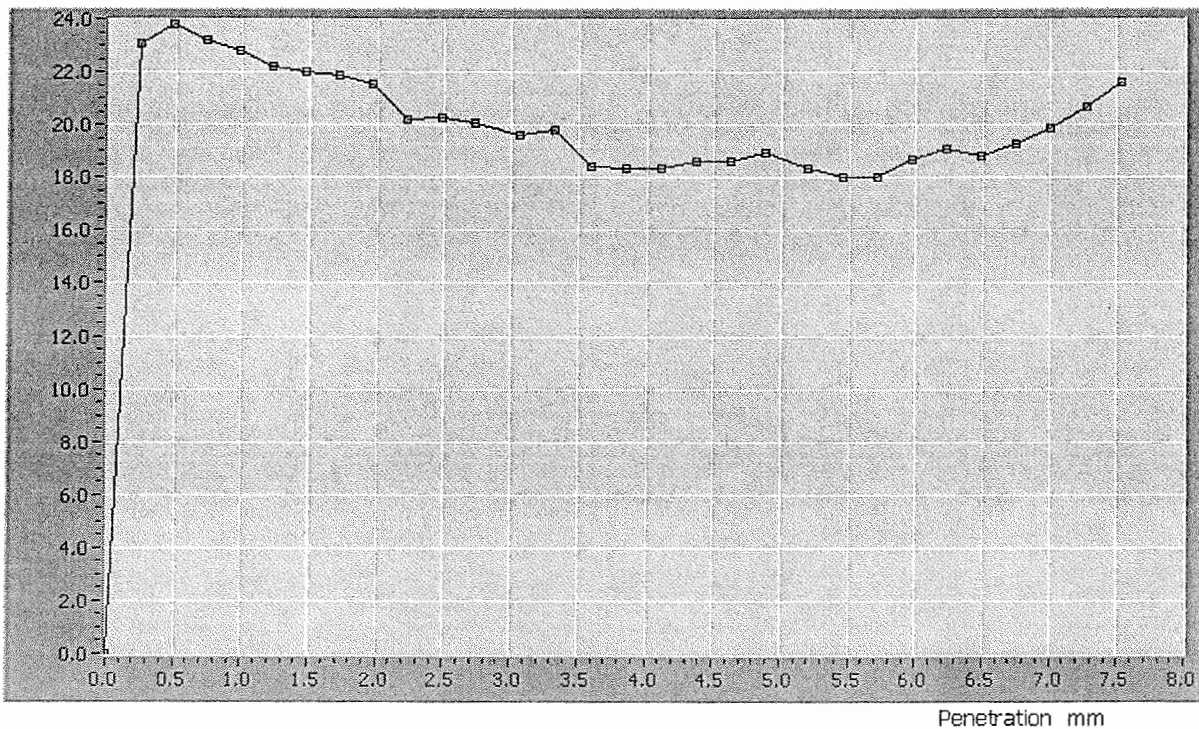


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	BH107 -B5	Sample	0000099857

Penetration Stage (side 2)

Load kN



Results - Bottom			
Penetration	2.50	5.00	mm
Load	20.28	18.71	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	153.66	93.53	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



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Our Report and sample No 99634
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P&T Project No.
Date Report Issued 16-Oct-07

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH108	Depth	1.5 - m
Date sampled		Date received	09-Oct-07
Date tested	31-Aug-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Soft grey silty CLAY		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	0		
NATURAL MC (%)	34	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	53		
PLASTIC LIMIT (%)	27		
PLASTICITY INDEX (%)	26		
MODIFIED PI *(%)	26	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	C H		

REMARKS

Test Code = 604



David Houseago (Lead Technician)

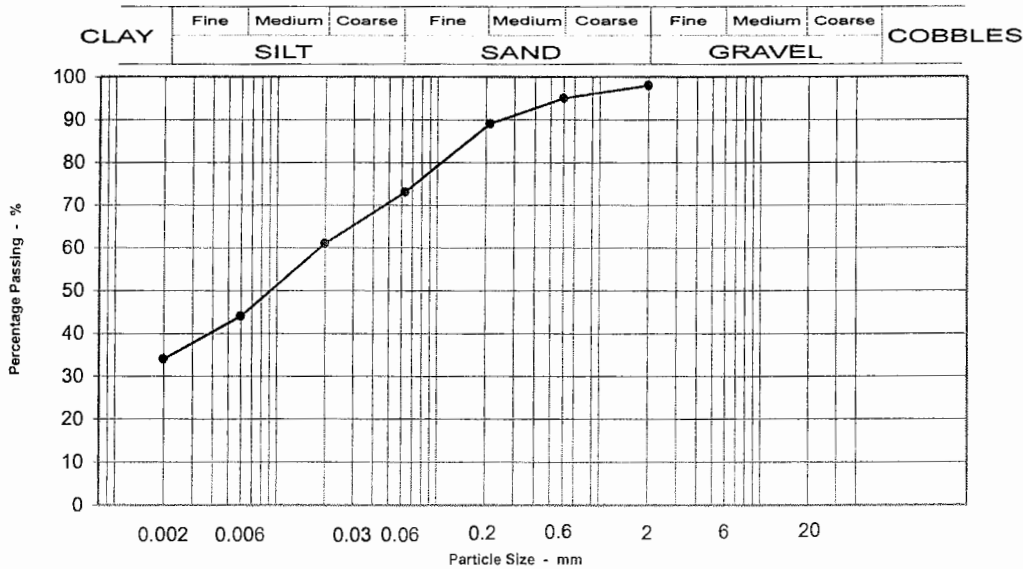


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Particle Size Distribution to BS 1377 : Part2 : 1990 Sedimentation Method Section 9.4

Scheme: **Great Yarmouth Third River Crossing** Location: **BH108 1.5 - m**



Sieving	
Particle Size mm	% Passing
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	98
0.6	95
0.212	89
0.063	73
0.02	61
0.006	44
0.002	34

Moisture content %

Sample Proportions	
GRAVEL	2
Coarse SAND	3
Medium SAND	6
Fine SAND	16
Coarse SILT	17
FINE SILT	10
CLAY	34

Description
Soft grey silty CLAY

Test Code = 612



D N Houseago (Lead Technician)

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Our Report and sample No 99636
Your Sample Ref D2
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

Scheme	Great Yarmouth Third River Crossing		
Location	BH108	Depth	1.5 m
Date sampled		Date received	15-Sep-07
Date tested	05-Sep-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Soft grey silty CLAY		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

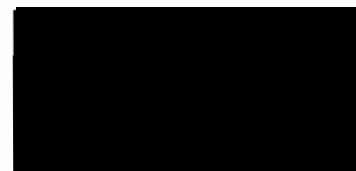
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Ridffled
	Oven dried @ 105 -110°C

PASSING 2mm BS TEST SIEVE (%)	70
ORGANIC MATTER (%)	4

Test Code:620



David Houseago (Lead Technician)





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Our Report and sample No 100367
Your Sample Ref B4
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	BH108	Depth	2 m
Date sampled		Date received	21-Sep-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Very soft grey black sandy organic CLAY with wood and peat.		

Supplier Source
Conveyance note No.

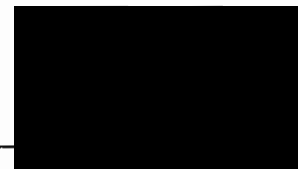
LOCATION	TEST SPECIMEN				
ORIENTATION	NOT APPLICABLE				
METHOD OF DIVISION	PREPARATION DETAILS				
PREPARATION METHOD	RIFFLING				
	7.2.4.4 Rammer Compaction with specified effort				
RETAINED 37.5mm	%	19			
RETAINED 20mm	%	19			
NO OF LAYERS		3	CBR VALUE TOP	%	19
BLOWS PER LAYER		N/A	CBR VALUE BOTTOM	%	19
METHOD		Vib.Hammer	AVERAGE CBR VALUE	%	19
CONDITION		UNSOAKED			
BULK DENSITY	Mg/m ³	2.035	MOISTURE CONT. TOP	%	16
DRY DENSITY	Mg/m ³	1.757	MOISTURE CONT. BOT	%	16
INITIAL MOISTURE CONT.	%	16	MOISTURE CONT. METHOD	Oven dried @ 105 -110°C	

REMARKS

Test Code = 642



David Houseago (Lead Technician)

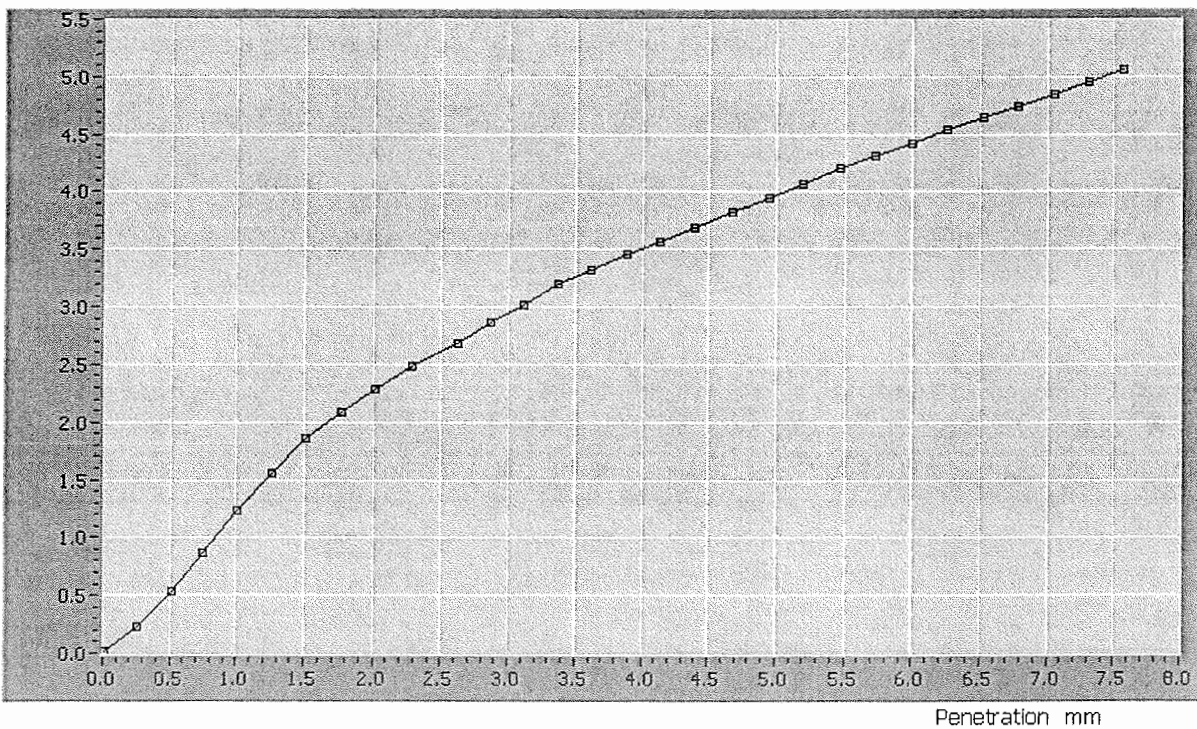


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	108 - B4	Sample	0000100367

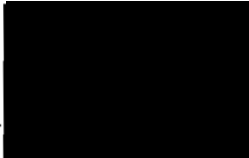
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	2.61	3.97	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	19.76	19.84	%

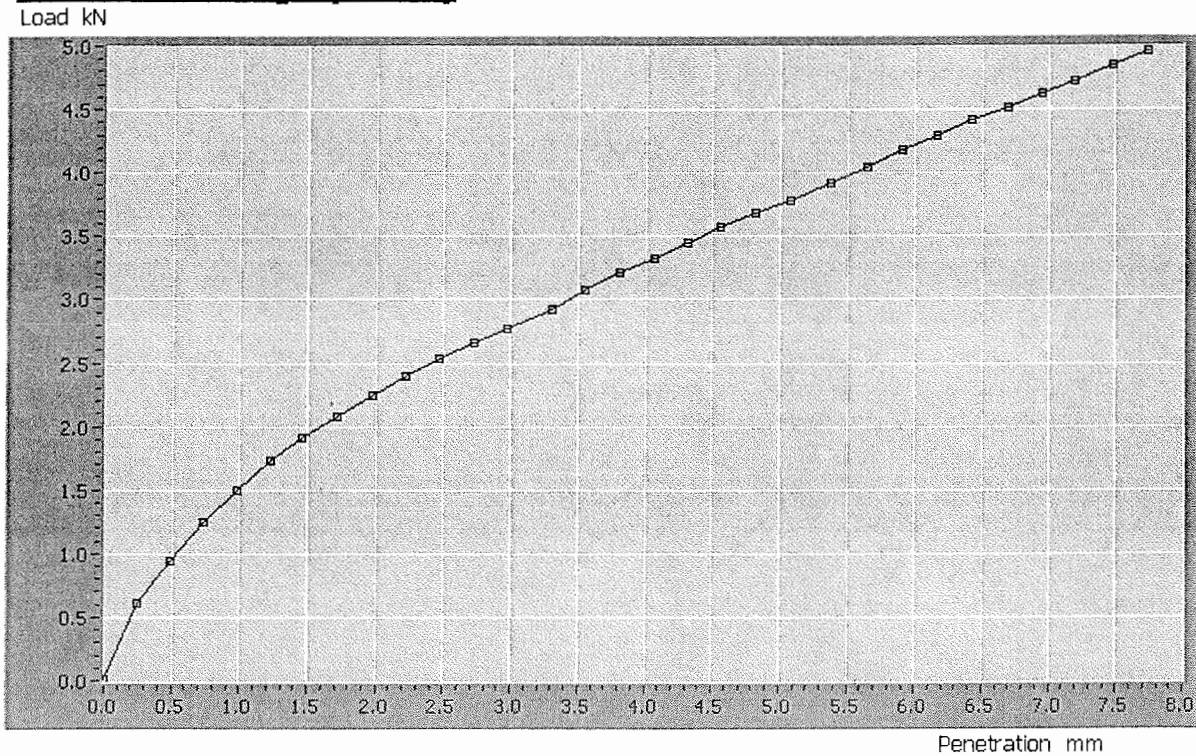
Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Norfolk Partnership Laboratory California Bearing Ratio

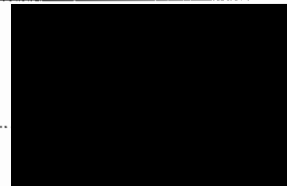
Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	108 - B4	Sample	0000100367

Penetration Stage (side 2)



Results - Bottom			
Penetration	2.50	5.00	mm
Load	2.54	3.75	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	19.28	18.76	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician) ...

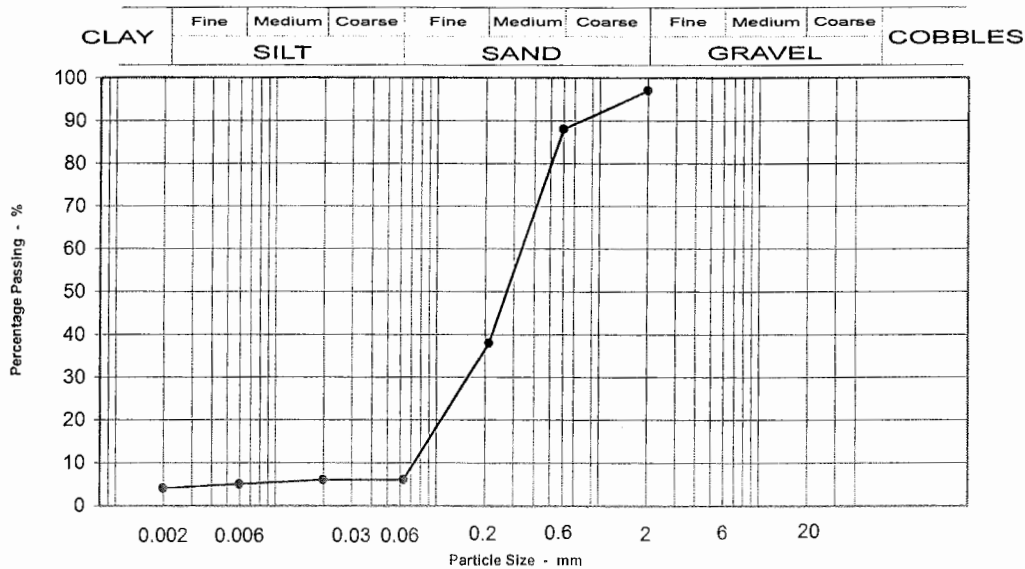


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Your Sample Ref D4
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P&T Project No.
Date Report Issued 12 October 2007

**Particle Size Distribution to BS 1377 : Part2 : 1990
Sedimentation Method Section 9.4**

Scheme: **Great Yarmouth Third River Crossing** Location: **BH108 3 - 3.45m**



Sieving	
Particle Size mm	% Passing
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	97
0.6	88
0.212	38
0.063	6
0.02	6
0.006	5
0.002	4

Moisture content %

Sample Proportions	
GRAVEL	3
Coarse SAND	9
Medium SAND	50
Fine SAND	32
Coarse SILT	1
FINE SILT	1
CLAY	4

Description
Greyish brown fine and medium SAND with occasional gravel.

Test Code = 612



D N Houseago (Lead Technician)



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Our Report and sample No 99641
Your Sample Ref D4
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

Scheme	Great Yarmouth Third River Crossing		
Location	BH108	Depth	3 m
Date sampled		Date received	15-Sep-07
Date tested	05-Sep-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Greyish brown silty fine medium SAND		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

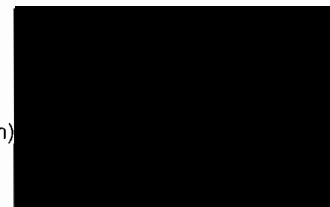
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
	Not applicable
	PREPARATION DETAILS
METHOD OF DIVISION	Ridffled
PREPARATION METHOD	Oven dried @ 105 -110°C

PASSING 2mm BS TEST SIEVE (%)	82
ORGANIC MATTER (%)	1

Test Code:620

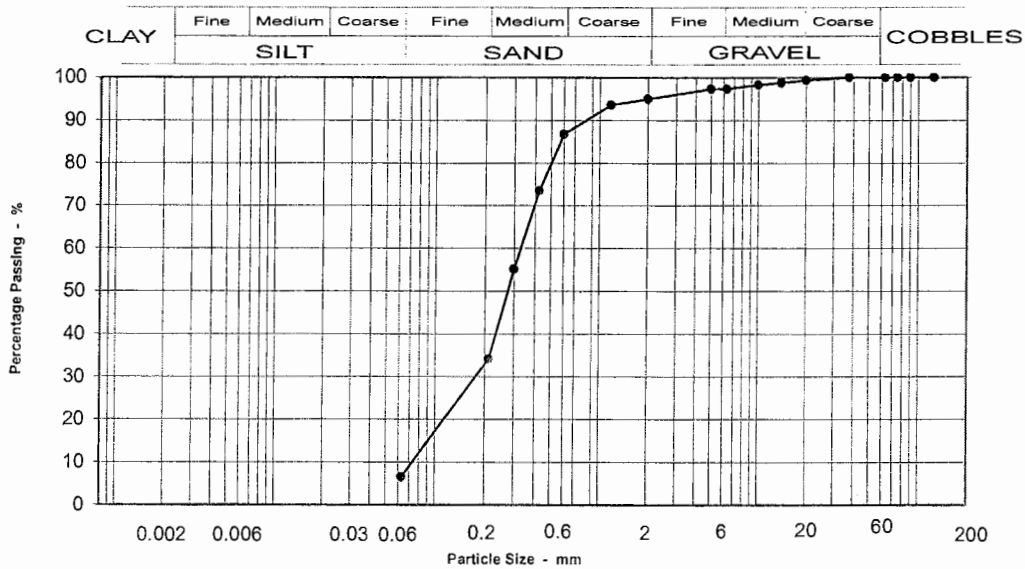


David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH108 3 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	1B Suitable
75	100	
63	100	
37.5	100	
20	99	
14	99	
10	98	
6.3	97	
5	97	
2	95	6E/6R Suitable
1.18	94	
0.600	87	
0.425	74	
0.300	55	
0.212	34	
0.063	7	6M Suitable
Moisture content %		29

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	1
Medium GRAVEL	2
Fine GRAVEL	8
Coarse SAND	2
Medium SAND	53
Fine SAND	28
Silt & Clay	7

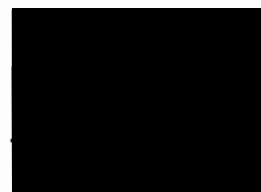
Grading Analysis	
D100	20
D60	0.33
D10	0.082
Uniformity Coefficient	4

Description	
Greyish brown fine and medium SAND with occasional gravel.	

Test Code = 610



D N Houseago (Lead Technician)



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FAO I Brown

Our Project No PTPZ0008
Our Report and sample No 99644
Your Sample Ref B7
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

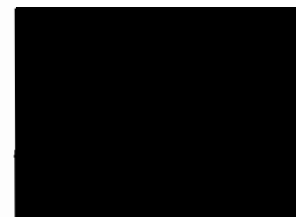
Scheme	Great Yarmouth Third River Crossing		
Location	BH108	Depth	5 m
Date sampled		Date received	21-Sep-07
Date tested	05-Sep-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Brown silty fine SAND with some fine, medium and coarse flint and quartz gravel		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
	Not applicable
	PREPARATION DETAILS
METHOD OF DIVISION	Ridffled
PREPARATION METHOD	Oven dried @ 105 -110°C
PASSING 2mm BS TEST SIEVE (%)	90
ORGANIC MATTER (%)	0

Test Code:620

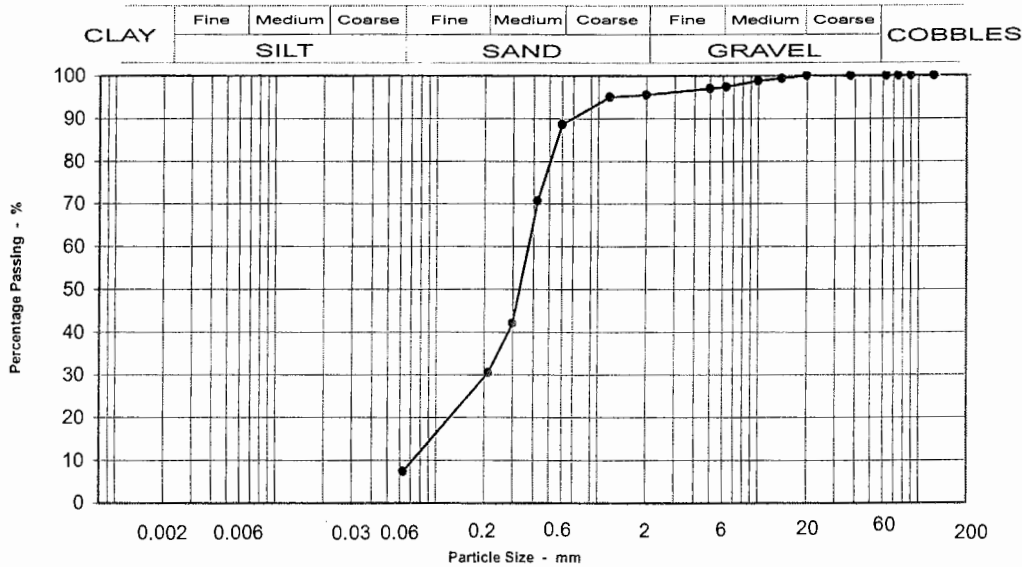


David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH108 7 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1B Suitable
90	100	
75	100	
63	100	
37.5	100	
20	100	
14	99	
10	99	
6.3	97	
5	97	
2	96	6E/6R Suitable
1.18	95	6M Suitable
0.600	89	
0.425	71	
0.300	42	
0.212	30	
0.063	7	
Moisture content %	17	

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	3
Fine GRAVEL	7
Coarse SAND	2
Medium SAND	58
Fine SAND	23
Silt & Clay	7

Grading Analysis	
D100	14
D60	0.38
D10	0.080
Uniformity Coefficient	5

Description	
Medium yellow brown SAND with fine to coarse gravel flint and rock.	

Test Code = 610



D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 99508
Your Sample Ref D5
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH 109	Depth	1 - 1m
Date sampled	09-Aug-07	Date received	20-Sep-07
Date tested	28-Aug-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Dark grey clayey fine SAND.		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

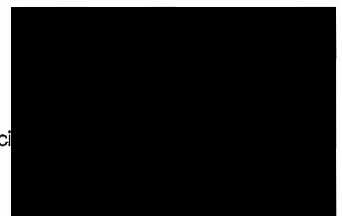
LOCATION	TEST SPECIMEN	
ORIENTATION	Not applicable	
	PREPARATION DETAILS	
METHOD OF DIVISION	Whole	
PREPARATION METHOD	Hand picking	
RETAINED 425µm (%)	0	
NATURAL MC (%)	25	OVEN DRIED @ 105°C
LIQUID LIMIT (%)	38	
PLASTIC LIMIT (%)	18	
PLASTICITY INDEX (%)	20	
MODIFIED PI *(%)	20	*BRE Digest 240 : 1993
SOIL CLASSIFICATION	C I	

REMARKS

Test Code = 604



David Houseago (Lead Technician)



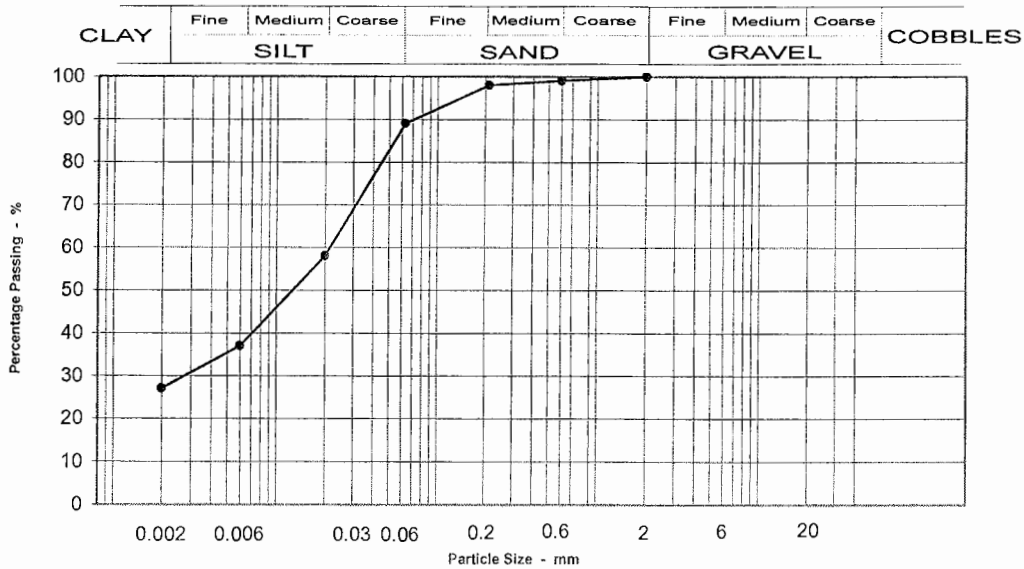
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Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No
Your Sample Ref D7
Your Project or Order No
P&T Project No.
Date Report Issued 12 October 2007

**Particle Size Distribution to BS 1377 : Part2 : 1990
Sedimentation Method Section 9.4**

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 109 2 - 2m**



Seiving	
Particle Size mm	% Passing
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
0.6	99
0.212	98
0.063	89
0.02	58
0.006	37
0.002	27

Moisture content %

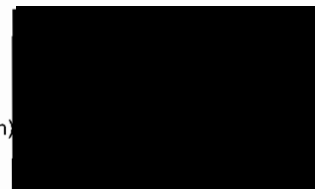
Sample Proportions	
GRAVEL	0
Coarse SAND	1
Medium SAND	1
Fine SAND	9
Coarse SILT	21
FINE SILT	10
CLAY	27

Description
Very soft grey very sandy CLAY.

Test Code = 612



D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 99478
Your Sample Ref D9
Your Project or Order No
P&T Project No.
Date Report Issued 24-Oct-07

FAO I Brown

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

Scheme	Great Yarmouth Third River Crossing		
Location	BH 109	Depth	2.5 m
Date sampled	09-Aug-07	Date received	23-Aug-07
Date tested	05-Sep-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Grey silty fine to medium SAND.		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

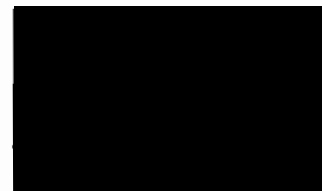
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Ridffled
	Oven dried @ 105 -110°C

PASSING 2mm BS TEST SIEVE (%)	98
ORGANIC MATTER (%)	0

Test Code:620



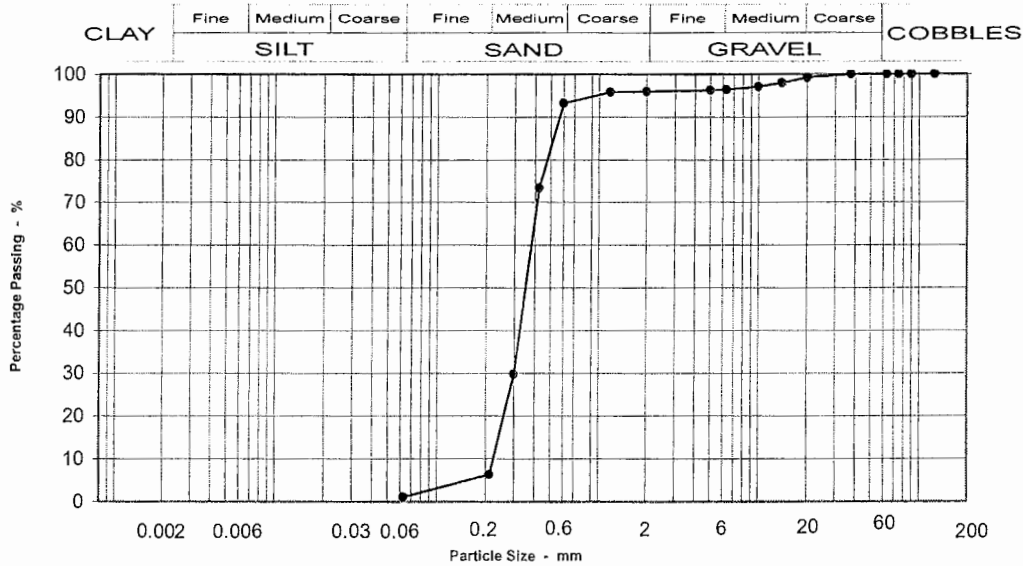
David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: Great Yarmouth Third River Crossing

Location: BH 109 4.6 - m



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	99
14	98
10	97
6.3	96
5	96
2	96
1.18	96
0.6	93
0.425	73
0.3	30
0.212	6
0.063	1

Specification for Highway Works Classification

1B Suitable

6E/6R Suitable

6M Suitable

Moisture content % 23

Sample Proportions

BOULDERS	0
COBBLES	0
Coarse GRAVEL	1
Medium GRAVEL	3
Fine GRAVEL	3
Coarse SAND	0
Medium SAND	87
Fine Sand	5
Silt & Clay	1

Grading Analysis

D100	20
D60	0.4
D10	0.23
Uniformity Coefficient	2

Description

Grey medium SAND

Test Code = 610



R J Noakes (Group Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)

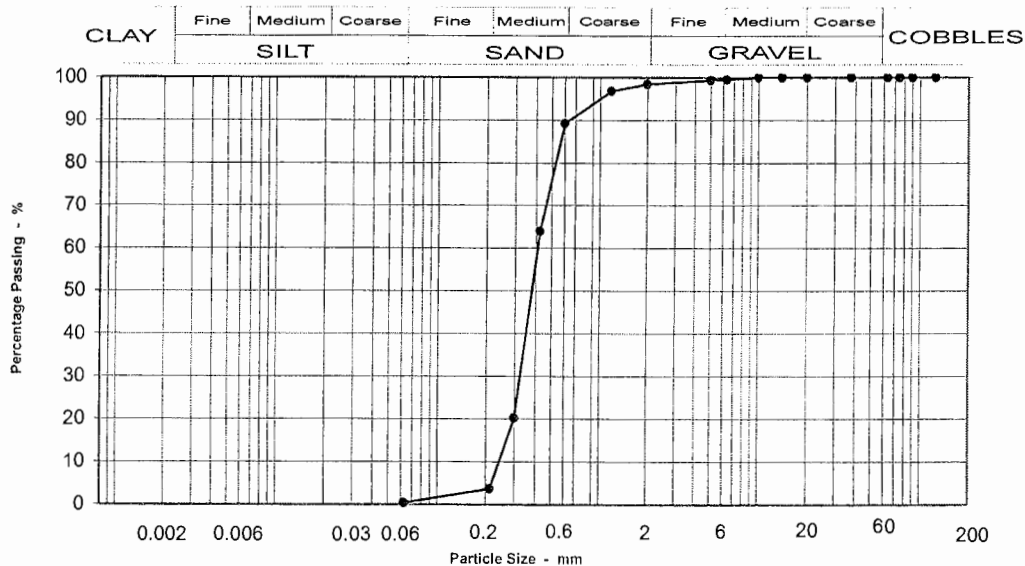


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Our Project No PTP20008
 Our Report and sample No 99492
 Your Sample Ref B31
 Your Project or Order No
 P&T Project No.
 Date Report Issued 10 September 2007

Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 109 9.6 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1B Suitable
90	100	
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	99	
2	98	6E/6R Suitable
1.18	97	
0.6	89	6M Suitable
0.425	64	
0.3	20	
0.212	4	
0.063	0	
Moisture content %		23

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	1
Fine GRAVEL	9
Coarse SAND	1
Medium SAND	86
Fine Sand	3
Silt & Clay	0

Grading Analysis	
D100	6
D60	0.4
D10	0.25
Uniformity Coefficient	2

Description
Grey medium SAND

Test Code = 610



R J Noakes (Group Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)

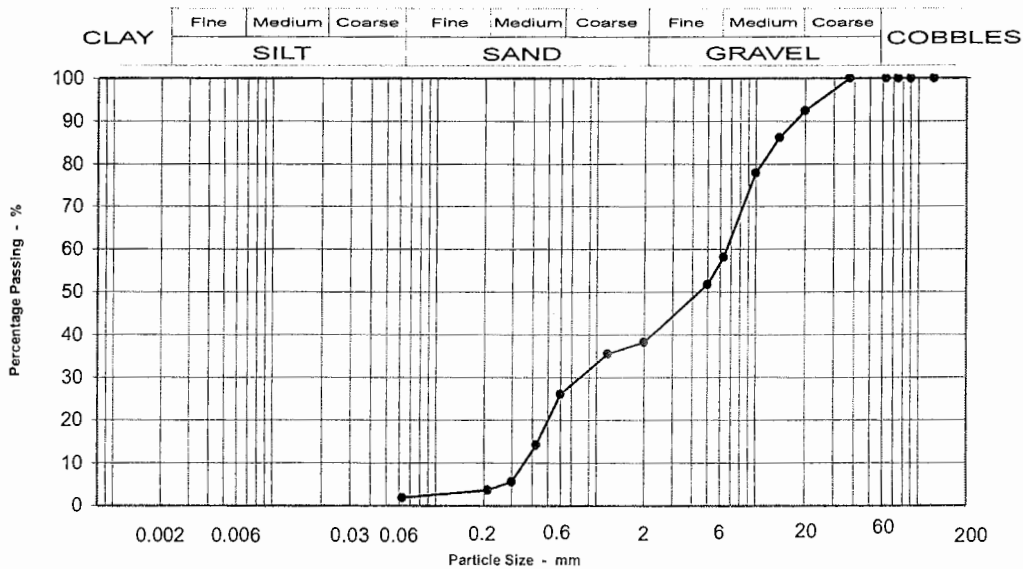


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Our Project No PTPZ0008
 Our Report and sample No 99491
 Your Sample Ref B38
 Your Project or Order No
 P&T Project No.
 Date Report Issued 10 September 2007

Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 109 14.8 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	92
14	86
10	78
6.3	58
5	52
2	38
1.18	35
0.6	26
0.425	14
0.3	6
0.212	4
0.063	2

Specification for Highway Works Classification	
1A	Suitable
6A	Suitable
6E/6R	Suitable
6F1	Suitable
6I	Suitable
6M	Suitable
6N/6P	Suitable
Moisture content % 12	

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	8
Medium GRAVEL	34
Fine GRAVEL	12
Coarse SAND	20
Medium SAND	22
Fine Sand	2
Silt & Clay	2

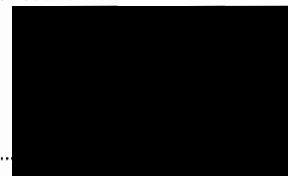
Grading Analysis	
D100	20
D60	6.7
D10	0.36
Uniformity Coefficient	18

Description	
Grey SAND and GRAVEL	

Test Code = 610



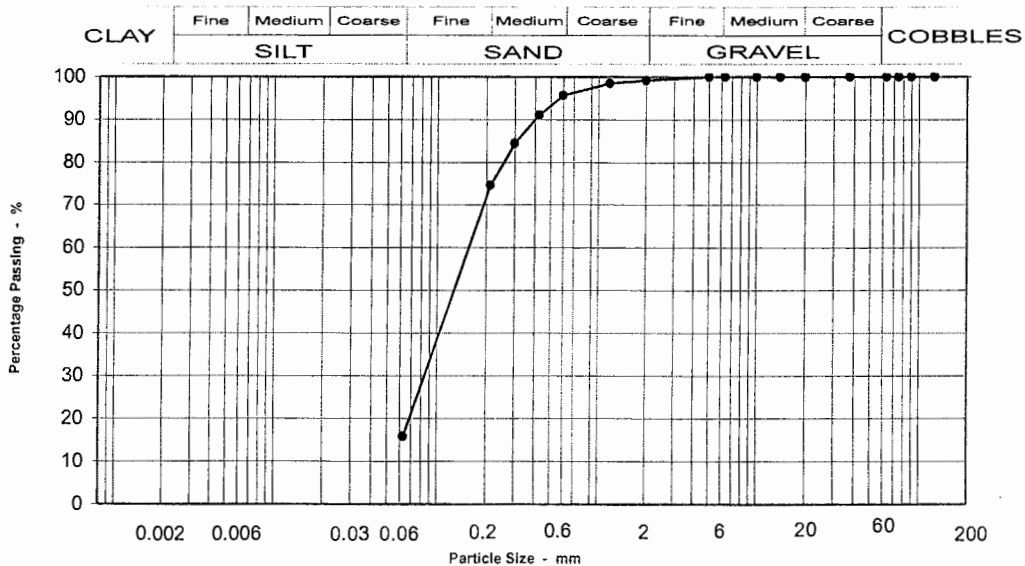
R J Noakes (Group Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 109 22.5 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	99
1.18	99
0.6	96
0.425	91
0.3	84
0.212	75
0.063	16

Specification for Highway Works Classification
2A/2B Suitable

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	4
Coarse SAND	1
Medium SAND	21
Fine Sand	59
Silt & Clay	16

Grading Analysis	
D100	2
D60	0.2
D10	0.00
Uniformity Coefficient	>10

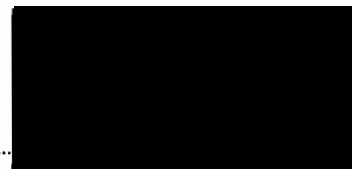
Description
Grey silty fine and medium SAND

Moisture content % 25

Test Code = 610



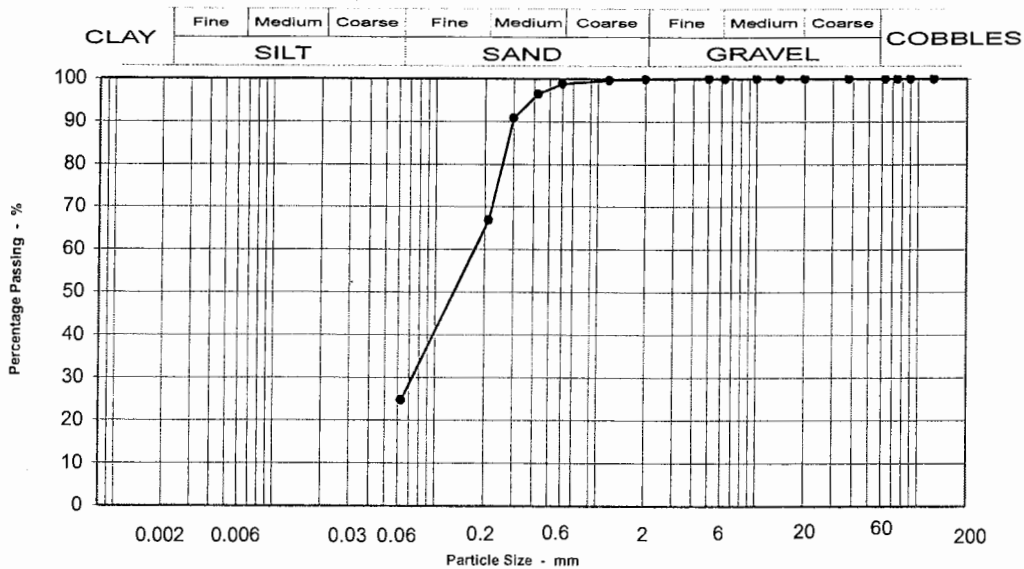
R J Noakes (Group Manager)
M L Bumstead (Section Engineer)
I D Brown (Section Engineer) ✓
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 109 28.5 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
1.18	100
0.6	99
0.425	96
0.3	91
0.212	67
0.063	25

Specification for Highway Works Classification
2A/2B Suitable

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	1
Coarse SAND	0
Medium SAND	32
Fine Sand	42
Silt & Clay	25

Grading Analysis	
D100	2
D60	0.2
D10	0.00
Uniformity Coefficient	>10

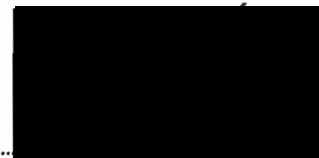
Description
Grey silty fine and medium SAND

Moisture content % 34

Test Code = 610



R J Noakes (Group Manager)
M L Bumstead (Section Engineer)
I D Brown (Section Engineer)
D N Houseago (Lead Technician)

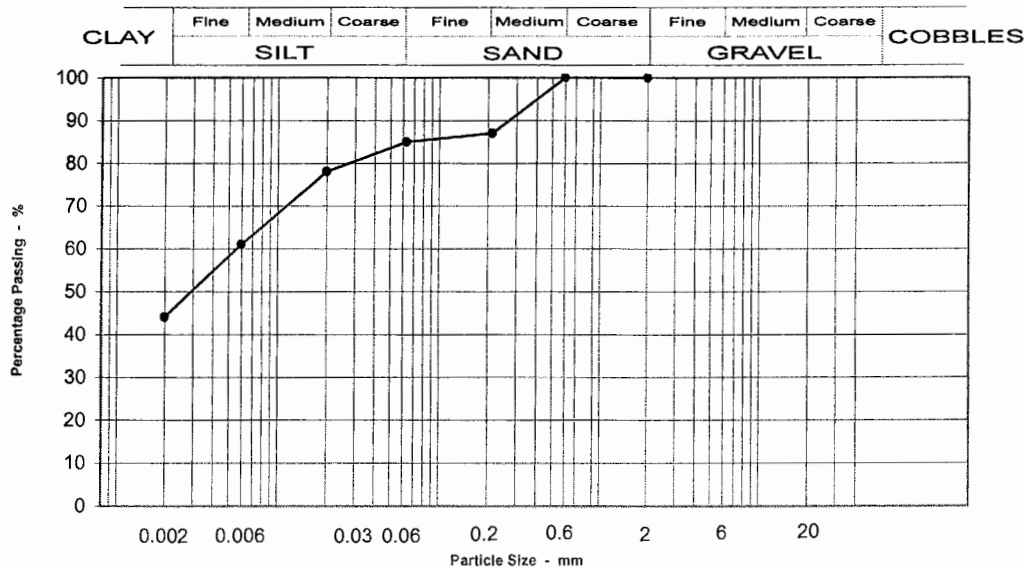


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Our Project No PTPZ0008
Our Report and sample No
Your Sample Ref D65
Your Project or Order No
P&T Project No.
Date Report Issued 12 October 2007

**Particle Size Distribution to BS 1377 : Part2 : 1990
Sedimentation Method Section 9.4**

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 109 32.2 - m**



Seiving	
Particle Size mm	% Passing
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
0.6	100
0.212	87
0.063	85
0.02	78
0.006	61
0.002	44

Moisture content %

Sample Proportions	
GRAVEL	0
Coarse SAND	0
Medium SAND	13
Fine SAND	2
Coarse SILT	17
FINE SILT	17
CLAY	44

Description
Firm to stiff grey sandy CLAY with fine shell fragments.

Test Code = 612



D N Houseago (Lead Technician)





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FAO I Brown

Our Project No PTPZ0008
Our Report and sample No
Your Sample Ref D65
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 109	Depth	32.2 - m
Date sampled	09 August 2007	Date received	23-Aug-07
Sample type	D	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Firm to stiff grey sandy CLAY with fine shell fragments.		
Supplier	Source		
Conveyance note No.			

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Quartering
	Oven dried @ 105 -110°C
NATURAL MC (%)	19

REMARKS

Test Code = 602



D N Houseago (Lead Technician)

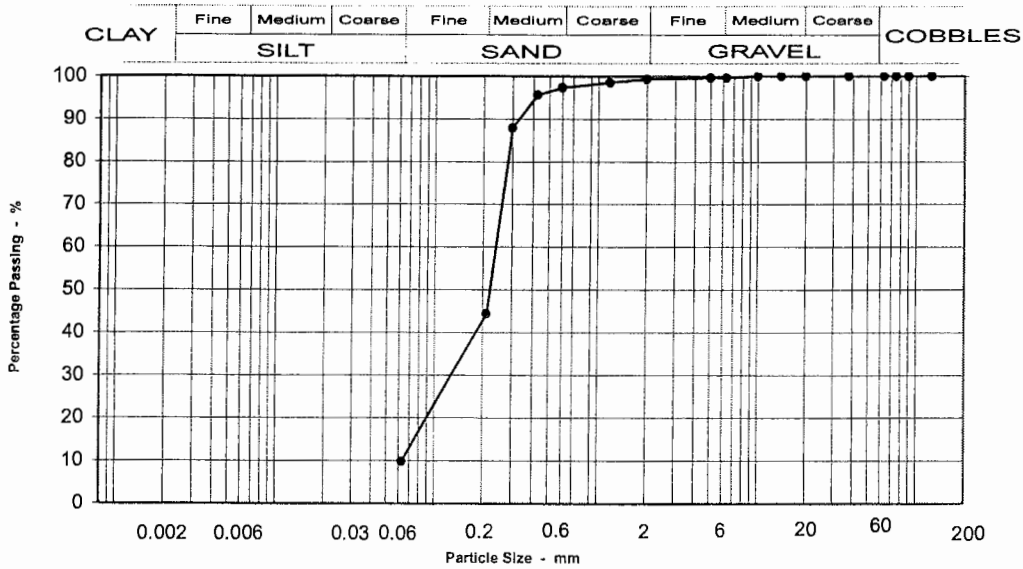




Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 109 35.3 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	99
1.18	99
0.6	97
0.425	96
0.3	88
0.212	44
0.063	10

Specification for Highway Works Classification

1B Suitable

6E/6R Suitable

6M Suitable

Moisture content % 26

Sample Proportions

BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	2
Coarse SAND	0
Medium SAND	53
Fine Sand	35
Silt & Clay	10

Grading Analysis

D100	6
D60	0.2
D10	0.06
Uniformity Coefficient	4

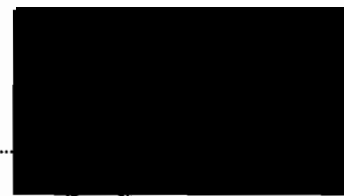
Description

Grey silty fine and medium SAND

Test Code = 610



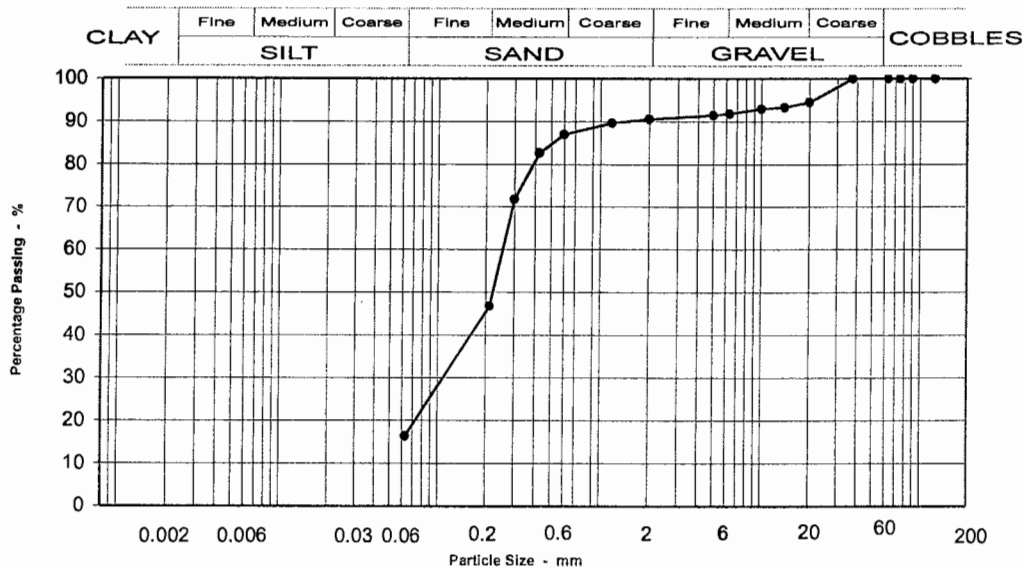
R J Noakes (Group Manager)
M L Bumstead (Section Engineer)
I D Brown (Section Engineer)
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 111 2 - m**



Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	95
14	93
10	93
6.3	92
5	91
2	91
1.18	90
0.6	87
0.425	83
0.3	72
0.212	47
0.063	16

Specification for Highway Works Classification	
2A/2B	Suitable

Moisture content % 13

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	6
Medium GRAVEL	3
Fine GRAVEL	4
Coarse SAND	1
Medium SAND	40
Fine Sand	30
Silt & Clay	16

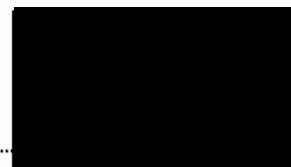
Grading Analysis	
D100	20
D60	0.3
D10	0.00
Uniformity Coefficient	>10

Description
Grey slightly silty fine SAND.

Test Code = 610



R J Noakes (Group Manager)
M L Bumstead (Section Engineer)
I D Brown (Section Engineer)
D N Houseago (Lead Technician)



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FAO I Brown

Our Project No PTPZ0008
Our Report and sample No
Your Sample Ref D7
Your Project or Order No
P&T Project No.
Date Report Issued 25-Oct-07

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DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 111	Depth	2.6 - m
Date sampled	16-Aug-07	Date received	29-Sep-07
Sample type	D	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Brown slightly clayey fine SAND.		
Supplier	Source		
Conveyance note No.			

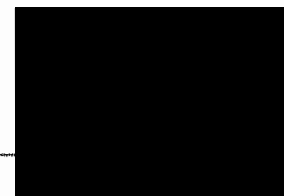
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Riffled
	Oven dried @ 105 -110°C
NATURAL MC (%)	20

REMARKS

Test Code = 602

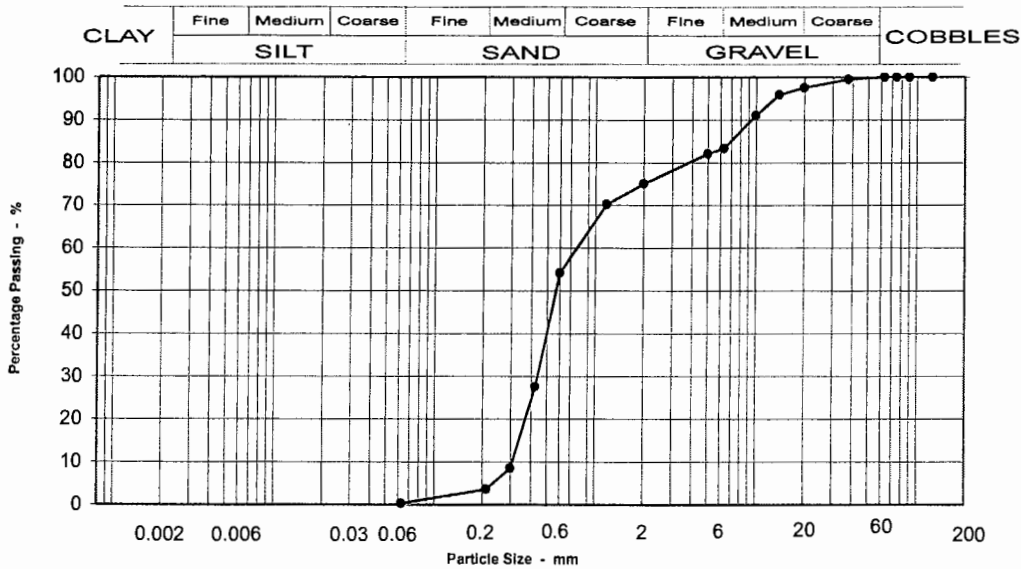


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 111 4 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	98
14	96
10	91
6.3	83
5	82
2	75
1.18	70
0.600	54
0.425	28
0.300	9
0.212	4
0.063	0

Specification for Highway Works Classification

1B Suitable

6E/6R Suitable

6M Suitable

Moisture content % 14

Sample Proportions

BOULDERS	0
COBBLES	0
Coarse GRAVEL	3
Medium GRAVEL	14
Fine GRAVEL	21
Coarse SAND	8
Medium SAND	51
Fine SAND	3
Silt & Clay	0

Grading Analysis

D100	38
D60	0.81
D10	0.310
Uniformity Coefficient	3

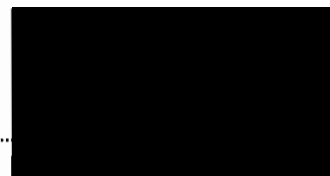
Description

Loose to medium dense gravelly fine SAND.

Test Code = 610

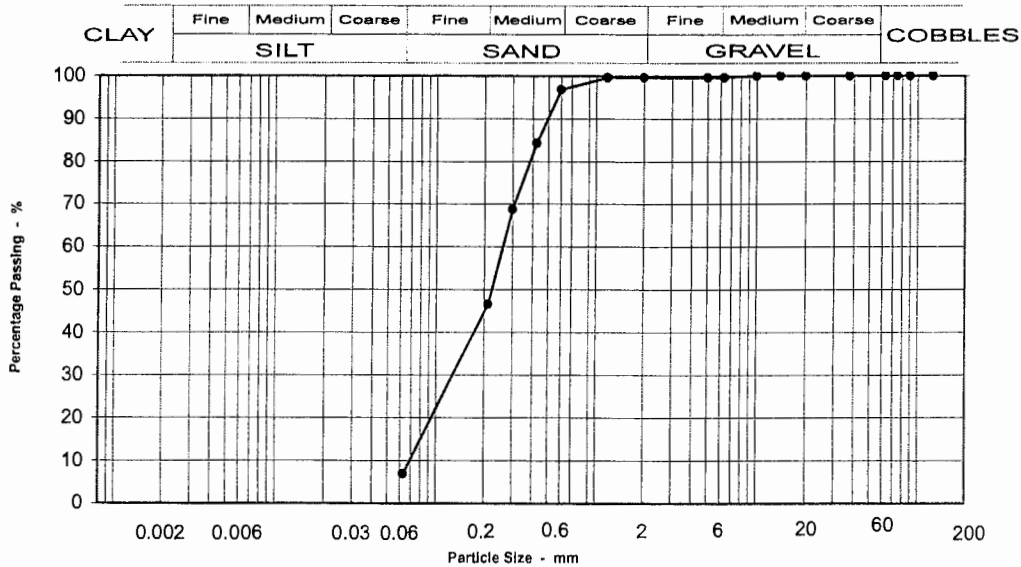


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 112 3 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
1.18	100
0.600	97
0.425	84
0.300	69
0.212	47
0.063	7

Specification for Highway Works Classification	
1B	Suitable
6E/6R	Suitable
6M	Suitable
Moisture content % 22	

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	3
Coarse SAND	0
Medium SAND	50
Fine SAND	40
Silt & Clay	7

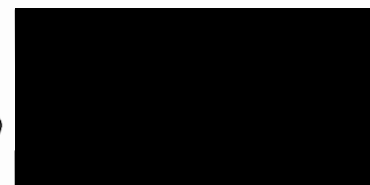
Grading Analysis	
D100	6
D60	0.27
D10	0.075
Uniformity Coefficient	4

Description	
Orangey brown fine and medium SAND	

Test Code = 610



D N Houseago (Lead Technician)



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FAO I Brown

Our Project No PTPZ0008
Our Report and sample No 100391
Your Sample Ref D13
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

Page 1 of 1

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH 113	Depth	3 - m
Date sampled		Date received	02-Oct-07
Date tested	03-Oct-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Soft to firm dark grey sandy CLAY.		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

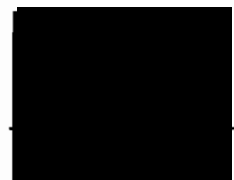
LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	7		
NATURAL MC (%)	35	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	43		
PLASTIC LIMIT (%)	19		
PLASTICITY INDEX (%)	24		
MODIFIED PI *(%)	22	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	C I		

REMARKS

Test Code = 604



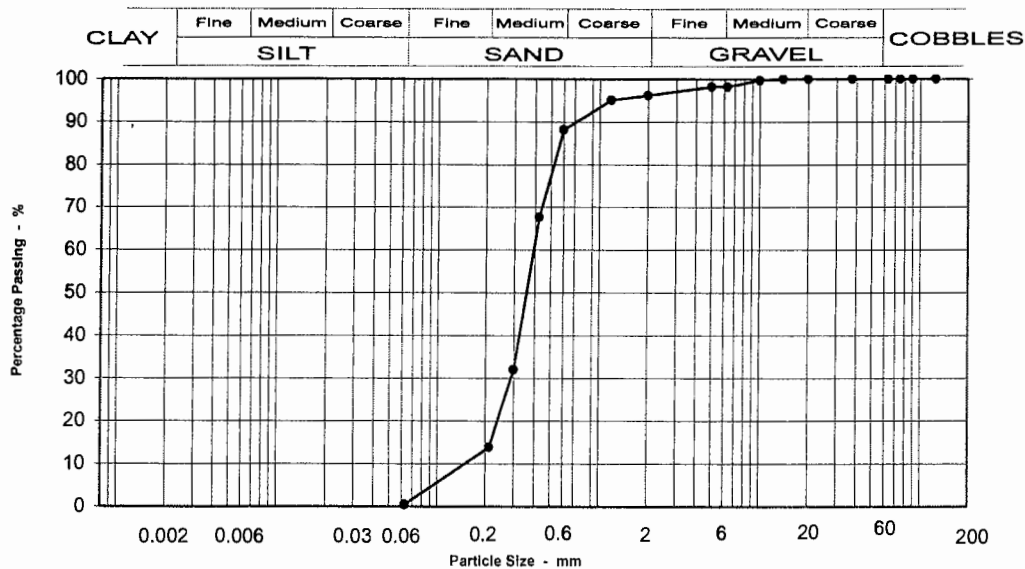
David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 113 7.3 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	98
5	98
2	96
1.18	95
0.600	88
0.425	68
0.300	32
0.212	14
0.063	0

Specification for Highway Works Classification	
1B	Suitable
6E/6R	Suitable
6M	Suitable
Moisture content % 18	

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	2
Fine GRAVEL	2
Coarse SAND	8
Medium SAND	74
Fine SAND	13
Silt & Clay	0

Grading Analysis	
D100	10
D60	0.40
D10	0.170
Uniformity Coefficient	2

Description	
Silty gravelly fine and medium SAND.	

Test Code = 610



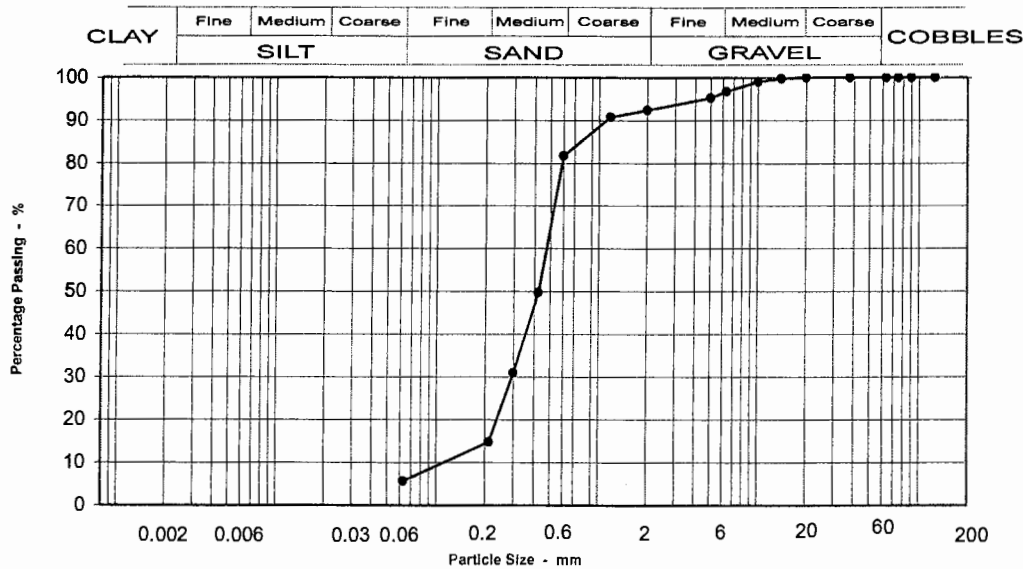
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: Great Yarmouth Third River Crossing

Location: BH 113 13.5 - m



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	99
6.3	97
5	95
2	92
1.18	91
0.600	82
0.425	50
0.300	31
0.212	15
0.063	6

Specification for Highway Works Classification

1B Suitable

6E/6R Suitable

6M Suitable

Moisture content % 19

Sample Proportions

BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	3
Fine GRAVEL	4
Coarse SAND	11
Medium SAND	67
Fine SAND	9
Silt & Clay	6

Grading Analysis

D100	14
D60	0.48
D10	0.134
Uniformity Coefficient	4

Description

Dense silty gravelly fine and medium SAND. Gravel is angular to subangular fine to medium flint.

Test Code = 610

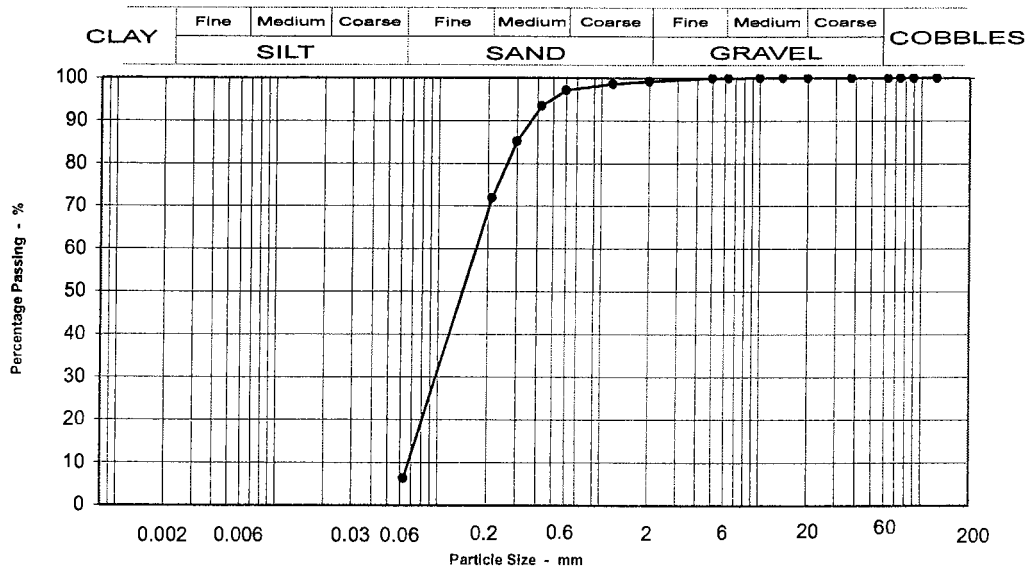


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 113 21.5 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	99
1.18	99
0.600	97
0.425	93
0.300	85
0.212	72
0.063	6

Specification for Highway Works Classification

1B	Suitable
6E/6R	Suitable
6M	Suitable
Moisture content % 23	

Sample Proportions

BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	2
Coarse SAND	1
Medium SAND	25
Fine SAND	66
Silt & Clay	6

Grading Analysis

D100	6
D60	0.19
D10	0.071
Uniformity Coefficient	3

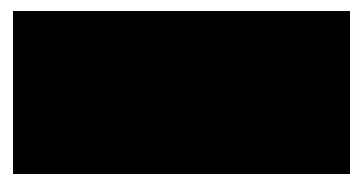
Description

Silty fine SAND with occasional flint cobble and shell fragments.

Test Code = 610



D N Houseago (Lead Technician)





working with



Norfolk Partnership Laboratory
County Hall, Martineau Lane
NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457

Email: civil.laboratory@norfolk.gov.uk

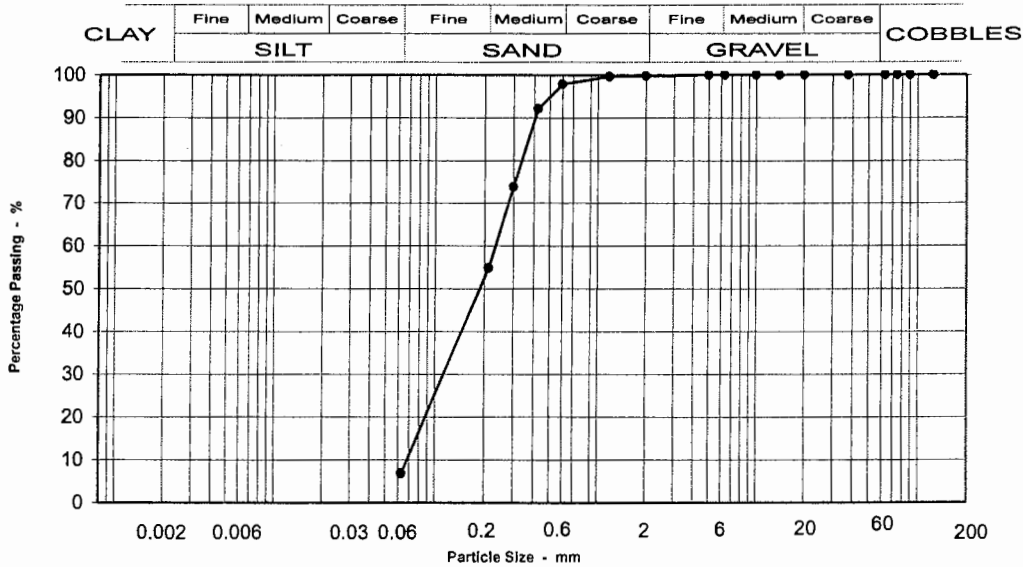
Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 100425
Your Sample Ref B54
Your Project or Order No
P&T Project No.
Date Report Issued 25 October 2007

Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: Great Yarmouth Third River Crossing

Location: BH 113 29 - m



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	1B Suitable
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	100	
0.600	98	
0.425	92	
0.300	74	
0.212	55	
0.063	7	6M Suitable
Moisture content %		20

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	0
Coarse SAND	2
Medium SAND	43
Fine SAND	48
Silt & Clay	7

Grading Analysis	
D100	2
D60	0.24
D10	0.073
Uniformity Coefficient	3

Description
Dense grey slightly silty fine SAND with occasional clay bands.

Test Code = 610



D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 99878
Your Sample Ref B2
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	BH 111	Depth	1.2 m
Date sampled	16-Aug-07	Date received	23-Aug-07
Sample type	B	Sample Mass	

Sampled by AE who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.

Material	Bulk Disturbed
Description	Loose dark grey slightly silty fine SAND.

Supplier **Source**
Conveyance note No.

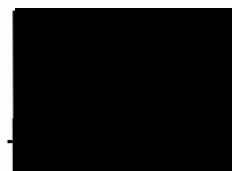
LOCATION	TEST SPECIMEN			
ORIENTATION	NOT APPLICABLE			
METHOD OF DIVISION	PREPARATION DETAILS			
PREPARATION METHOD	QUARTERING			
	7.2.4.4 Rammer Compaction with specified effort			
RETAINED 37.5mm	%	0	CBR VALUE TOP	% 1.3
RETAINED 20mm	%	5	CBR VALUE BOTTOM	% 1.5
NO OF LAYERS		3	AVERAGE CBR VALUE	% 1.4
BLOWS PER LAYER		62 Blows	MOISTURE CONT. TOP	% 19
METHOD		2.5kg	MOISTURE CONT. BOT	% 67
CONDITION		UNSOAKED	MOISTURE CONT. METHOD	Oven dried @ 105 -110°C
BULK DENSITY	Mg/m ³	2.029		
DRY DENSITY	Mg/m ³	1.42		
INITIAL MOISTURE CONT.	%	43		

REMARKS

Test Code = 642



David Houseago (Lead Technician)

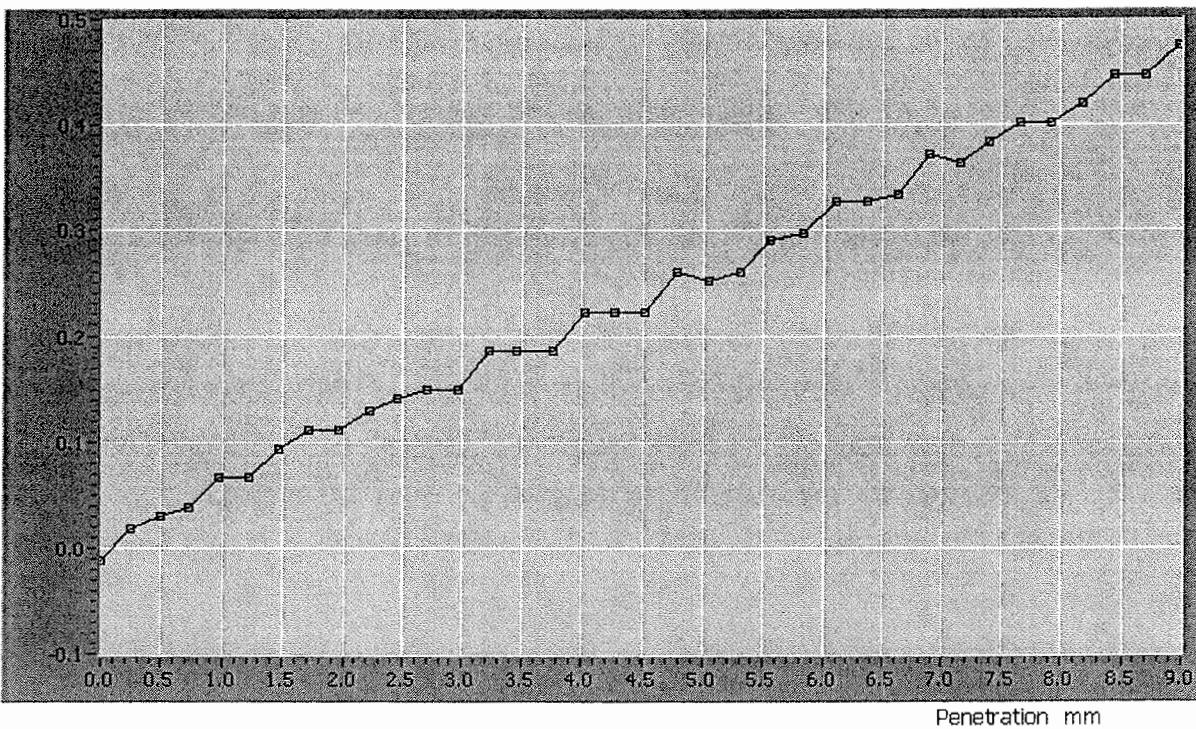


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	BH111 - B2	Sample	0000099878

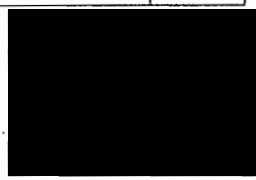
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	0.14	0.25	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	1.08	1.27	%

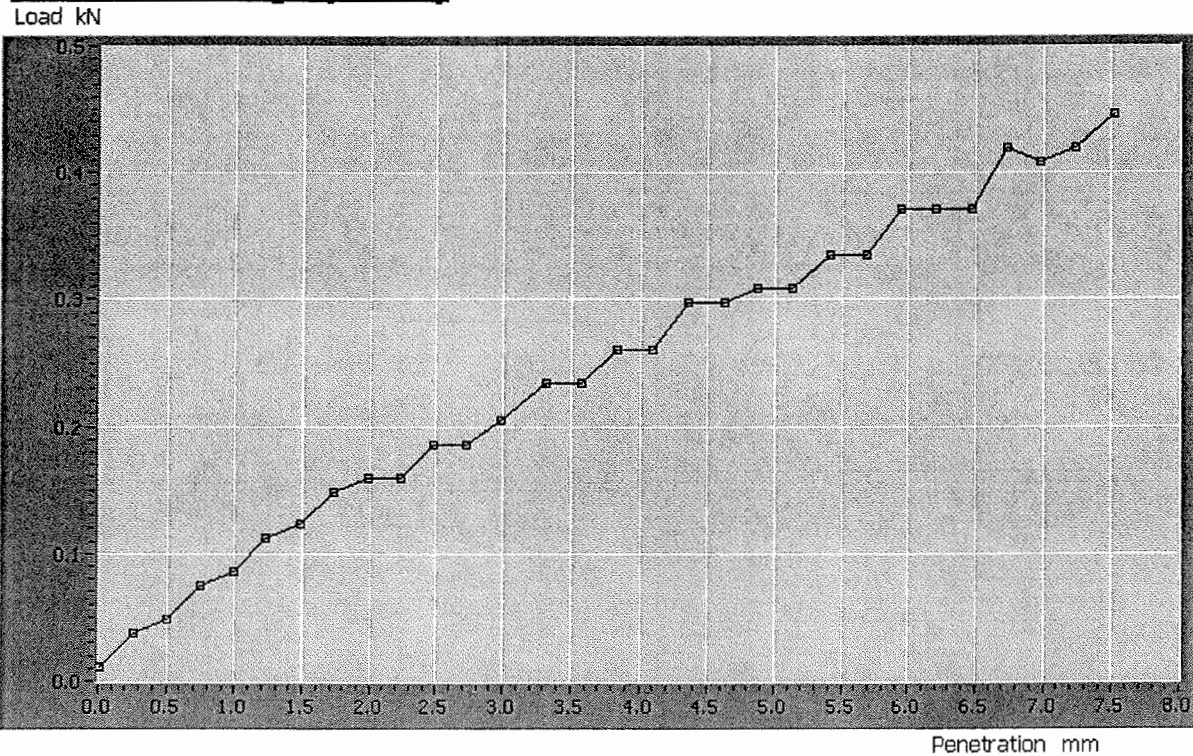
Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician) ...



Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	BH111 - B2	Sample	0000099878

Penetration Stage (side 2)



Results - Bottom			
Penetration	2.50	5.00	mm
Load	0.19	0.31	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	1.41	1.54	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)





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Our Project No PTPZ0008
Our Report and sample No 100287
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Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	BH 112	Depth	1.4 m
Date sampled		Date received	21-Sep-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Loose black grey medium to coarse silty SAND with much fine to medium gravel.		

Supplier	Source
Conveyance note No.	

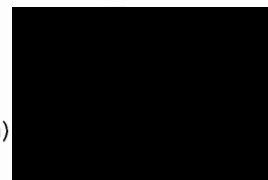
LOCATION	TEST SPECIMEN			
ORIENTATION	NOT APPLICABLE			
METHOD OF DIVISION	PREPARATION DETAILS			
PREPARATION METHOD	QUARTERING			
	7.2.4.4 Rammer Compaction with specified effort			
RETAINED 37.5mm	%	9	CBR VALUE TOP	% 20
RETAINED 20mm	%	18	CBR VALUE BOTTOM	% 27
NO OF LAYERS		3	AVERAGE CBR VALUE	% 24
BLOWS PER LAYER		62 Blows	MOISTURE CONT. TOP	% 19
METHOD		2.5kg	MOISTURE CONT. BOT	% 16
CONDITION		UNSOAKED	MOISTURE CONT. METHOD	Oven dried @ 105 -110°C
BULK DENSITY	Mg/m ³	2.011		
DRY DENSITY	Mg/m ³	1.708		
INITIAL MOISTURE CONT.	%	18		

REMARKS

Test Code = 642



David Houseago (Lead Technician)

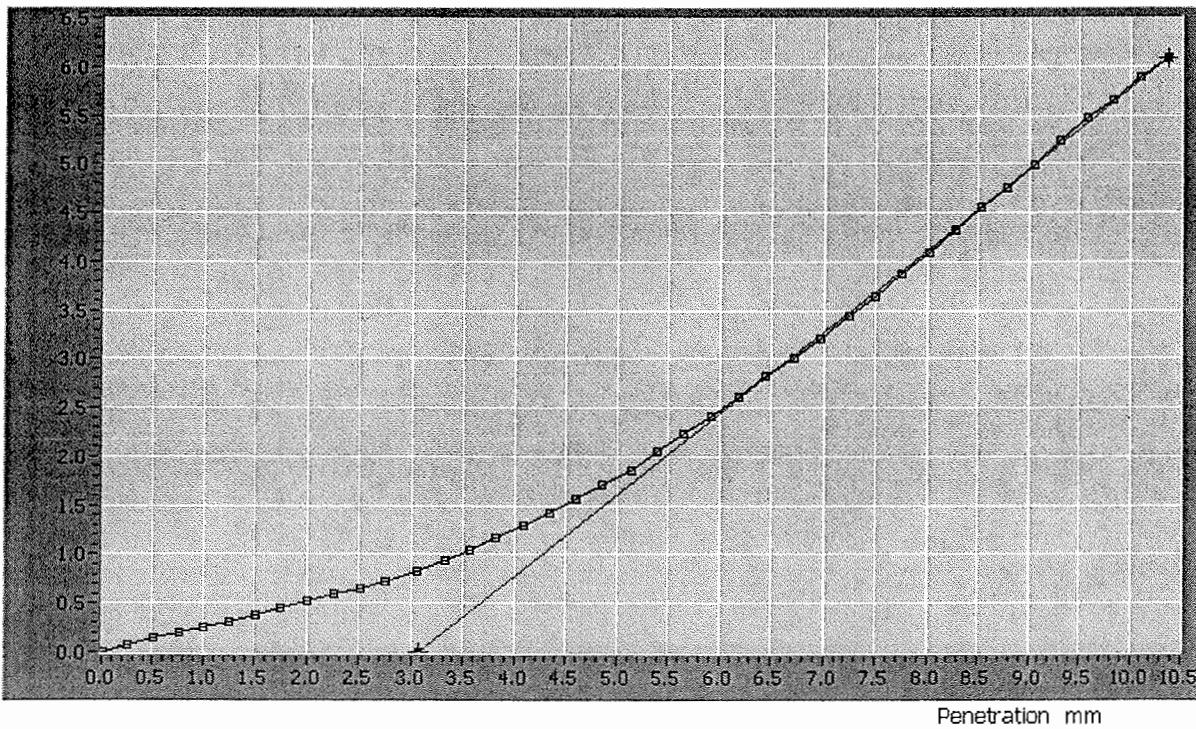


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	112 - B2	Sample	0000100287

Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	2.17	4.13	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	16.46	20.66	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)

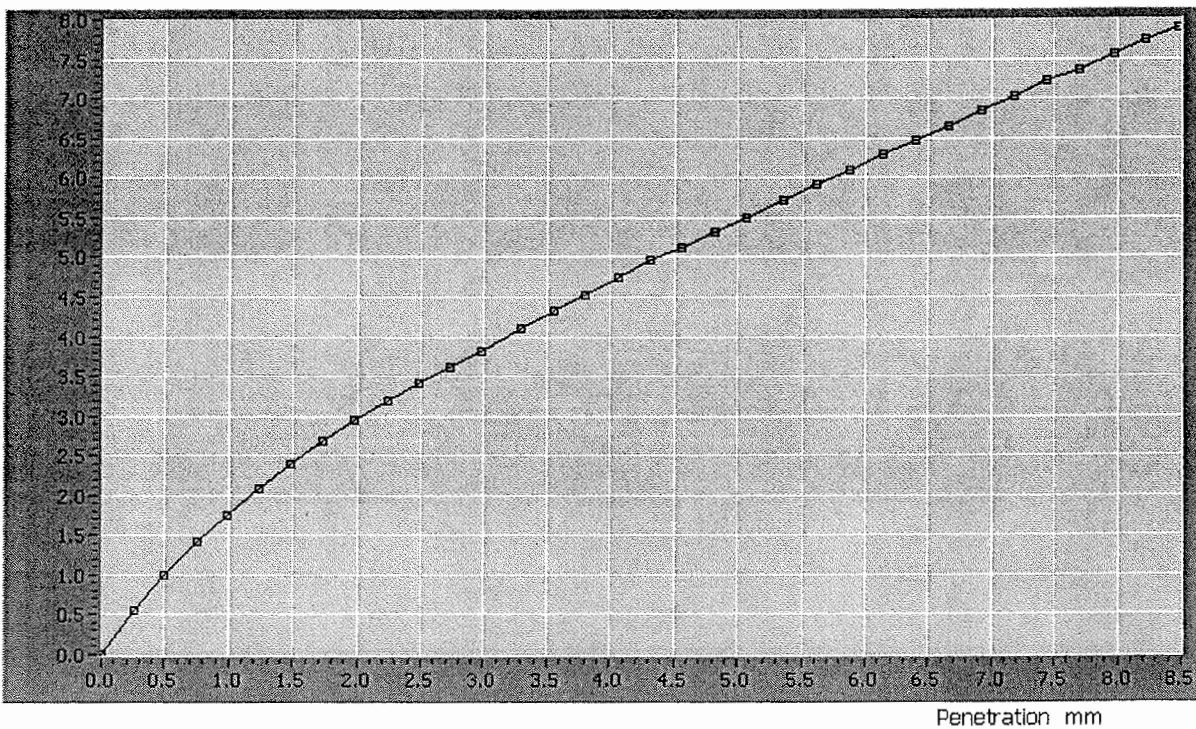


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	112 - B2	Sample	0000100287

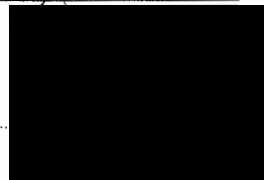
Penetration Stage (side 2)

Load kN



Results - Bottom			
Penetration	2.50	5.00	mm
Load	3.43	5.46	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	26.00	27.28	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 M D N Houseago (Lead Technician)





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Our Project No PTPZ0008
Our Report and sample No 100365
Your Sample Ref B4
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	BH 112	Depth	3 m
Date sampled		Date received	21-Sep-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Orangey brown fine and medium SAND		

Supplier Source
Conveyance note No.

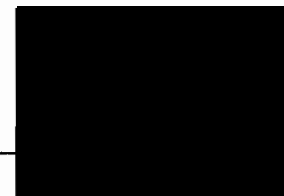
LOCATION	TEST SPECIMEN			
ORIENTATION	NOT APPLICABLE			
	NOT APPLICABLE			
	PREPARATION DETAILS			
METHOD OF DIVISION	QUARTERING			
PREPARATION METHOD	7.2.4.4 Rammer Compaction with specified effort			
RETAINED 37.5mm	%	0		
RETAINED 20mm	%	2		
NO OF LAYERS		3	CBR VALUE TOP	% 41
BLOWS PER LAYER		62 Blows	CBR VALUE BOTTOM	% 44
METHOD		2.5kg	AVERAGE CBR VALUE	% 42
CONDITION		UNSOAKED		
BULK DENSITY	Mg/m ³	2.035	MOISTURE CONT. TOP	% 16
DRY DENSITY	Mg/m ³	1.76	MOISTURE CONT. BOT	% 15
INITIAL MOISTURE CONT.	%	16	MOISTURE CONT. METHOD	Oven dried @ 105 -110°C

REMARKS

Test Code = 642



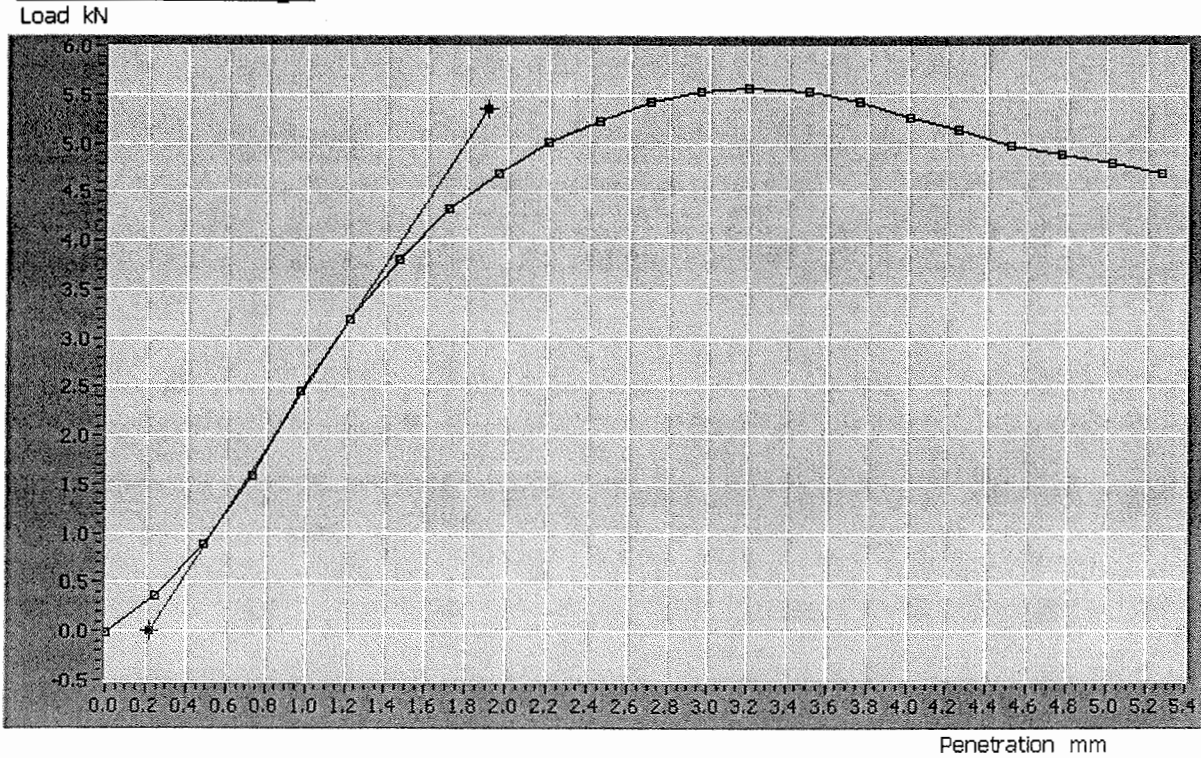
David Houseago (Lead Technician)



Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	112 - B3	Sample	0000100365

Penetration Stage



Results - Top			
Penetration	2.50	5.00	mm
Load	5.43	4.71	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	41.16	23.54	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)

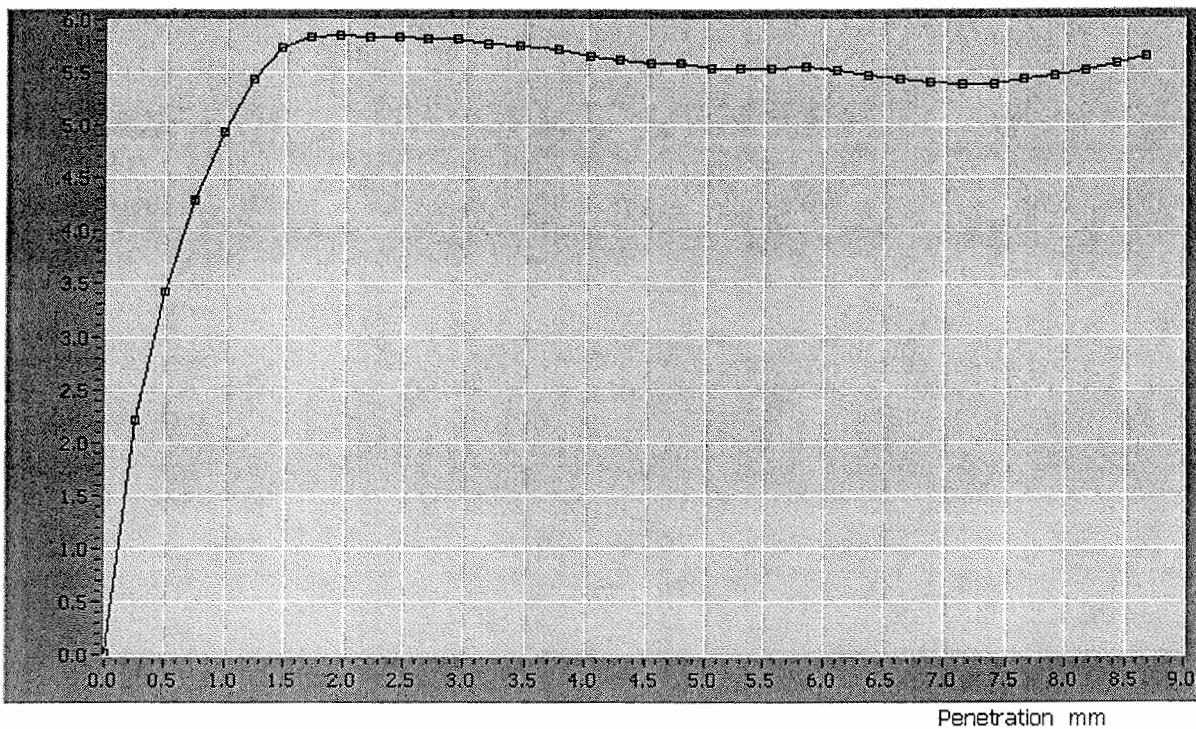


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	112 - B3	Sample	0000100365

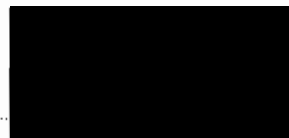
Penetration Stage (side 2)

Load kN



Results - Bottom			
Penetration	2.50	5.00	mm
Load	5.83	5.55	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	44.18	27.73	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 100355
Your Sample Ref B5
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	BH 112	Depth	4 m
Date sampled		Date received	01-Oct-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Orangey brown fine and medium SAND.		

Supplier _____ **Source** _____
Conveyance note No. _____

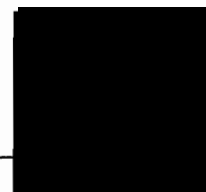
LOCATION	TEST SPECIMEN				
ORIENTATION	NOT APPLICABLE				
	NOT APPLICABLE				
	PREPARATION DETAILS				
METHOD OF DIVISION	QUARTERING				
PREPARATION METHOD	7.2.4.4 Rammer Compaction with specified effort				
RETAINED 37.5mm	%	0			
RETAINED 20mm	%	0			
NO OF LAYERS		3	CBR VALUE TOP	%	31
BLOWS PER LAYER		62 Blows	CBR VALUE BOTTOM	%	81
METHOD		2.5kg	AVERAGE CBR VALUE	%	56
CONDITION		UNSOAKED			
BULK DENSITY	Mg/m ³	2.106	MOISTURE CONT. TOP	%	18
DRY DENSITY	Mg/m ³	1.824	MOISTURE CONT. BOT	%	13
INITIAL MOISTURE CONT.	%	16	MOISTURE CONT. METHOD		Oven dried @ 105 -110°C

REMARKS

Test Code = 642



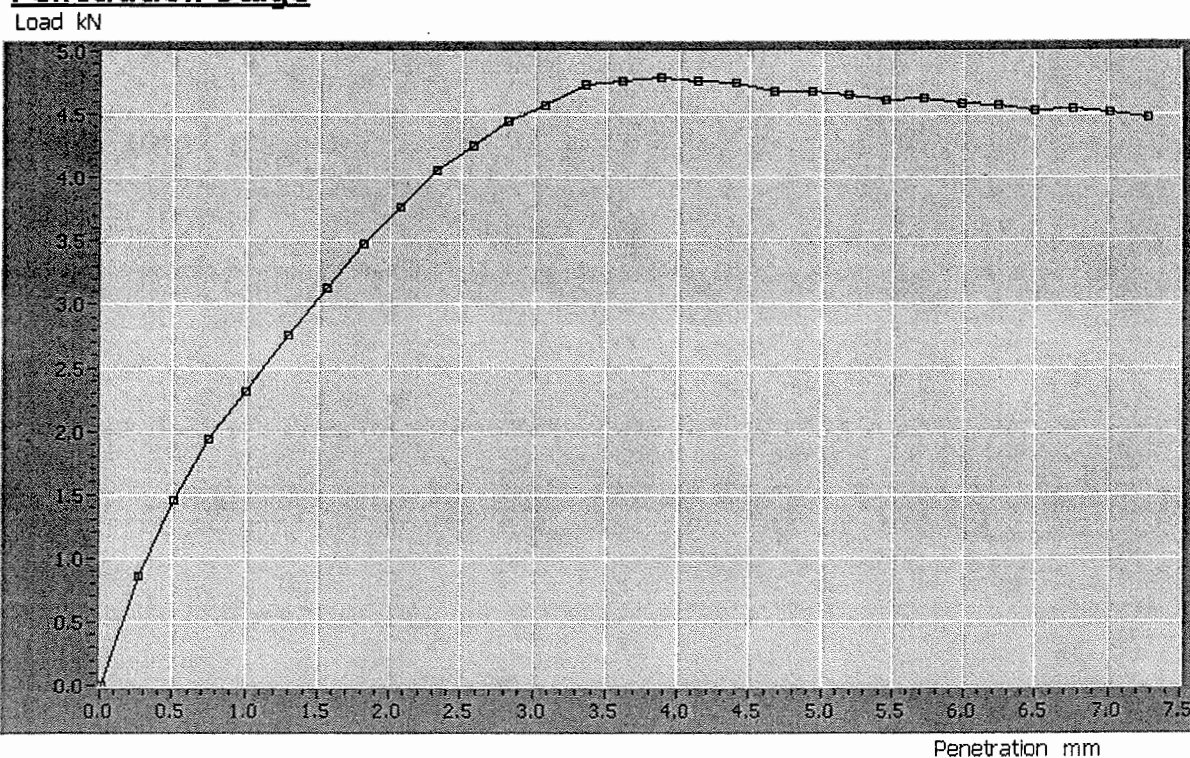
David Houseago (Lead Technician)



Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	BH112 - B5	Sample	0000100355

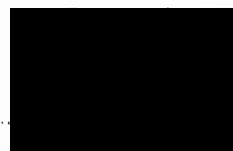
Penetration Stage



Results - Top			
Penetration	2.50	5.00	mm
Load	4.19	4.67	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	31.75	23.37	%

Authorised signatory

- R J Noakes (Laboratory Manager)
- M L Burnstead (Section Engineer)
- D Brown (Section Engineer)
- D N Houseago (Lead Technician)

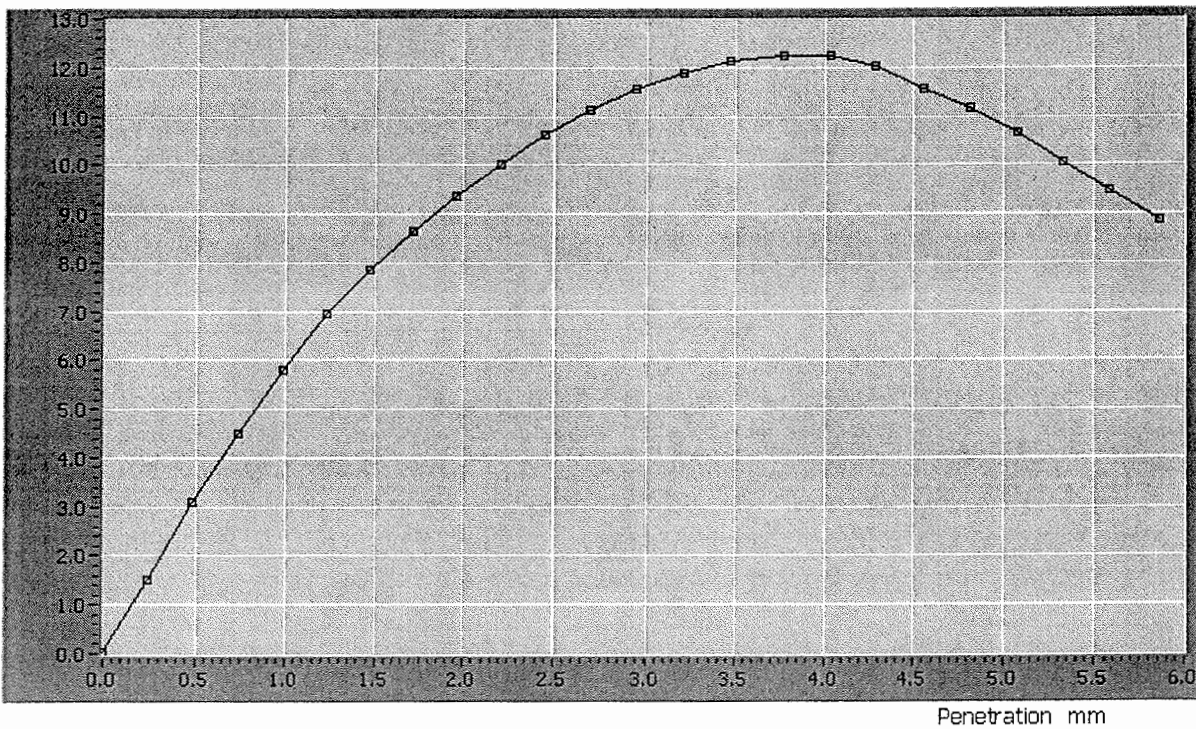


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	BH112 - B5	Sample	0000100355

Penetration Stage (side 2)

Load kN



Results - Bottom			
Penetration	2.50	5.00	mm
Load	10.73	10.82	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	81.28	54.11	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 100319
Your Sample Ref D11
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

Page 1 of 1

**DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY
INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5**

Scheme	Great Yarmouth Third River Crossing		
Location	BH 114	Depth	2.5 - m
Date sampled		Date received	21-Sep-07
Date tested	02-Oct-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Soft very sandy gravelly CLAY.		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

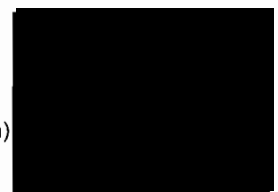
LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	47		
NATURAL MC (%)	16	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	27		
PLASTIC LIMIT (%)	15		
PLASTICITY INDEX (%)	12		
MODIFIED PI *(%)	7	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	CL		

REMARKS

Test Code = 604



David Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 100350
Your Sample Ref B12
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

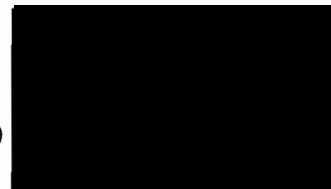
Scheme	Great Yarmouth Third River Crossing		
Location	BH 114	Depth	2.6 m
Date sampled		Date received	21-Sep-07
Date tested	05-Oct-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Brown and dark grey silty fine and medium SAND with some fine, medium and coarse flint gravel. Some organ		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
	Not applicable
	PREPARATION DETAILS
METHOD OF DIVISION	Ridffled
PREPARATION METHOD	Oven dried @ 105 -110°C
PASSING 2mm BS TEST SIEVE (%)	47
ORGANIC MATTER (%)	1

Test Code:620



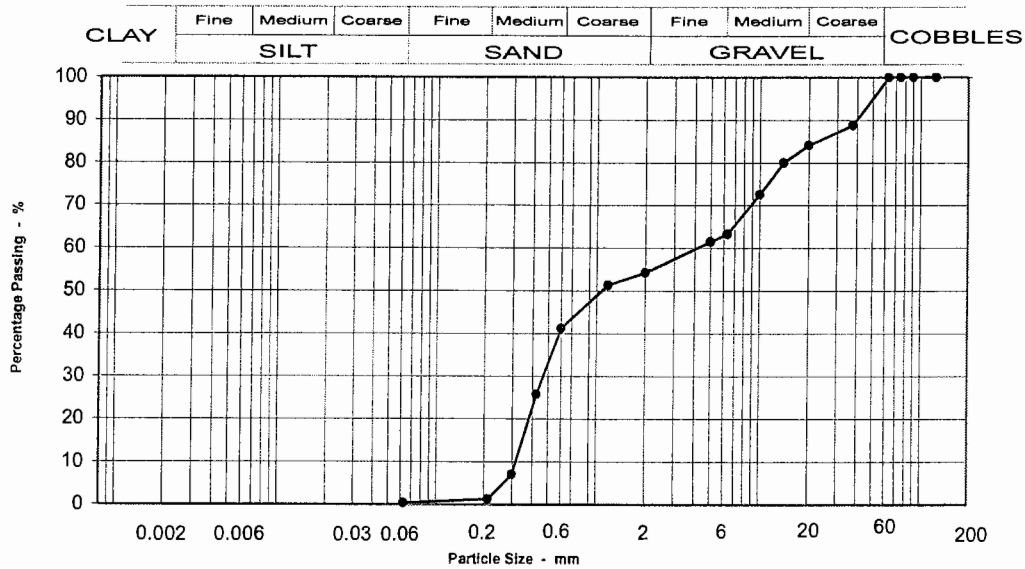
David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 114 3 - m**



Seiving		Specification for Highway Works Classification	
Particle Size mm	% Passing		
125	100	1A	Suitable
90	100		
75	100		
63	100		
37.5	89		
20	84		
14	80	6A	Suitable
10	73		
6.3	63		
5	61		
2	54	6E/6R	Suitable
1.18	51	6F1	Suitable
0.600	41		
0.425	26		
0.300	7	6I	Suitable
0.212	1		
0.063	0		
		6M	Suitable
		6N/6P	Suitable
		Moisture content %	7

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	16
Medium GRAVEL	21
Fine GRAVEL	13
Coarse SAND	9
Medium SAND	40
Fine SAND	1
Silt & Clay	0

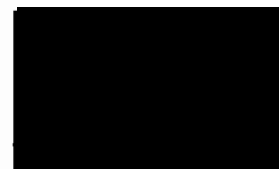
Grading Analysis	
D100	38
D60	4.42
D10	0.320
Uniformity Coefficient	14

Description	
Orangey brown medium and coarse SAND and fine, medium and coarse flint and quartz GRAVEL	

Test Code = 610



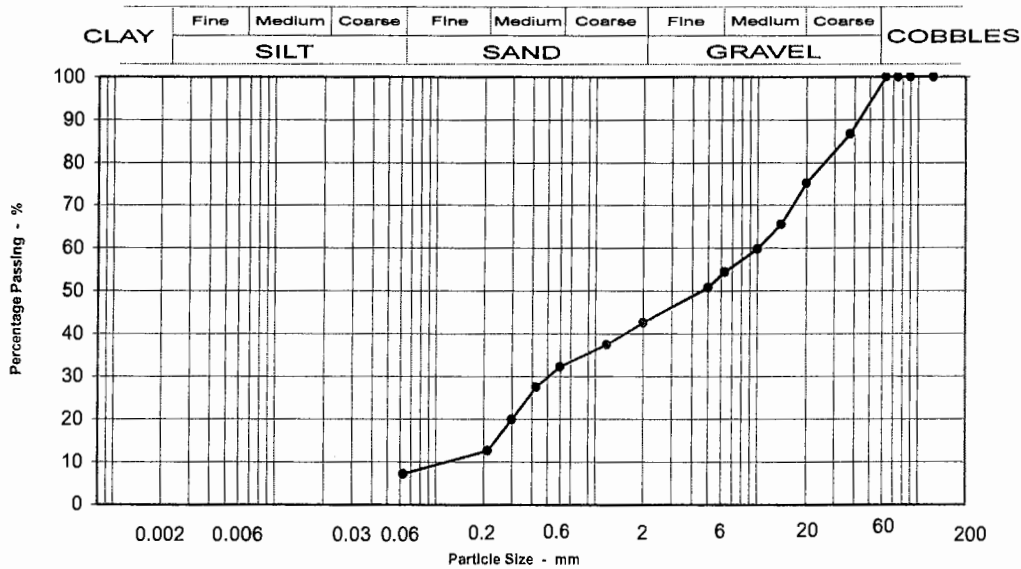
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 114 3.8 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1A Suitable
90	100	
75	100	
63	100	
37.5	87	
20	75	
14	66	
10	60	
6.3	54	
5	51	
2	43	6E/6R Suitable
1.18	37	6F1 Suitable
0.600	32	
0.425	27	
0.300	20	6I Suitable
0.212	13	
0.063	7	6M Suitable
		6N/6P Suitable
		Moisture content % 4

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	25
Medium GRAVEL	21
Fine GRAVEL	12
Coarse SAND	10
Medium SAND	20
Fine SAND	5
Silt & Clay	7

Grading Analysis	
D100	38
D60	10.21
D10	0.140
Uniformity Coefficient	73

Description	
Dark grey SAND and GRAVEL. Gravel is fine, medium and coarse. Sand is medium and coarse.	

Test Code = 610



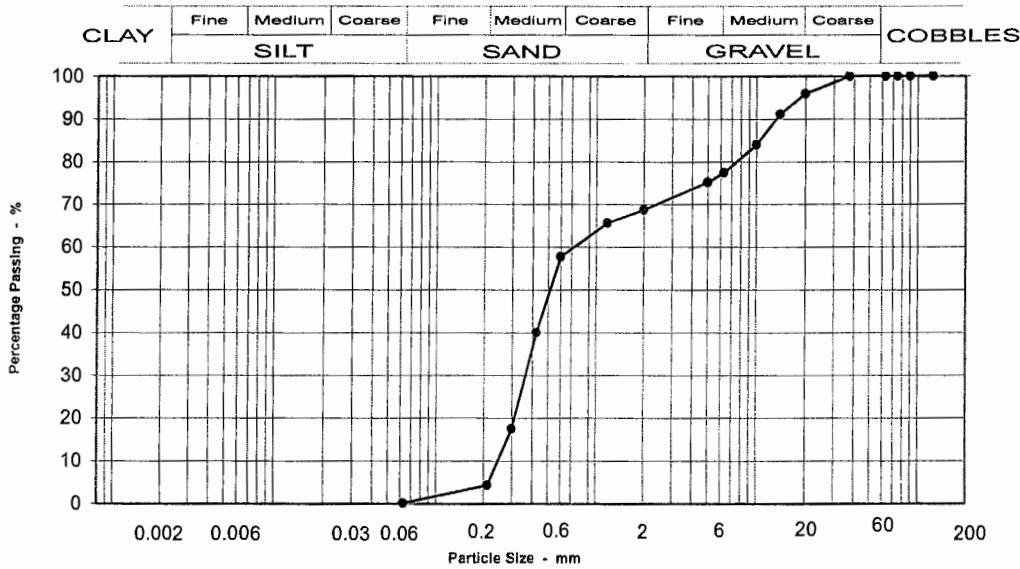
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 115 4 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	96
14	91
10	84
6.3	77
5	75
2	69
1.18	66
0.600	58
0.425	40
0.300	18
0.212	4
0.063	0

Specification for Highway Works Classification

1B Suitable

6E/6R Suitable

6M Suitable

Moisture content % 10

Sample Proportions

BOULDERS	0
COBBLES	0
Coarse GRAVEL	4
Medium GRAVEL	19
Fine GRAVEL	11
Coarse SAND	9
Medium SAND	53
Fine SAND	4
Silt & Clay	0

Grading Analysis

D100	20
D60	0.77
D10	0.250
Uniformity Coefficient	3

Description

Light brown and grey slightly gravelly medium and coarse SAND. Gravel is sub-angular to sub-rounded medium and coarse flint.

Test Code = 610



D N Houseago (Lead Technician)

Planning & Transportation
 County Hall
 Martineau Lane
 Norwich
 NR1 2SG

Our Project No PTPZ0008
 Our Report and sample No 100361
 Your Sample Ref B16
 Your Project or Order No
 P&T Project No.
 Date Report Issued 25-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	BH 115	Depth	6 m
Date sampled		Date received	21-Sep-07
Sample type	B	Sample Mass	

Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.

Material	Bulk Disturbed
Description	Brown, light brown and grey slightly gravelly fine, medium and coarse SAND. Gravel is sub-angular to sub-rounded fine, medium and coarse flint

Supplier	Source	Ex site
Conveyance note No.		

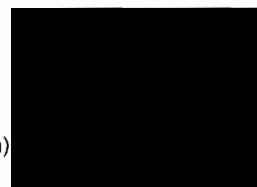
LOCATION	TEST SPECIMEN		
ORIENTATION	NOT APPLICABLE		
	NOT APPLICABLE		
	PREPARATION DETAILS		
METHOD OF DIVISION	QUARTERING		
PREPARATION METHOD	7.2.4.4 Rammer Compaction with specified effort		
RETAINED 37.5mm	%	12	
RETAINED 20mm	%	34	
NO OF LAYERS		3	CBR VALUE TOP % 71
BLOWS PER LAYER		N/A	CBR VALUE BOTTOM % 122
METHOD		Vib.Hammer	AVERAGE CBR VALUE % 96
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	2.21	MOISTURE CONT. TOP % 7
DRY DENSITY	Mg/m ³	2.05	MOISTURE CONT. BOT % 8
INITIAL MOISTURE CONT.	%	8	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

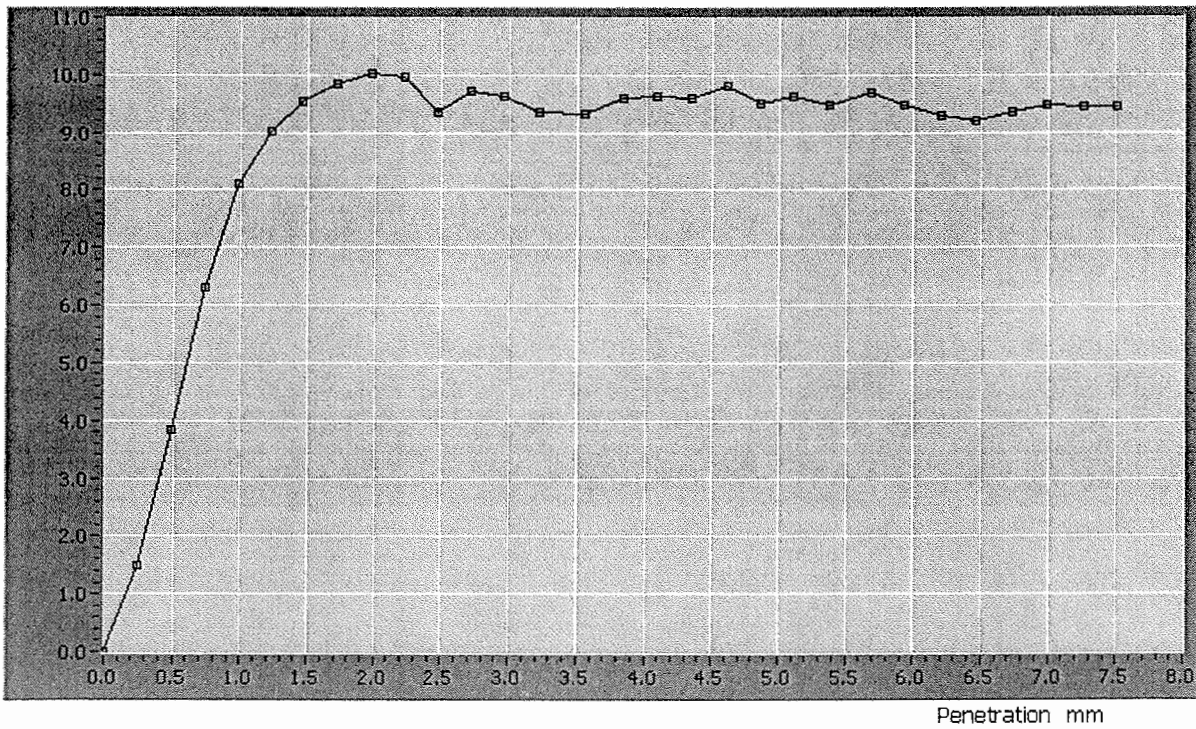


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	115 - B16	Sample	0000100361

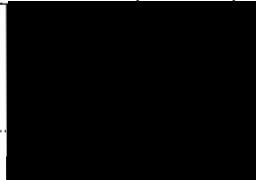
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	9.42	9.58	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	71.33	47.92	%

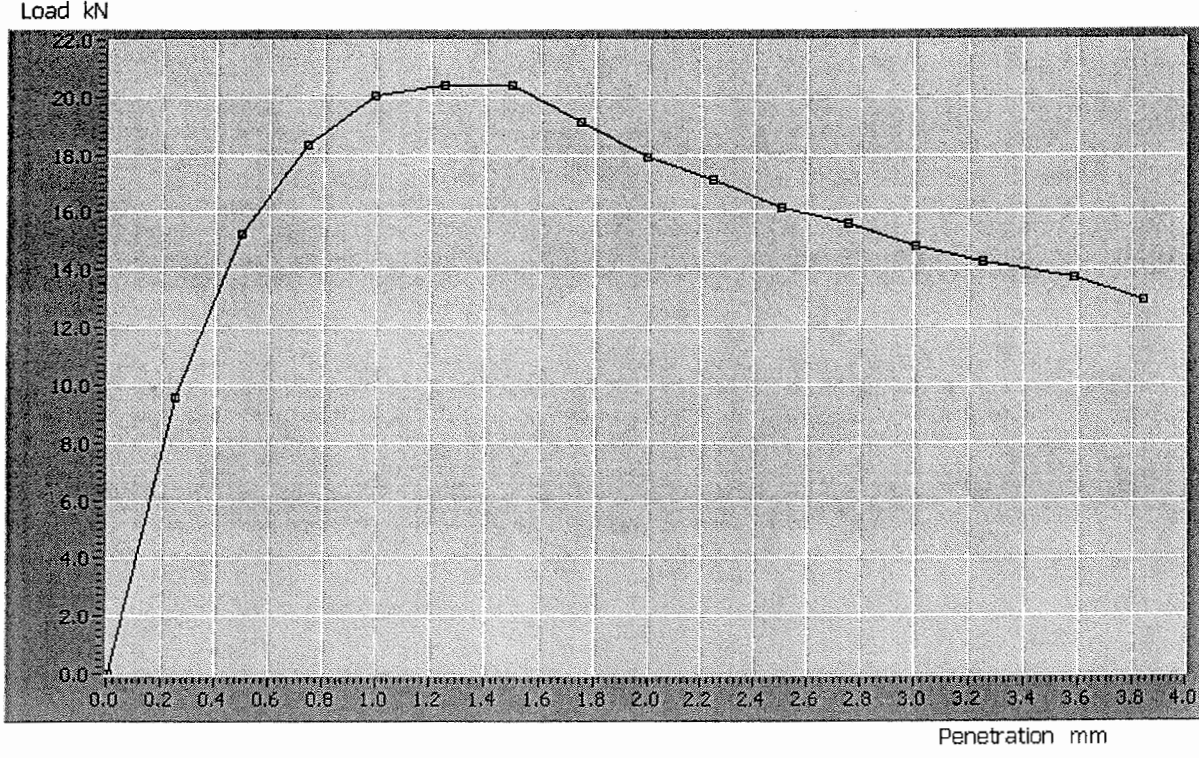
Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)



**Norfolk Partnership Laboratory
California Bearing Ratio**

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	115 - B16	Sample	0000100361

Penetration Stage (side 2)



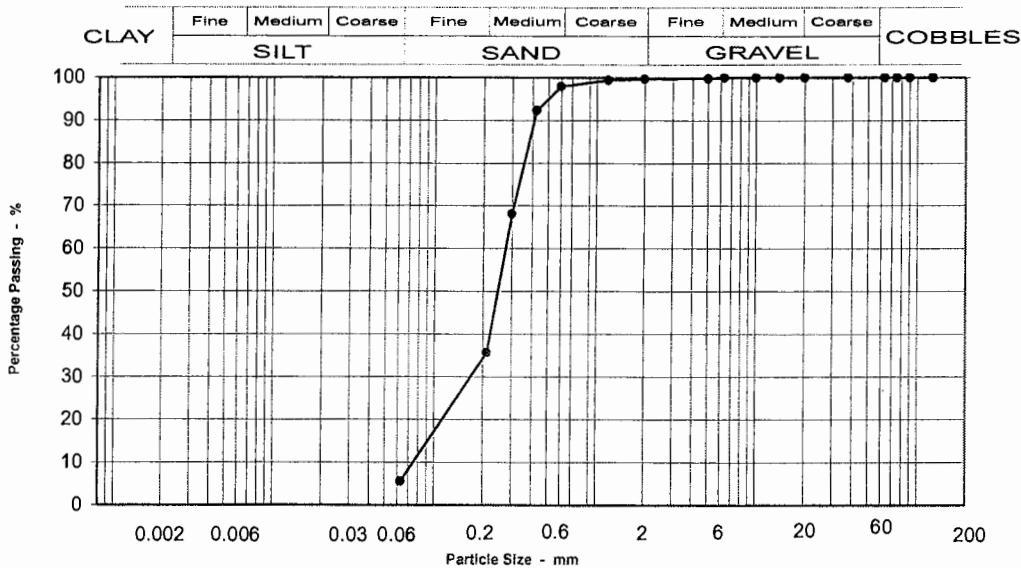
Results - Bottom			
Penetration	2.50	5.00	mm
Load	16.13	12.91	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	122.22	64.55	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician) ...



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 115 16.5 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	1B Suitable
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	99	
0.600	98	
0.425	92	
0.300	68	
0.212	36	
0.063	6	6M Suitable
Moisture content %		26

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	2
Coarse SAND	0
Medium SAND	62
Fine SAND	30
Silt & Clay	6

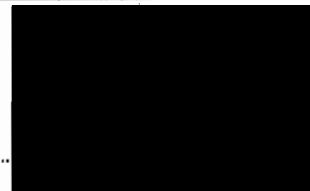
Grading Analysis	
D100	5
D60	0.28
D10	0.085
Uniformity Coefficient	3

Description	
Reddish orangey brown, slightly silty, slightly clayey fine and medium SAND	

Test Code = 610

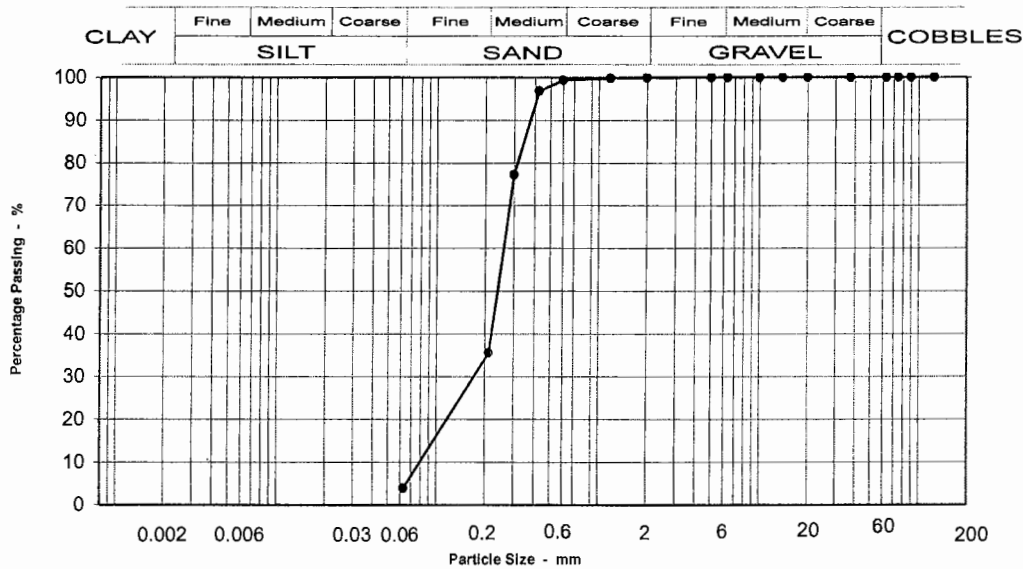


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 115 21.5 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	
75	100	1B Suitable
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	100	
0.600	99	
0.425	97	
0.300	77	
0.212	36	
0.063	4	6M Suitable
Moisture content %		21

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	1
Coarse SAND	0
Medium SAND	64
Fine SAND	32
Silt & Clay	4

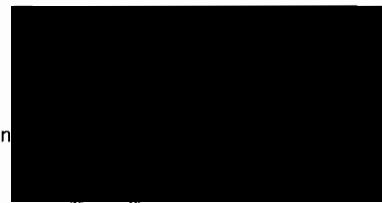
Grading Analysis	
D100	2
D60	0.26
D10	0.092
Uniformity Coefficient	3

Description	
Reddish orangey brown, slightly silty, slightly clayey fine and medium SAND	

Test Code = 610



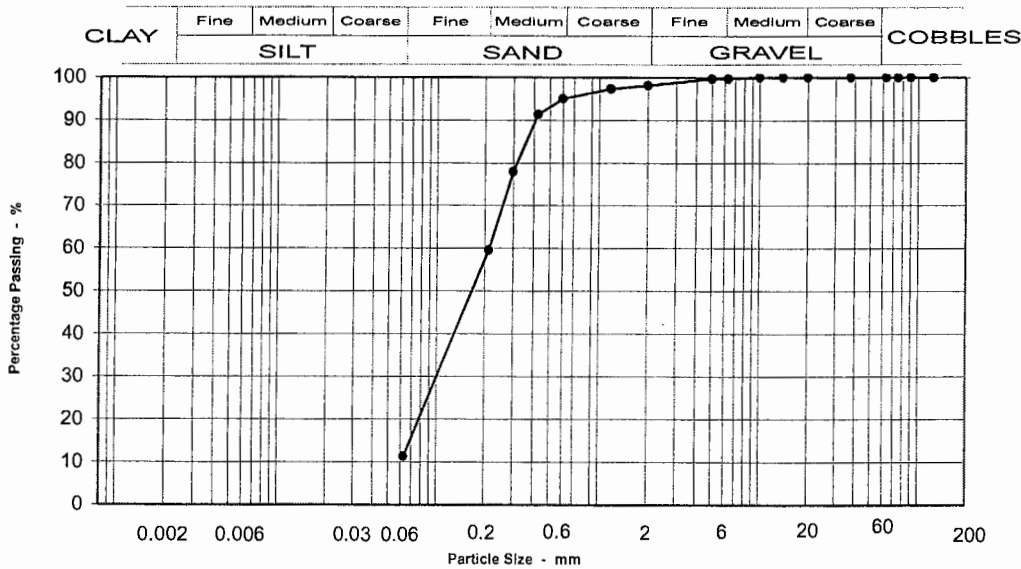
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH116 24.5 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	98
1.18	97
0.600	95
0.425	91
0.300	78
0.212	60
0.063	11

Specification for Highway Works Classification	
1B	Suitable
6E/6R	Suitable

Moisture content % 25

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	3
Coarse SAND	2
Medium SAND	36
Fine SAND	48
Silt & Clay	11

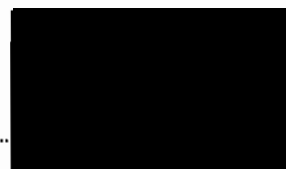
Grading Analysis	
D100	6
D60	0.21
D10	0.036
Uniformity Coefficient	6

Description
Grey slightly silty clayey fine and medium SAND.

Test Code = 610

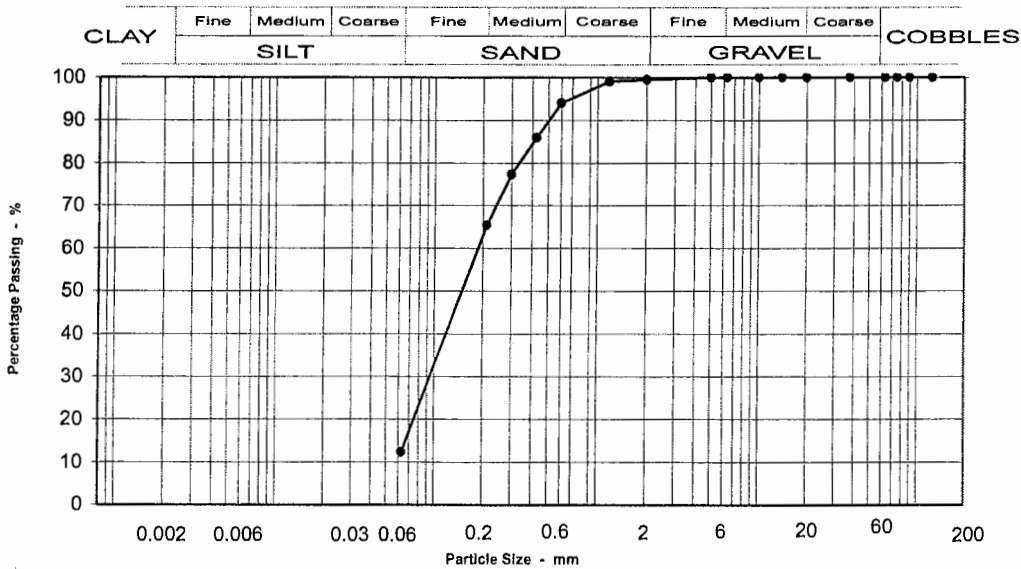


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH116 27.5 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	1B Suitable
75	100	
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	99	
0.600	94	
0.425	86	
0.300	77	
0.212	65	
0.063	12	

Moisture content % 24

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	6
Coarse SAND	1
Medium SAND	29
Fine SAND	53
Silt & Clay	12

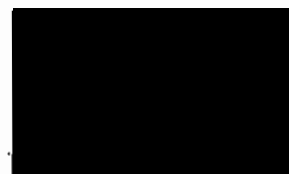
Grading Analysis	
D100	2
D60	0.20
D10	0.033
Uniformity Coefficient	6

Description	
Grey fine and medium SAND with laminae of soft grey silty clay. Some shell fragments	

Test Code = 610

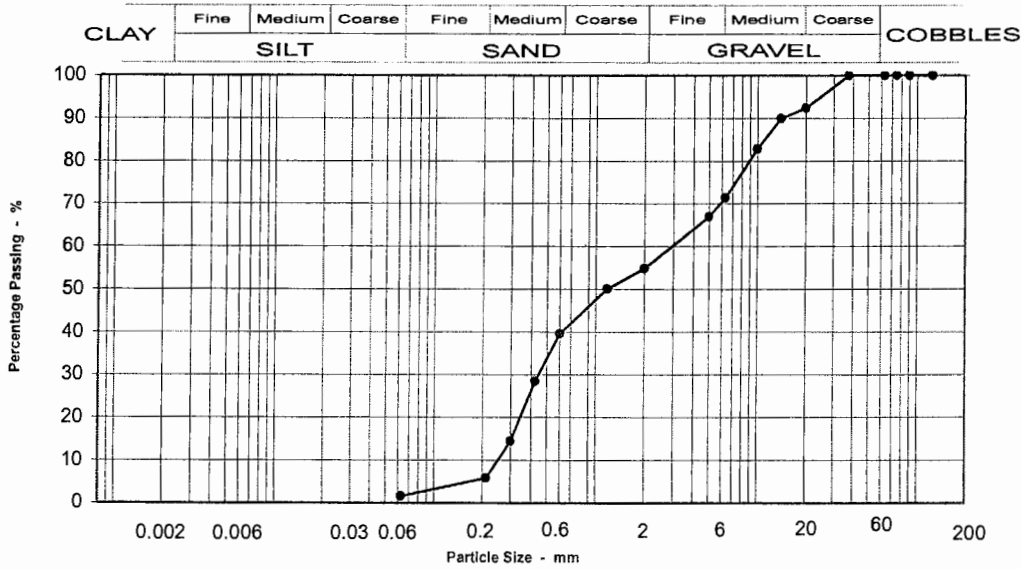


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 117 3.1 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1A Suitable
90	100	
75	100	
63	100	
37.5	100	
20	92	
14	90	6A Suitable
10	83	
6.3	71	
5	67	
2	55	6E/6R Suitable
1.18	50	6F1 Suitable
0.600	40	
0.425	28	
0.300	14	6I Suitable
0.212	6	
0.063	2	
		6M Suitable
		6N/6P Suitable
Moisture content %		8

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	8
Medium GRAVEL	21
Fine GRAVEL	15
Coarse SAND	17
Medium SAND	34
Fine SAND	4
Silt & Clay	2

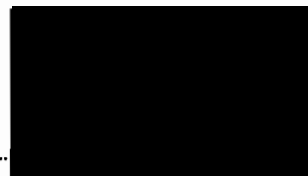
Grading Analysis	
D100	20
D60	3.29
D10	0.255
Uniformity Coefficient	13

Description
Dark grey fine, medium and coarse SAND and angular to sub-rounded fine, medium and coarse flint gravel

Test Code = 610



D N Houseago (Lead Technician)

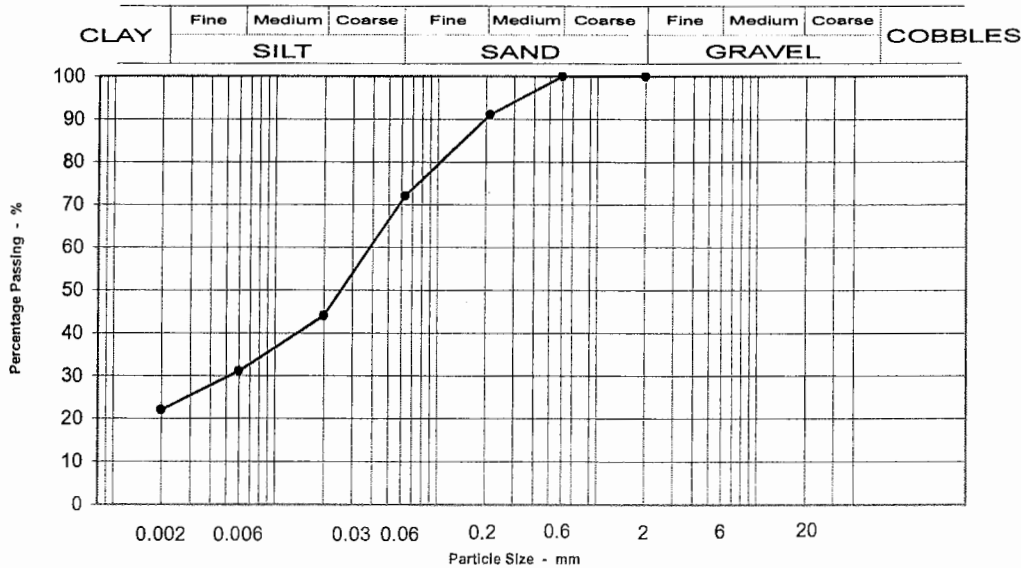


Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 100317
Your Sample Ref D16
Your Project or Order No
P&T Project No.
Date Report Issued 12 October 2007

Particle Size Distribution to BS 1377 : Part2 : 1990
Sedimentation Method Section 9.4

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 117 4 - m**



Seiving	
Particle Size	% Passing
mm	
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
0.6	100
0.212	91
0.063	72
0.02	44
0.006	31
0.002	22

Moisture content % 42

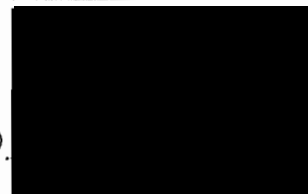
Sample Proportions	
GRAVEL	0
Coarse SAND	0
Medium SAND	9
Fine SAND	19
Coarse SILT	13
FINE SILT	9
CLAY	22

Description
Very soft dark grey gravelly CLAY.

Test Code = 612



D N Houseago (Lead Technician)





Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG
FAO I Brown

Our Project No PTPZ0008
Our Report and sample No 100318
Your Sample Ref D16
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	BH 117	Depth	4 - m
Date sampled		Date received	21-Sep-07
Date tested	02-Oct-07		
Sample type	D	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Small disturbed sample		
Description	Very soft dark grey gravelly CLAY.		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

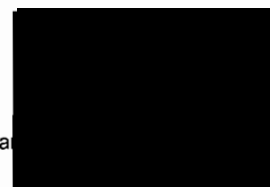
LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	28		
NATURAL MC (%)	39	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	40		
PLASTIC LIMIT (%)	21		
PLASTICITY INDEX (%)	19		
MODIFIED PI *(%)	14	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	C I		

REMARKS

Test Code = 604



David Houseago (Lead Technician)



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County Hall
Martineau Lane
Norwich
NR1 2SG
FAO I Brown

Our Project No PTPZ0008
Our Report and sample No
Your Sample Ref D16
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

Page 1 of 1

DETERMINATION OF MOISTURE CONTENT TO BS1377 : PART2 : 1990 : SECTION 3.2

Scheme	Great Yarmouth Third River Crossing		
Location	BH 117	Depth	4 - m
Date sampled		Date received	29-Sep-07
Sample type	D	Sample Mass	Unknown
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material Description	Small disturbed sample Very soft dark grey gravelly CLAY.		
Supplier		Source	
Conveyance note No.			

LOCATION TEST SPECIMEN
Not applicable
ORIENTATION Not applicable
METHOD OF DIVISION PREPARATION DETAILS
Riffled
PREPARATION METHOD Oven dried @ 105 -110°C

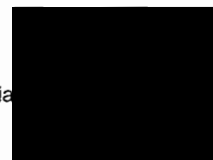
NATURAL MC (%) 42

REMARKS

Test Code = 602



K Lawes (Lead Technician)



Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG
FAO I Brown

Our Project No PTPZ0008
Our Report and sample No 100307
Your Sample Ref B17
Your Project or Order No
P&T Project No.
Date Report Issued 10-Oct-07

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

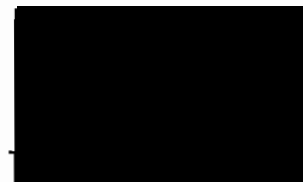
Scheme	Great Yarmouth Third River Crossing		
Location	BH 117	Depth	4 m
Date sampled		Date received	21-Sep-07
Date tested	05-Oct-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Dark grey organic SILT		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
	Not applicable
	PREPARATION DETAILS
METHOD OF DIVISION	Ridffled
PREPARATION METHOD	Oven dried @ 105 -110°C
PASSING 2mm BS TEST SIEVE (%)	95
ORGANIC MATTER (%)	2

Test Code:620

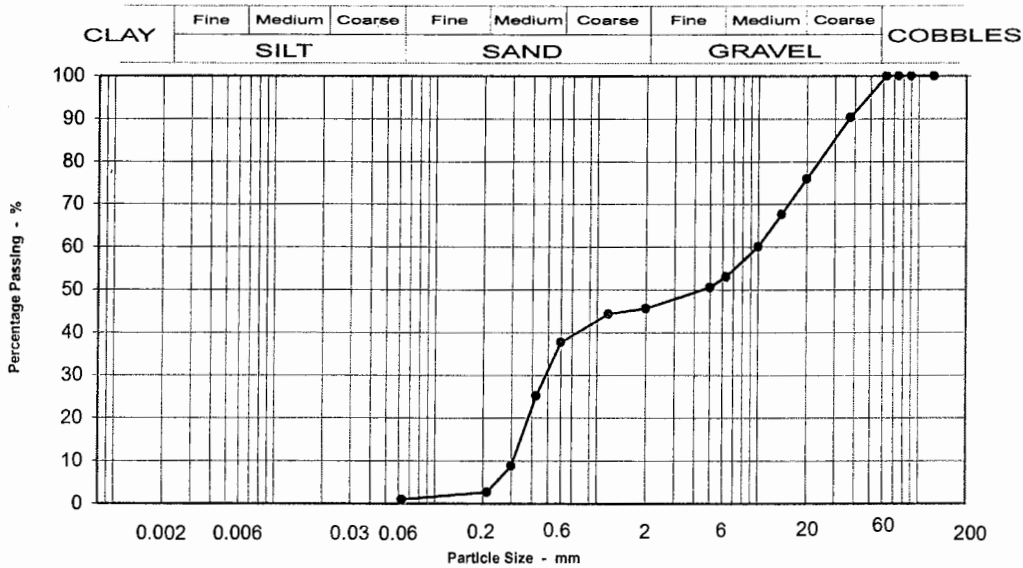


David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 117 6.5 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1A Suitable
90	100	
75	100	
63	100	
37.5	90	
20	76	
14	68	6A Suitable
10	60	
6.3	53	
5	51	
2	46	6E/6R Suitable
1.18	44	6F1 Suitable
0.600	38	
0.425	25	
0.300	9	6I Suitable
0.212	3	
0.063	1	
		6M Suitable
		6N/6P Suitable
		Moisture content % 8

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	24
Medium GRAVEL	23
Fine GRAVEL	8
Coarse SAND	7
Medium SAND	35
Fine SAND	2
Silt & Clay	1

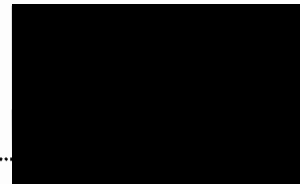
Grading Analysis	
D100	38
D60	10.00
D10	0.309
Uniformity Coefficient	32

Description	
Dark brownish grey medium SAND	

Test Code = 610



D N Houseago (Lead Technician)





working with



Norfolk Partnership Laboratory
County Hall, Martineau Lane
NORWICH, Norfolk NR1 2SG
Tel: 01603 222416
Fax: 01603 222457

Email: civil.laboratory@norfolk.gov.uk

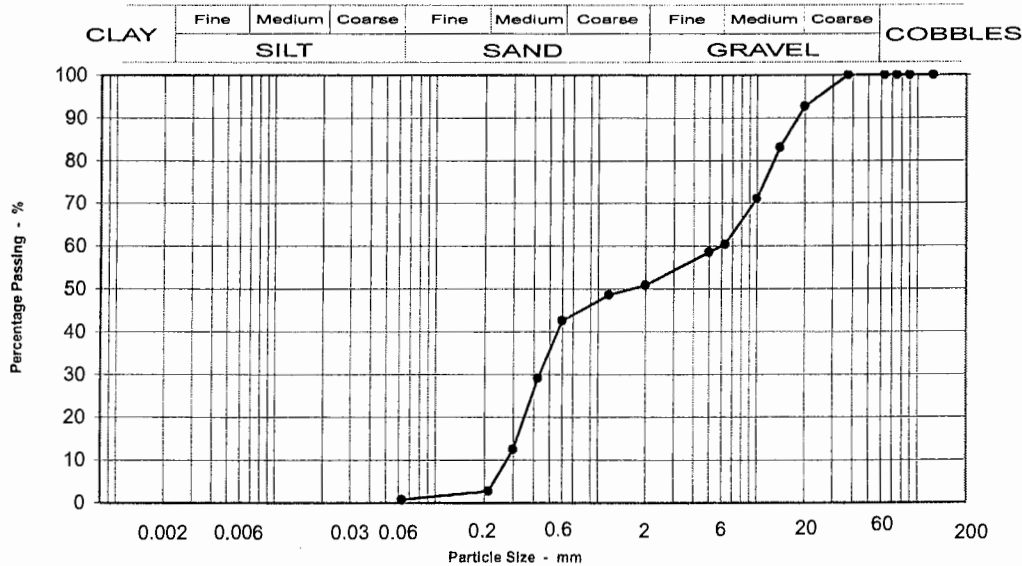
Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 100293
Your Sample Ref B22
Your Project or Order No
P&T Project No.
Date Report Issued 08 October 2007

Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 117 7.5 - m**



Seiving		Specification for Highway Works Classification	
Particle Size mm	% Passing		
125	100	1A	Suitable
90	100		
75	100		
63	100		
37.5	100		
20	93		
14	83	6A	Suitable
10	71		
6.3	60		
5	59		
2	51	6E/6R	Suitable
1.18	49	6F1	Suitable
0.600	43		
0.425	29		
0.300	13	6I	Suitable
0.212	3		
0.063	1		
		6M	Suitable
		6N/6P	Suitable
		Moisture content %	8

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	7
Medium GRAVEL	32
Fine GRAVEL	8
Coarse SAND	10
Medium SAND	40
Fine SAND	2
Silt & Clay	1

Grading Analysis	
D100	20
D60	6.03
D10	0.278
Uniformity Coefficient	22

Description	
Brownish grey sub-angular to rounded fine and medium flint gravel and fine, medium and coarse SAND	

Test Code = 610

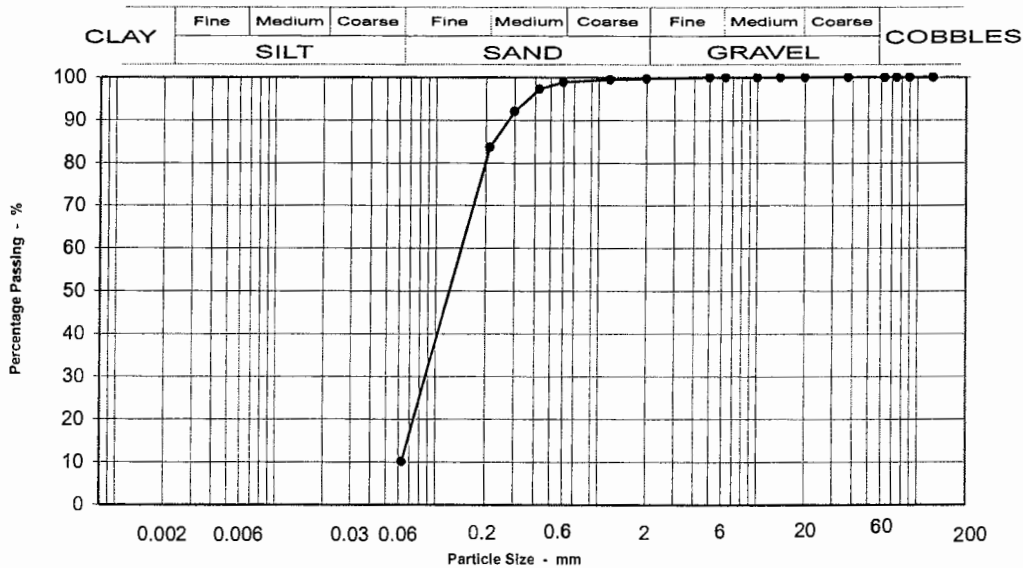


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **BH 117 16.5 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	100
1.18	100
0.600	99
0.425	97
0.300	92
0.212	84
0.063	10

Specification for Highway Works Classification	
1B	Suitable
6E/6R	Suitable

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	1
Coarse SAND	0
Medium SAND	15
Fine SAND	74
Silt & Clay	10

Grading Analysis	
D100	2
D60	0.16
D10	0.026
Uniformity Coefficient	6

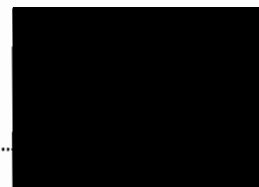
Description	
Orangey brown slightly clayey medium and coarse SAND.	

Moisture content % 26

Test Code = 610



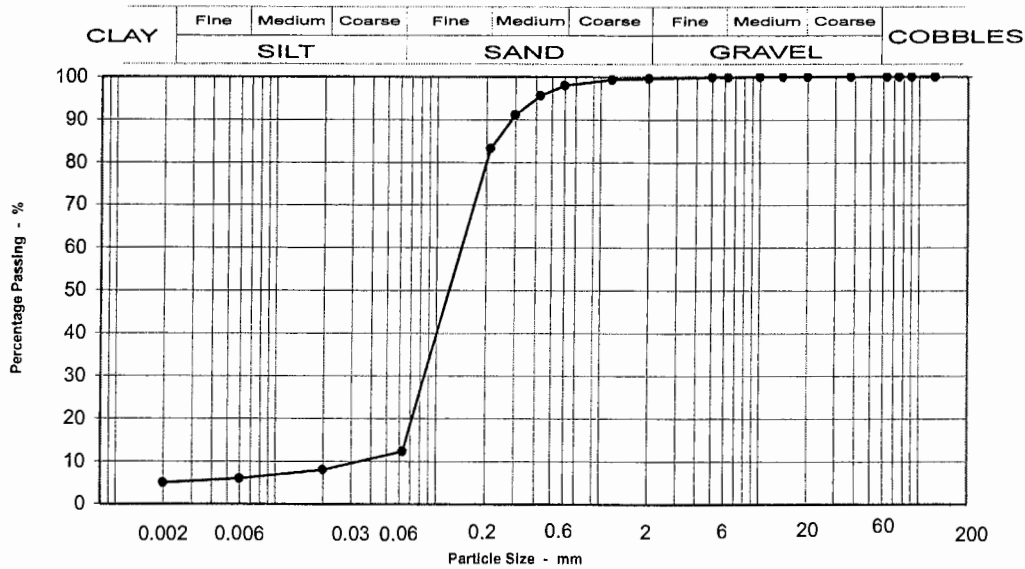
D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **BH 117 23 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	
75	100	1B Suitable
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	99	
0.600	98	
0.425	96	
0.300	91	
0.212	83	
0.063	12	
0.020	8	
0.060	6	
0.002	5	

Moisture content % 25

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	2
Coarse SAND	0
Medium SAND	15
Fine SAND	71
Silt & Clay	12

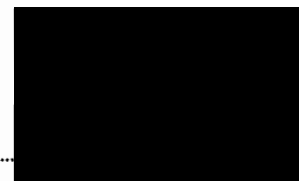
Grading Analysis	
D100	6
D60	0.16
D10	0.066
Uniformity Coefficient	2

Description	
Brown and grey fine SAND	

Test Code = 610



D N Houseago (Lead Technician)



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Our Project No PTPZ0008
 Our Report and sample No 99852
 Your Sample Ref D2
 Your Project or Order No
 P&T Project No.
 Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	WS103	Depth	0.5 m
Date sampled		Date received	06-Sep-07
Sample type	D	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Greyish brown fine and medium SAND with a little coarse rounded gravel		

Supplier _____ **Source** _____
Conveyance note No. _____

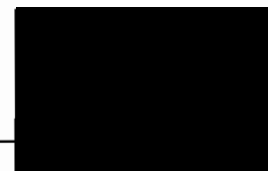
LOCATION		TEST SPECIMEN	
ORIENTATION		NOT APPLICABLE	
METHOD OF DIVISION		QUARTERING	
PREPARATION METHOD		7.2.4.4 Rammer Compaction with specified effort	
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	3	
NO OF LAYERS		3	CBR VALUE TOP % 45
BLOWS PER LAYER		62 Blows	CBR VALUE BOTTOM % 41
METHOD		2.5kg	AVERAGE CBR VALUE % 43
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	1.344	MOISTURE CONT. TOP % 4
DRY DENSITY	Mg/m ³	1.286	MOISTURE CONT. BOT % 5
INITIAL MOISTURE CONT.	%	5	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

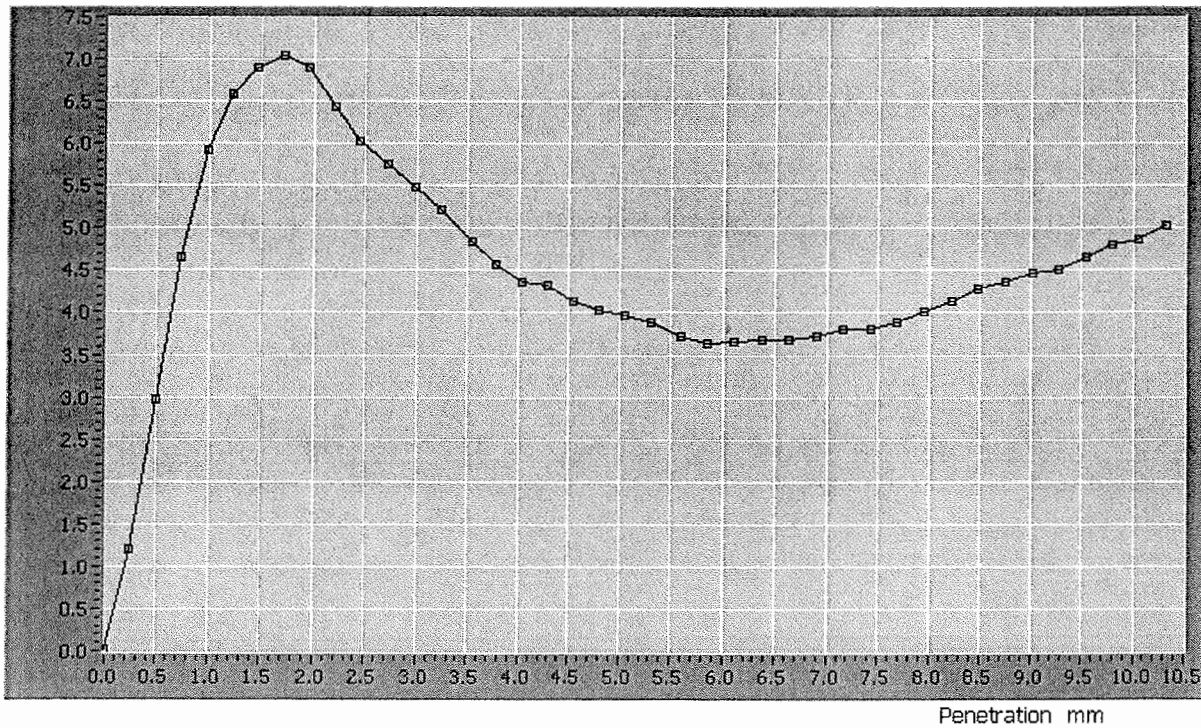


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTKZ0008
Borehole	WS 103 -D2	Sample	0000099852

Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	5.97	3.99	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	45.23	19.94	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)

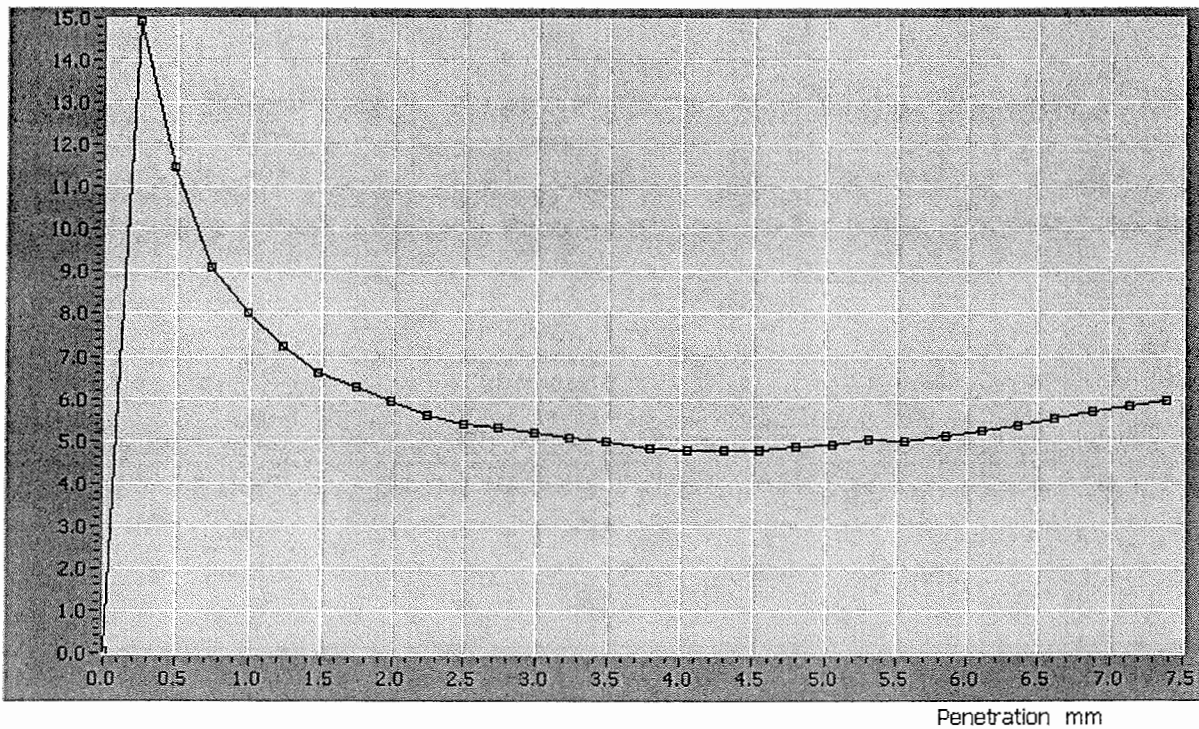


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 103 -D2	Sample	0000099852

Penetration Stage (side 2)

Load kN



Results - Bottom			
Penetration	2.50	5.00	mm
Load	5.41	4.90	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	40.96	24.50	%

Authorised signatory

- R J Noakes (Laboratory Manager)
- M L Bumstead (Section Engineer)
- J D Brown (Section Engineer)
- D N Houseago (Lead Technician)



working with



Norfolk Partnership Laboratory
 County Hall, Martineau Lane
 NORWICH, Norfolk NR1 2SG
 Tel: 01603 222416
 Fax: 01603 222457

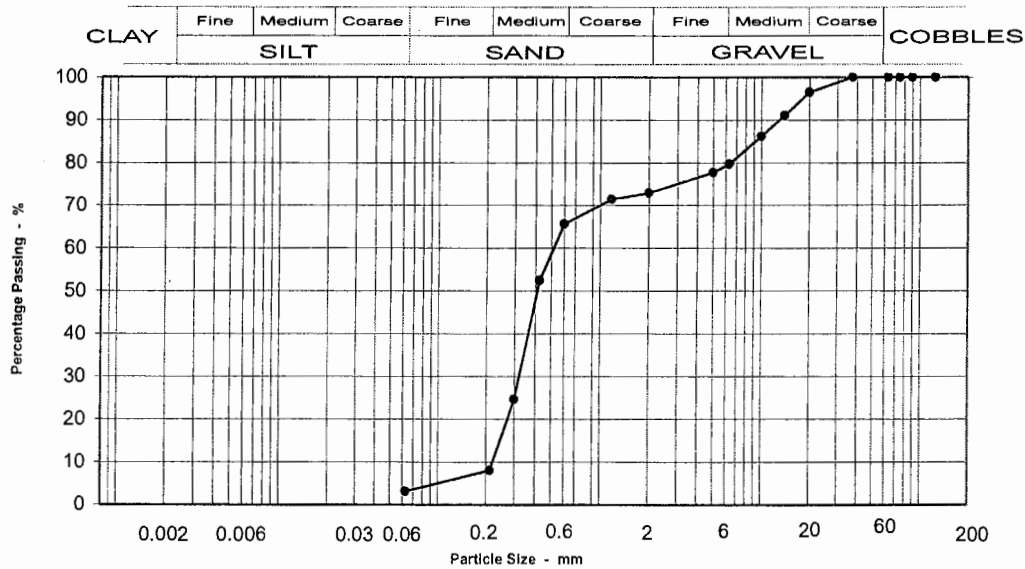
Email: civil.laboratory@norfolk.gov.uk

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 County Hall
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 Norwich
 NR1 2SG

Our Project No PTPZ0008
 Our Report and sample No 99865
 Your Sample Ref D3
 Your Project or Order No
 P&T Project No.
 Date Report Issued 08 October 2007

Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **WS103 1.2 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	97
14	91
10	86
6.3	80
5	78
2	73
1.18	71
0.600	66
0.425	52
0.300	25
0.212	8
0.063	3

Specification for Highway Works Classification	
1B	Suitable
6E/6R	Suitable
6M	Suitable

Moisture content % 13

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	4
Medium GRAVEL	17
Fine GRAVEL	7
Coarse SAND	7
Medium SAND	58
Fine SAND	5
Silt & Clay	3

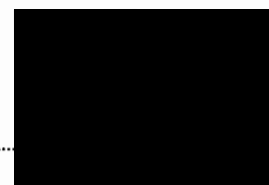
Grading Analysis	
D100	20
D60	0.53
D10	0.223
Uniformity Coefficient	2

Description	
Light brown fine and medium SAND	

Test Code = 610



D N Houseago (Lead Technician)



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NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 99851
Your Sample Ref B3
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	WS104	Depth	0.75 m
Date sampled		Date received	11-Sep-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Light brown fine and medium SAND		

Supplier Source
Conveyance note No.

LOCATION	TEST SPECIMEN		
ORIENTATION	NOT APPLICABLE		
METHOD OF DIVISION	PREPARATION DETAILS		
PREPARATION METHOD	QUARTERING		
	7.2.4.4 Rammer Compaction with specified effort		
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	0	
NO OF LAYERS		3	CBR VALUE TOP % 50
BLOWS PER LAYER		N/A	CBR VALUE BOTTOM % 32
METHOD		Vib.Hammer	AVERAGE CBR VALUE % 41
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	1.816	MOISTURE CONT. TOP % 4
DRY DENSITY	Mg/m ³	1.751	MOISTURE CONT. BOT % 3
INITIAL MOISTURE CONT.	%	4	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

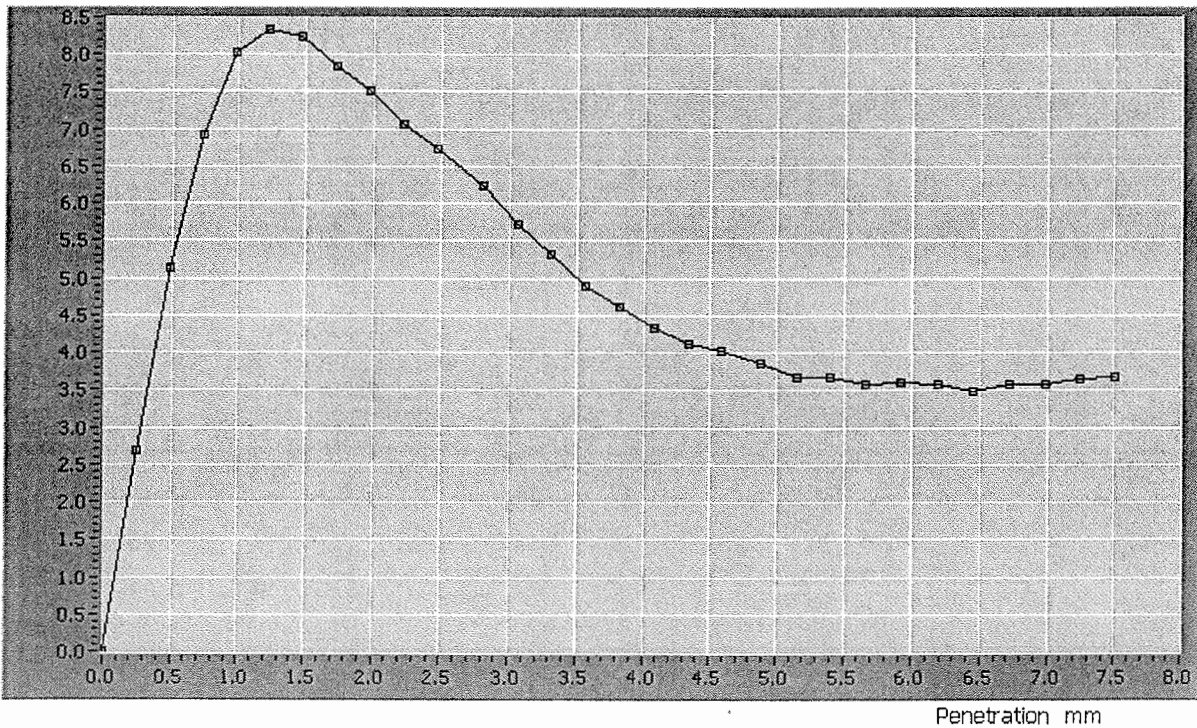


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPKZ0008
Borehole	Ws 104 - B1	Sample	0000099851

Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	6.68	3.78	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	50.61	18.92	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)

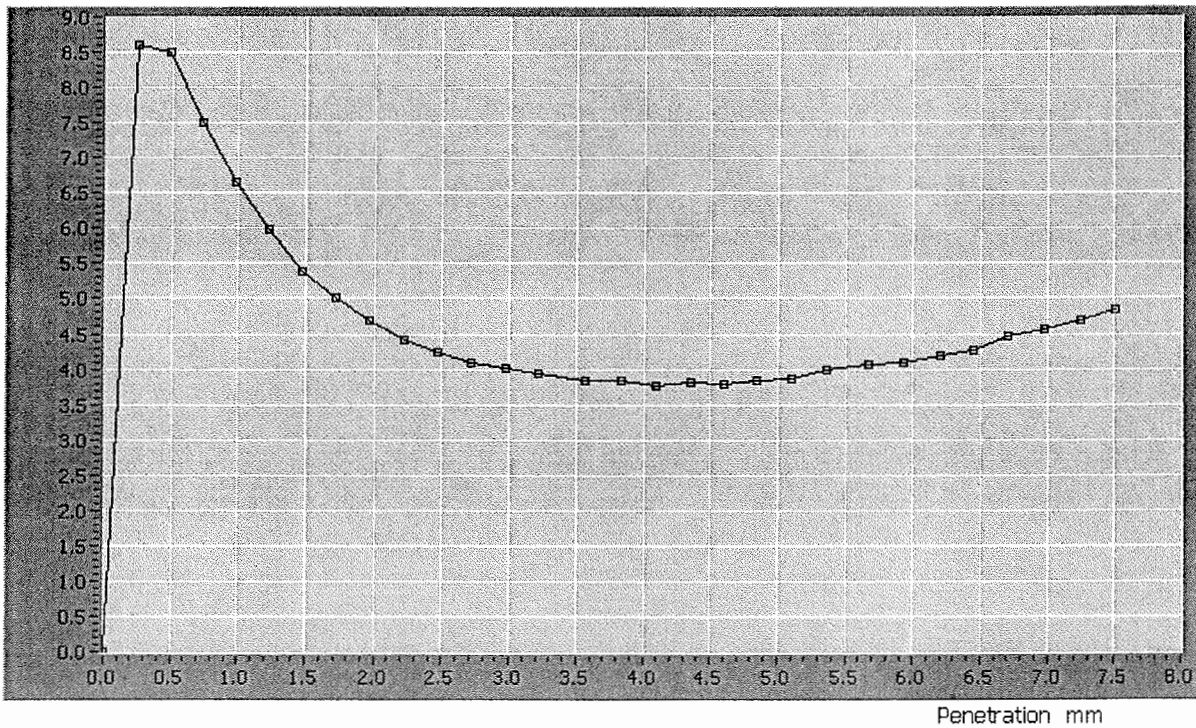


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPKZ0008
Borehole	Ws 104 - B1	Sample	0000099851

Penetration Stage (side 2)

Load kN



Results - Bottom			
Penetration	2.50	5.00	mm
Load	4.22	3.85	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	31.95	19.25	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)



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Our Project No PTPZ0008
 Our Report and sample No 99853
 Your Sample Ref D3
 Your Project or Order No
 P&T Project No.
 Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	WS105	Depth	0.9 m
Date sampled		Date received	06-Sep-07
Sample type	D	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Light brown fine and medium SAND with a little up to coarse gravel size rounded flint		

Supplier _____ **Source** _____
Conveyance note No. _____

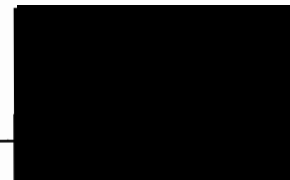
		TEST SPECIMEN	
LOCATION		NOT APPLICABLE	
ORIENTATION		NOT APPLICABLE	
		PREPARATION DETAILS	
METHOD OF DIVISION		QUARTERING	
PREPARATION METHOD		7.2.4.4 Rammer Compaction with specified effort	
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	0	
NO OF LAYERS		3	CBR VALUE TOP % 51
BLOWS PER LAYER		62 Blows	CBR VALUE BOTTOM % 23
METHOD		2.5kg	AVERAGE CBR VALUE % 37
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	1.766	MOISTURE CONT. TOP % 3
DRY DENSITY	Mg/m ³	1.716	MOISTURE CONT. BOT % 3
INITIAL MOISTURE CONT.	%	3	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

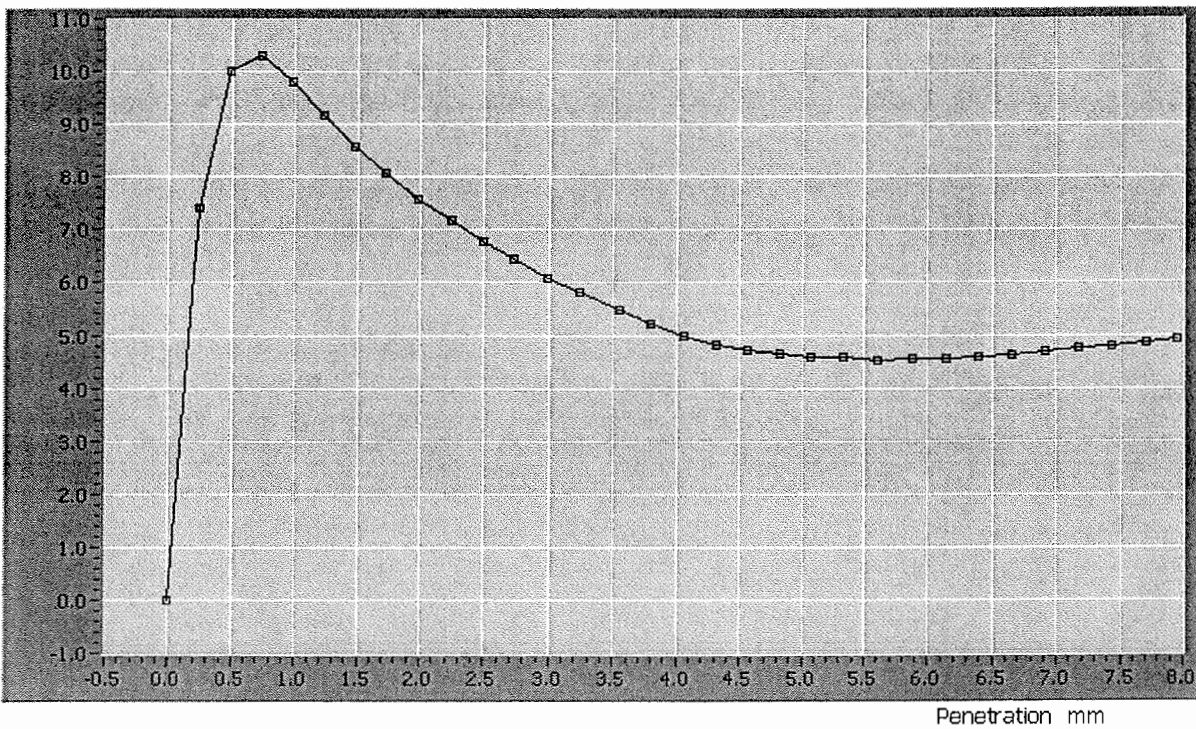


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 105 -D3	Sample	0000099853

Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	6.77	4.61	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	51.28	23.06	%

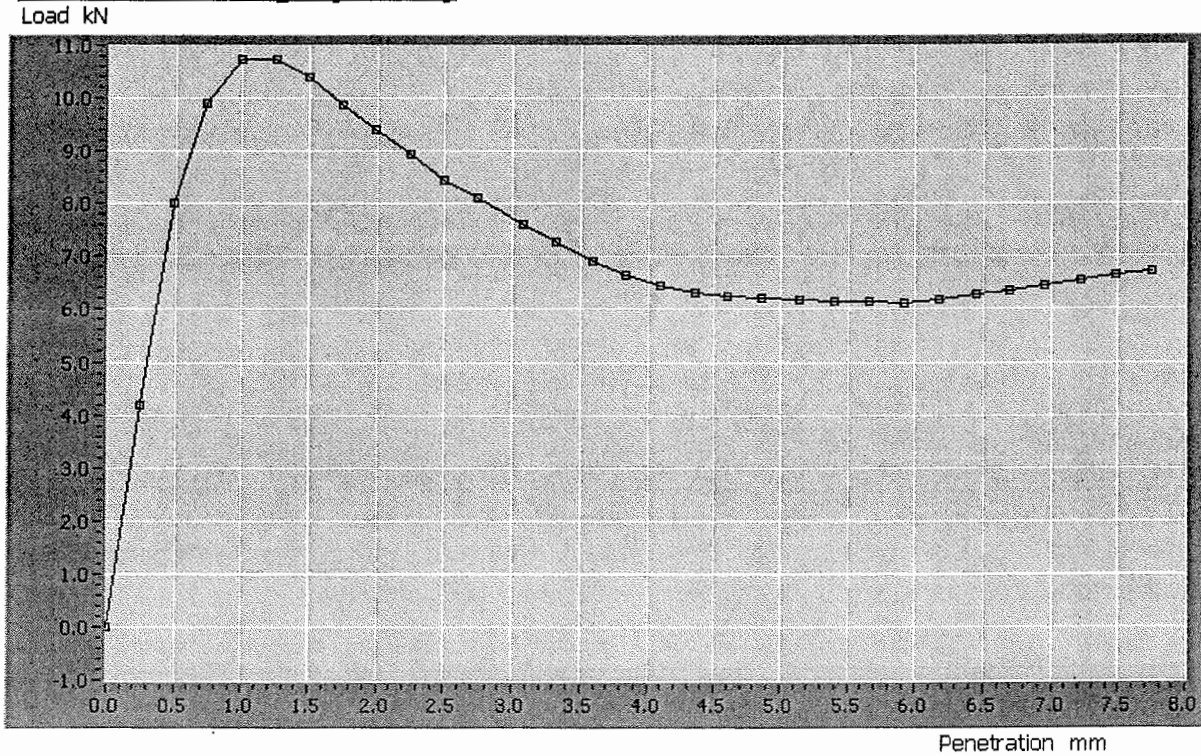
Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Norfolk Partnership Laboratory California Bearing Ratio

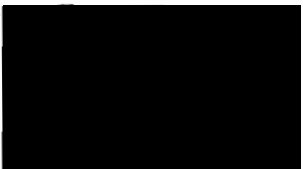
Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 105 -D3	Sample	0000099853

Penetration Stage (side 2)



Results - Bottom			
Penetration	2.50	5.00	mm
Load	8.43	6.18	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	63.88	30.91	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



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Our Report and sample No 99854
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Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	WS106	Depth	0.6 m
Date sampled		Date received	06-Sep-07
Sample type	D	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Light brown fine and medium SAND with a little fine, medium and coarse flint gravel. Gravel rounded		

Supplier **Source**
Conveyance note No.

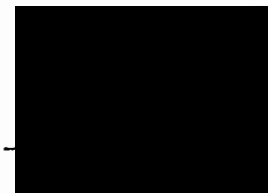
LOCATION	TEST SPECIMEN		
ORIENTATION	NOT APPLICABLE		
	NOT APPLICABLE		
METHOD OF DIVISION	PREPARATION DETAILS		
PREPARATION METHOD	QUARTERING		
	7.2.4.4 Rammer Compaction with specified effort		
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	7	
NO OF LAYERS		3	CBR VALUE TOP % 71
BLOWS PER LAYER		N/A	CBR VALUE BOTTOM % 65
METHOD		Vib.Hammer	AVERAGE CBR VALUE % 68
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	1.795	MOISTURE CONT. TOP % 3
DRY DENSITY	Mg/m ³	1.74	MOISTURE CONT. BOT % 3
INITIAL MOISTURE CONT.	%	8	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

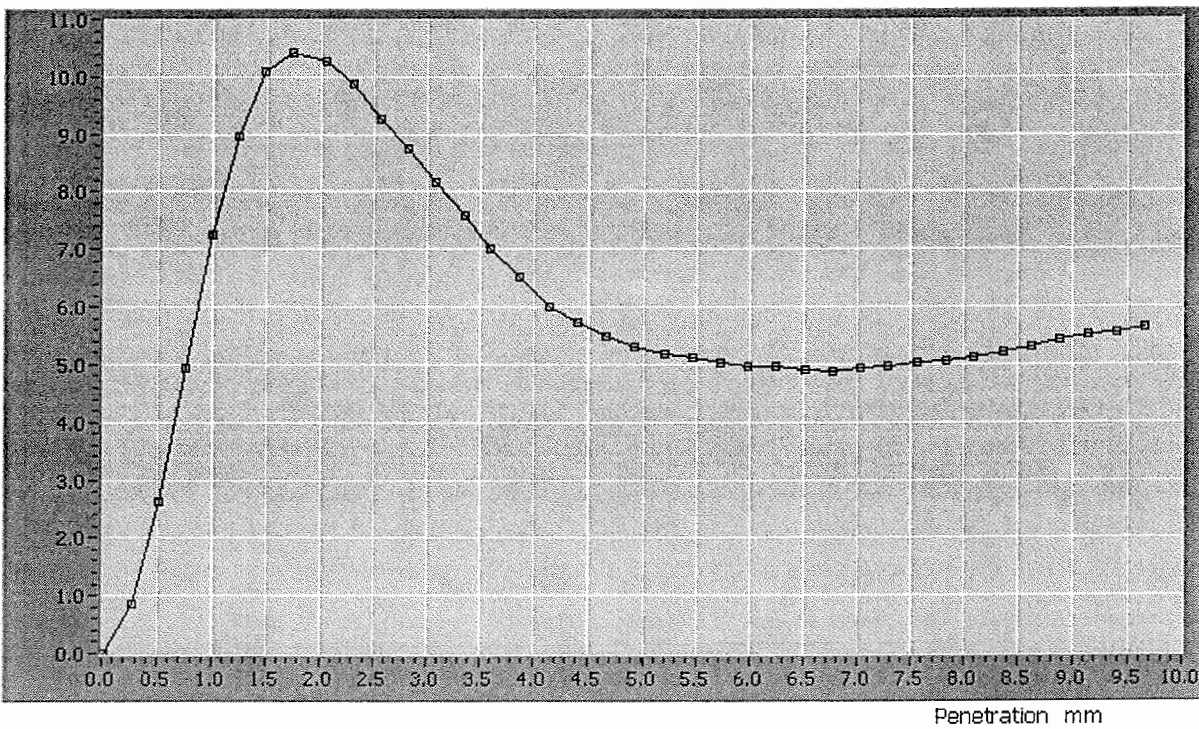


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 106 -D2	Sample	0000099854

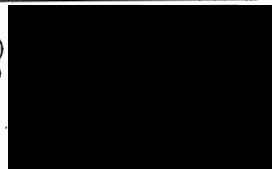
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	9.44	5.28	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	71.51	26.38	%

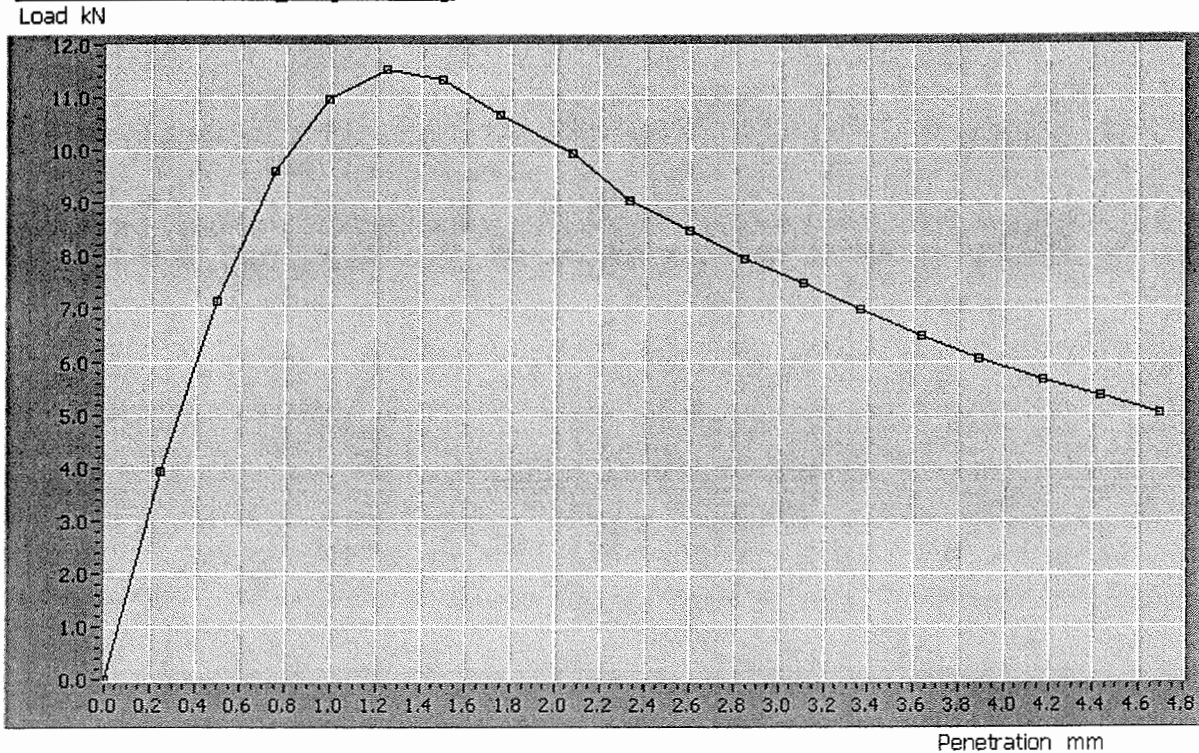
Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Norfolk Partnership Laboratory California Bearing Ratio

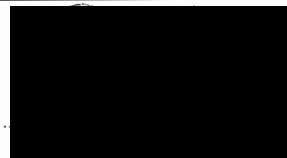
Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 106 -D2	Sample	0000099854

Penetration Stage (side 2)



Results - Bottom			
Penetration	2.50	5.00	mm
Load	8.68	5.02	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	65.73	25.09	%

Authorised signatory
 R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



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Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 99856
Your Sample Ref B9
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	BH106	Depth	8 m
Date sampled		Date received	10-Sep-07
Sample type	B	Sample Mass	

Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.

Material	Bulk Disturbed
Description	Light brown fine, medium and coarse SAND with some fine, medium and coarse rounded flint and quartz gravel

Supplier Source
Conveyance note No.

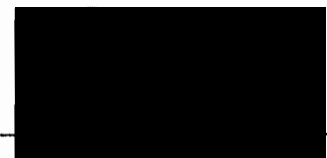
LOCATION	TEST SPECIMEN			
ORIENTATION	NOT APPLICABLE			
METHOD OF DIVISION	PREPARATION DETAILS			
PREPARATION METHOD	QUARTERING			
	7.2.4.4 Rammer Compaction with specified effort			
RETAINED 37.5mm	%	0	CBR VALUE TOP	% 52
RETAINED 20mm	%	0	CBR VALUE BOTTOM	% 92
NO OF LAYERS		3	AVERAGE CBR VALUE	% 72
BLOWS PER LAYER		62 Blows	MOISTURE CONT. TOP	% 9
METHOD		2.5kg	MOISTURE CONT. BOT	% 7
CONDITION		UNSOAKED	MOISTURE CONT. METHOD	Oven dried @ 105 -110°C
BULK DENSITY	Mg/m ³	2.044		
DRY DENSITY	Mg/m ³	1.892		
INITIAL MOISTURE CONT.	%	8		

REMARKS

Test Code = 642



David Houseago (Lead Technician)

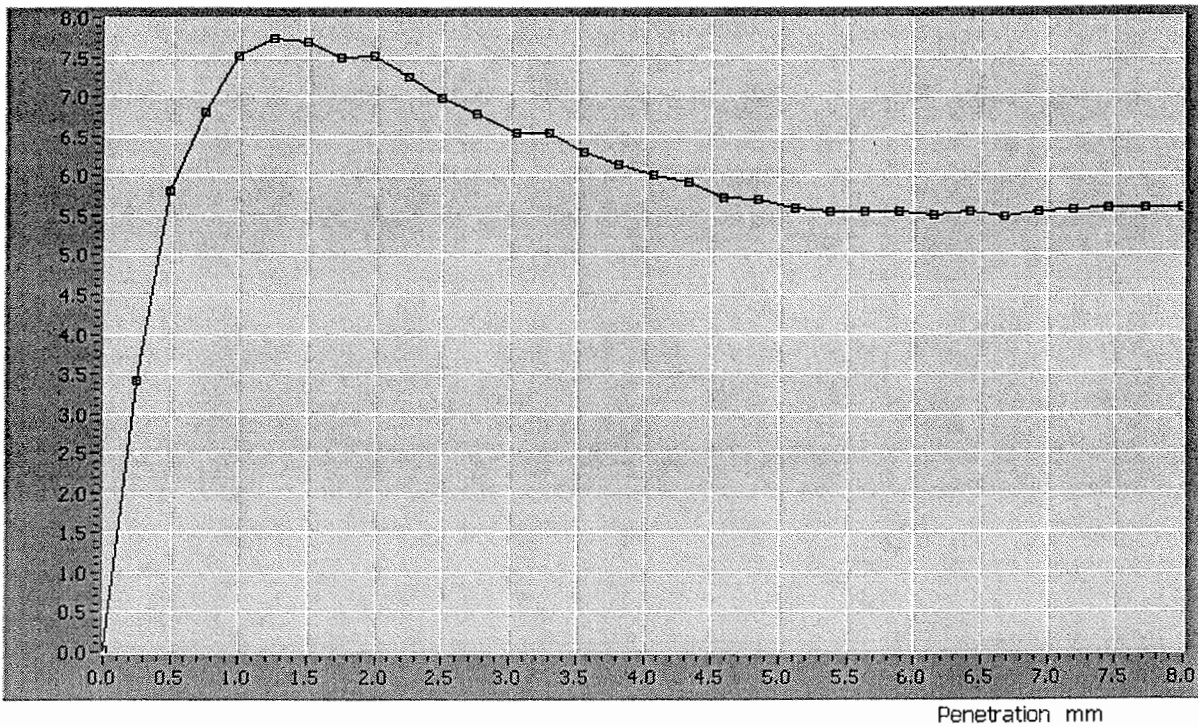


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 106 - B9	Sample	0000099856

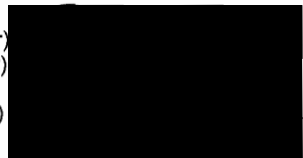
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	6.99	5.63	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	52.92	28.13	%

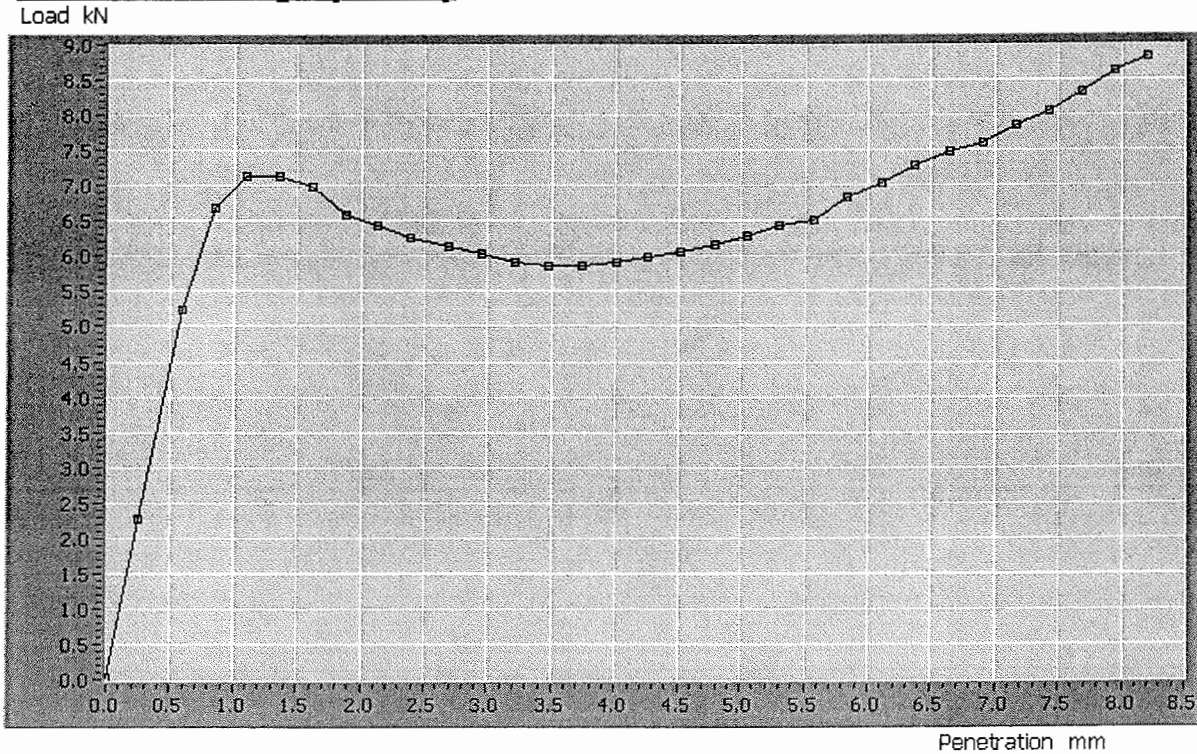
Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



**Norfolk Partnership Laboratory
California Bearing Ratio**

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 106 - B9	Sample	0000099856

Penetration Stage (side 2)



Results - Bottom			
Penetration	2.50	5.00	mm
Load	12.23	12.23	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	92.66	61.15	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



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Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 99850
Your Sample Ref B3
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	WS107	Depth	0.75 m
Date sampled		Date received	11-Sep-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Light brown fine and medium SAND with some fine, medium and coarse rounded flint gravel		

Supplier Source
Conveyance note No.

LOCATION	TEST SPECIMEN		
ORIENTATION	NOT APPLICABLE		
METHOD OF DIVISION	PREPARATION DETAILS		
PREPARATION METHOD	QUARTERING		
	7.2.4.4 Rammer Compaction with specified effort		
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	8	
NO OF LAYERS		3	CBR VALUE TOP % 58
BLOWS PER LAYER		N/A	CBR VALUE BOTTOM % 38
METHOD		Vib.Hammer	AVERAGE CBR VALUE % 48
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	2.038	MOISTURE CONT. TOP % 6
DRY DENSITY	Mg/m ³	1.921	MOISTURE CONT. BOT % 6
INITIAL MOISTURE CONT.	%	6	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

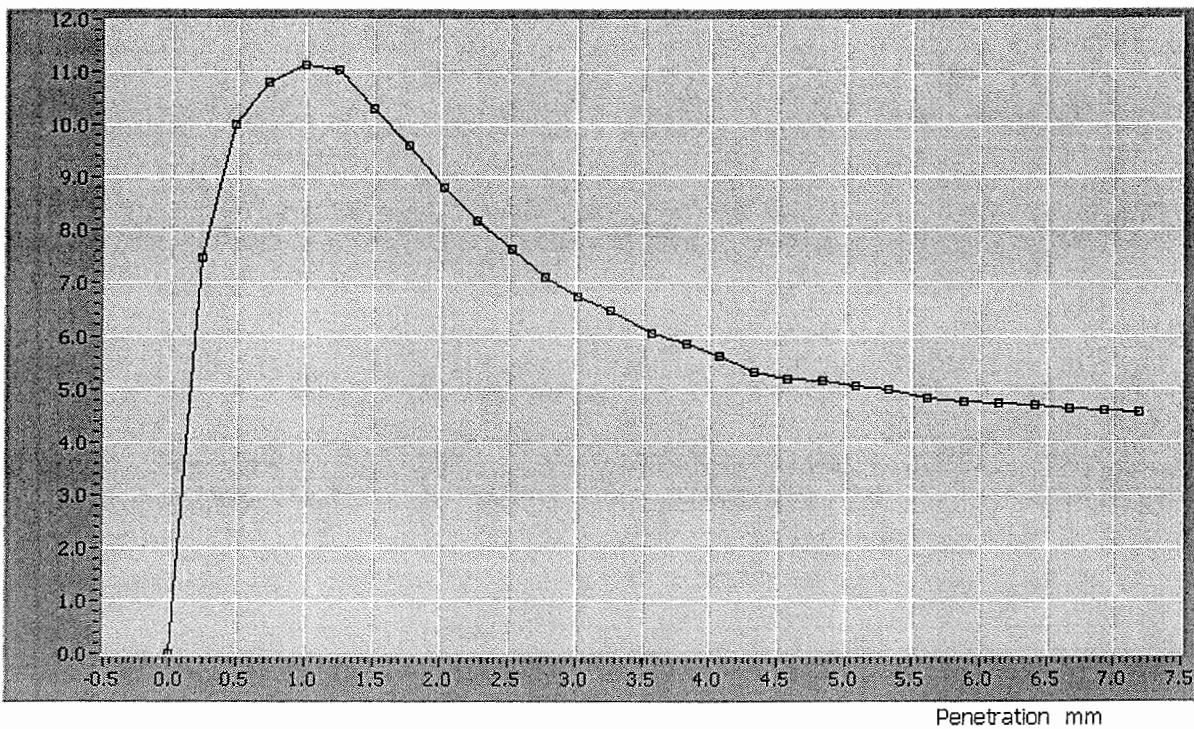


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 107 - B3	Sample	0000099850

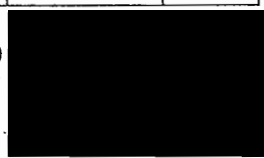
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	7.70	5.09	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	58.35	25.47	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)

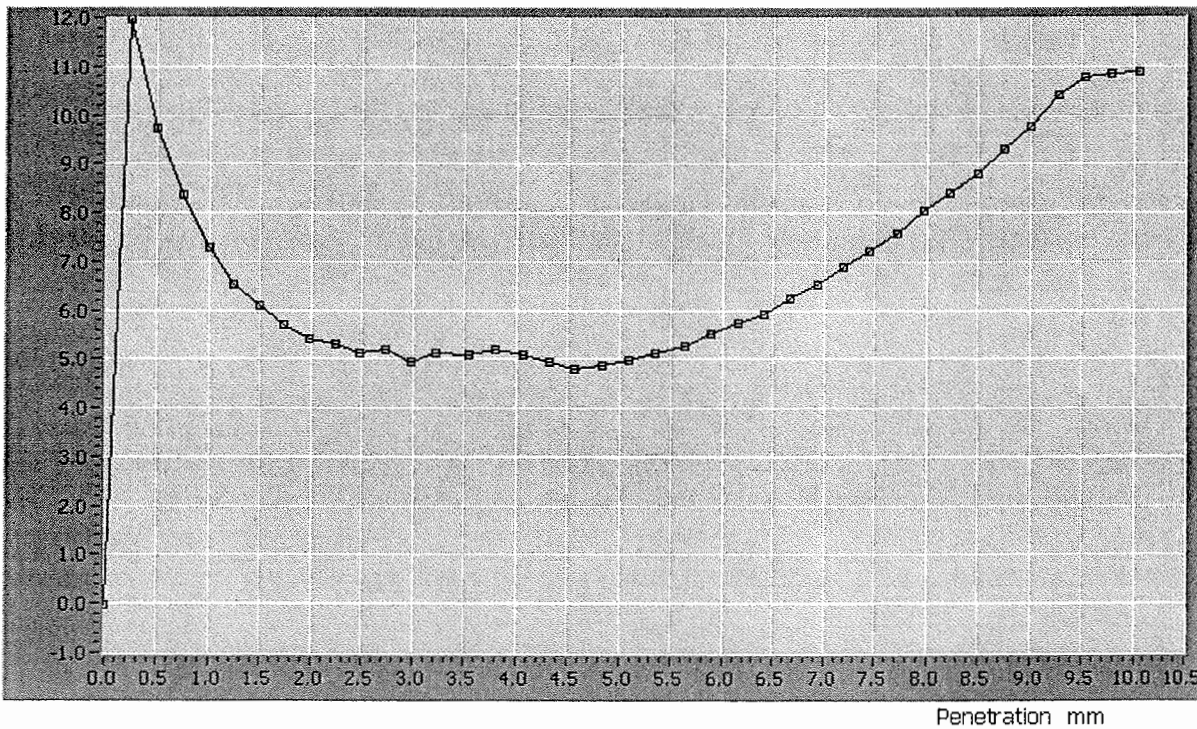


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 107 - B3	Sample	0000099850

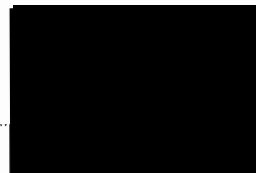
Penetration Stage (side 2)

Load kN



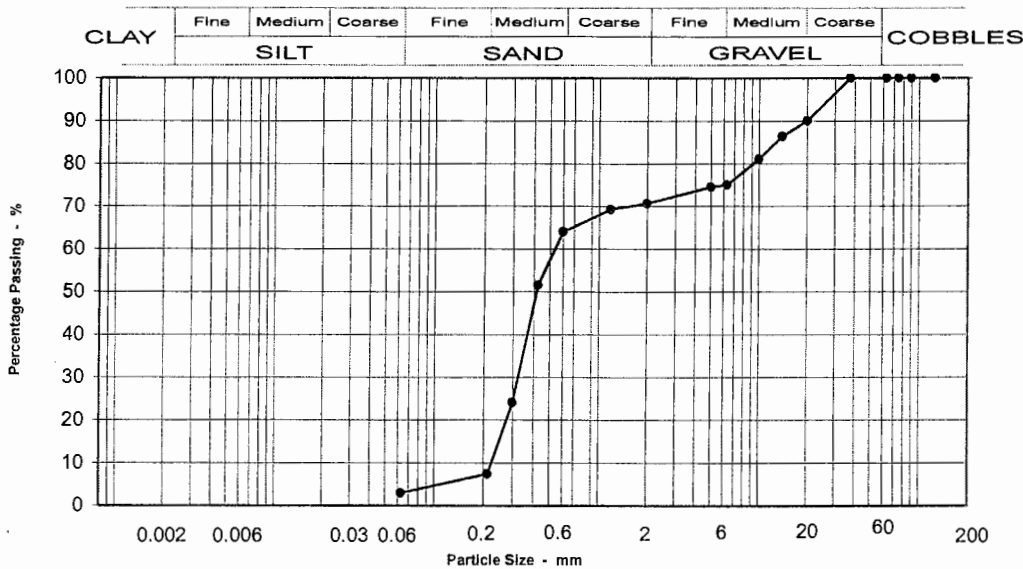
Results - Bottom			
Penetration	2.50	5.00	mm
Load	5.13	4.93	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	38.84	24.64	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **WS108 1.1 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	1B Suitable
90	100	
75	100	
63	100	
37.5	100	
20	90	
14	86	6E/6R Suitable
10	81	
6.3	75	
5	75	
2	71	6M Suitable
1.18	69	
0.600	64	
0.425	52	
0.300	24	
0.212	7	
0.063	3	
Moisture content %		7

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	10
Medium GRAVEL	15
Fine GRAVEL	7
Coarse SAND	4
Medium SAND	57
Fine SAND	5
Silt & Clay	3

Grading Analysis	
D100	20
D60	0.54
D10	0.226
Uniformity Coefficient	2

Description	
Light brown fine and medium SAND with some fine, medium and coarse flint and quartz gravel. Gravel is rounded	

Test Code = 610



D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 99849
Your Sample Ref B4
Your Project or Order No
P&T Project No.
Date Report Issued 25-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	WS110	Depth	0.5 m
Date sampled		Date received	06-Sep-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Light brown medium and coarse SAND with some fine, medium and coarse rounded and sub-rounded flint gravel		
Supplier		Source	Ex site
Conveyance note No.			

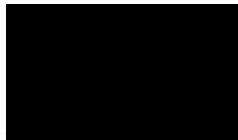
LOCATION	TEST SPECIMEN		
ORIENTATION	NOT APPLICABLE		
	NOT APPLICABLE		
	PREPARATION DETAILS		
METHOD OF DIVISION	QUARTERING		
PREPARATION METHOD	7.2.4.4 Rammer Compaction with specified effort		
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	8	
NO OF LAYERS		3	CBR VALUE TOP % 56
BLOWS PER LAYER		N/A	CBR VALUE BOTTOM % 85
METHOD		Vib.Hammer	AVERAGE CBR VALUE % 71
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	2.01	MOISTURE CONT. TOP % 9
DRY DENSITY	Mg/m ³	1.85	MOISTURE CONT. BOT % 9
INITIAL MOISTURE CONT.	%	9	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



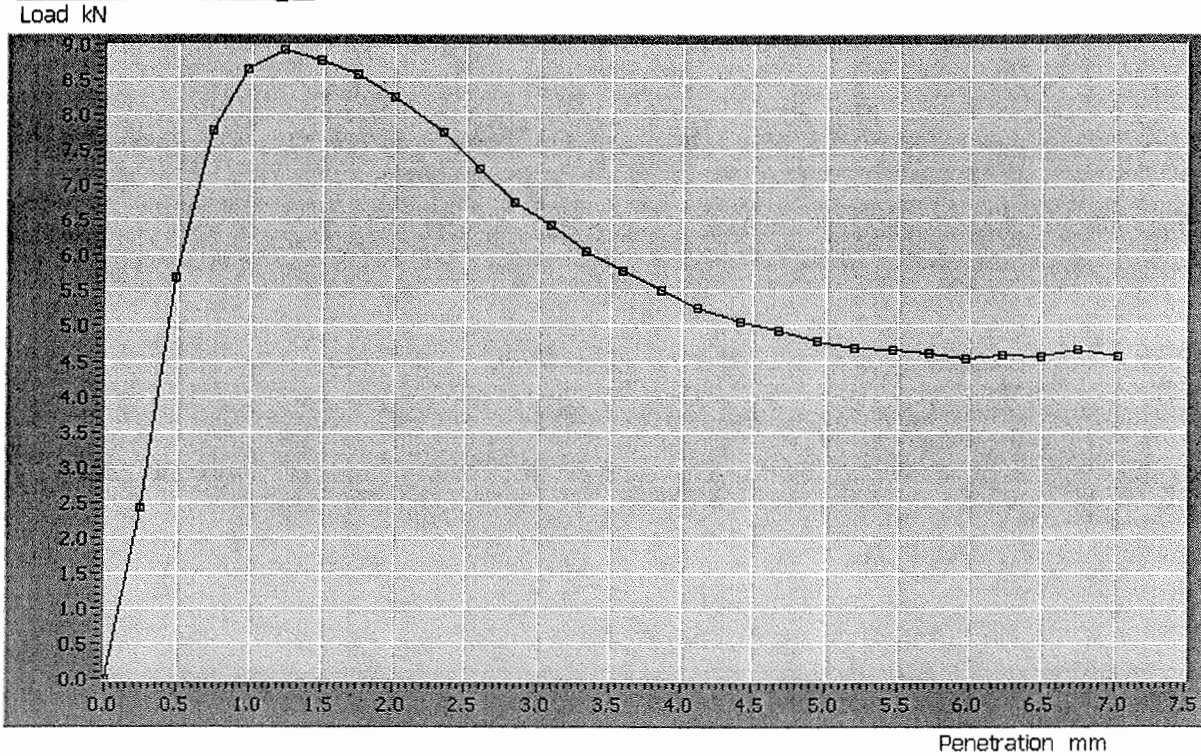
David Houseago (Lead Technician)



Norfolk Partnership Laboratory California Bearing Ratio

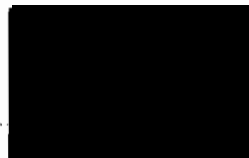
Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 110 - B4	Sample	0000099849

Penetration Stage



Results - Top			
Penetration	2.50	5.00	mm
Load	7.41	4.77	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	56.17	23.86	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician) ...

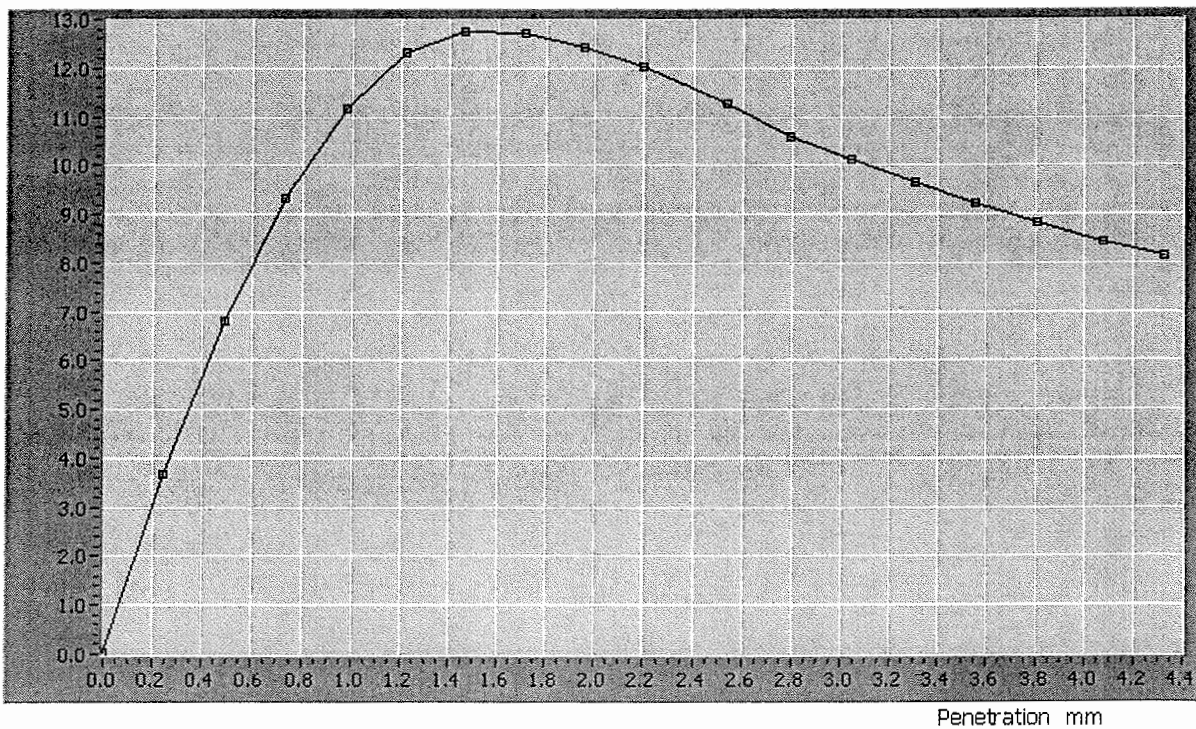


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 110 - B4	Sample	0000099849

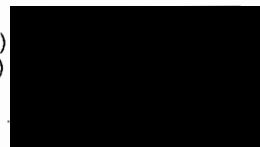
Penetration Stage (side 2)

Load kN



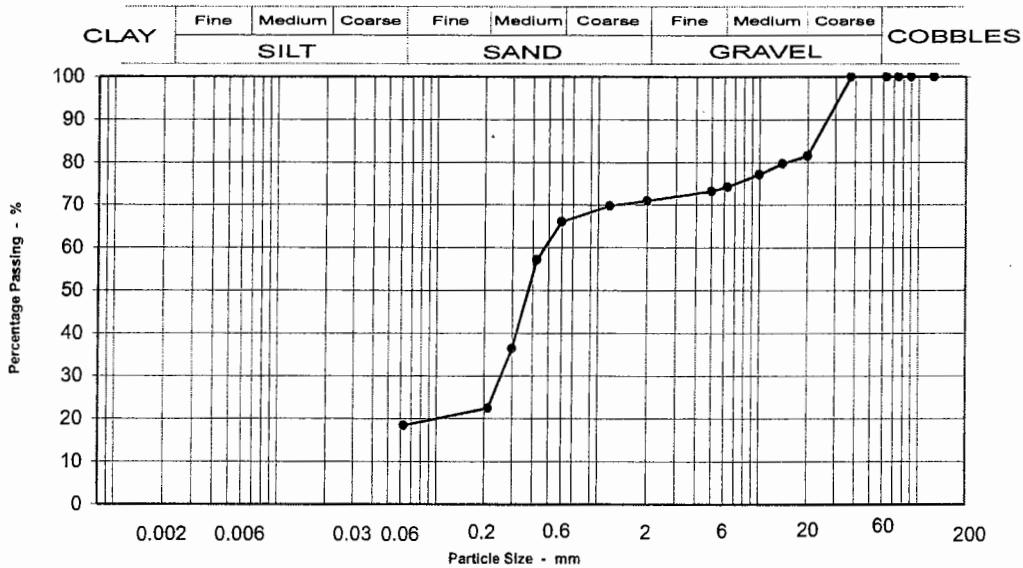
Results - Bottom			
Penetration	2.50	5.00	mm
Load	11.35	8.15	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	85.97	40.76	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 I D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **WS110 0.5 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	82
14	80
10	77
6.3	74
5	73
2	71
1.18	70
0.600	66
0.425	57
0.300	36
0.212	22
0.063	18

Specification for Highway Works Classification
2A/2B Suitable

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	19
Medium GRAVEL	7
Fine GRAVEL	5
Coarse SAND	3
Medium SAND	44
Fine SAND	4
Silt & Clay	18

Grading Analysis	
D100	20
D60	0.48
D10	0.070
Uniformity Coefficient	7

Description	
Light brown medium and coarse SAND with some fine, medium and coarse rounded and sub-rounded flint gravel	

Moisture content % 7

Test Code = 610



D N Houseago (Lead Technician)



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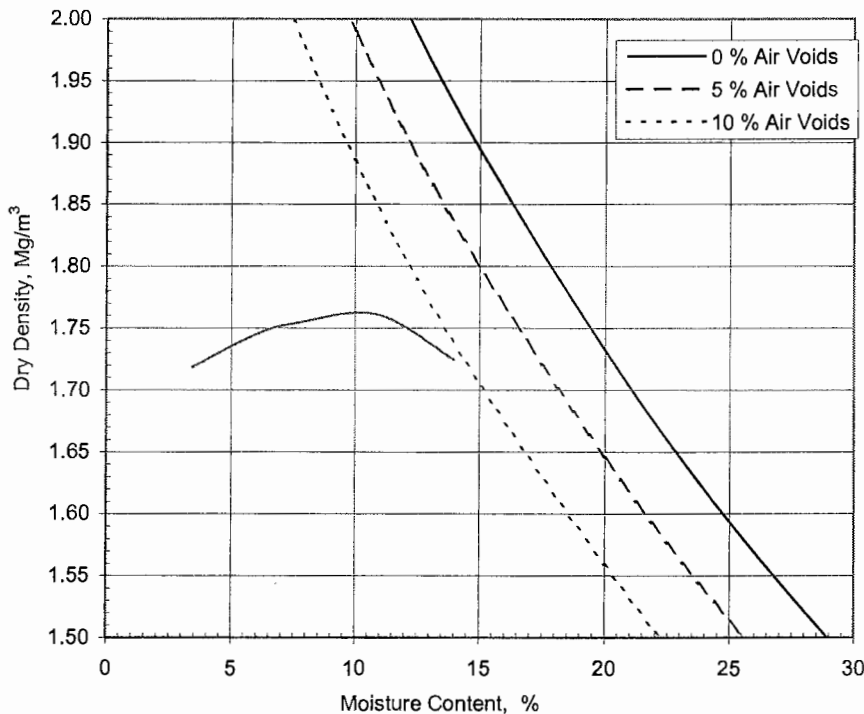
Our Project No PTPZ0008
Our Report and sample No
Your Sample Ref 2-5
Your Project or Order No
P&T Project No.
Date Report Issued 25-Oct-07

FAO I Brown

Page 1 of 1

**DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP
TO BS 1377 : PART 4 : 1990 : SECTION 3**

Scheme	Great Yarmouth Third River Crossing		
Location	WS111	Depth	0.4
Date received	25-Oct-07	Date tested	
Sample type	C	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Description	Light brown fine and medium SAND.		
Supplier	Source		



Method of division	Quartering	Retained on 37.5 mm Sieve	%	0
Preparation	3.7	Retained on 20.0 mm Sieve	%	0
Test Method	Vib.Hammer	Particle Density		2.65
Mould Type	CBR	Maximum Dry Density	Mg/m ³	1.76
Samples Used	Seperate	Optimum Moisture Content	%	11

Test Code = 640

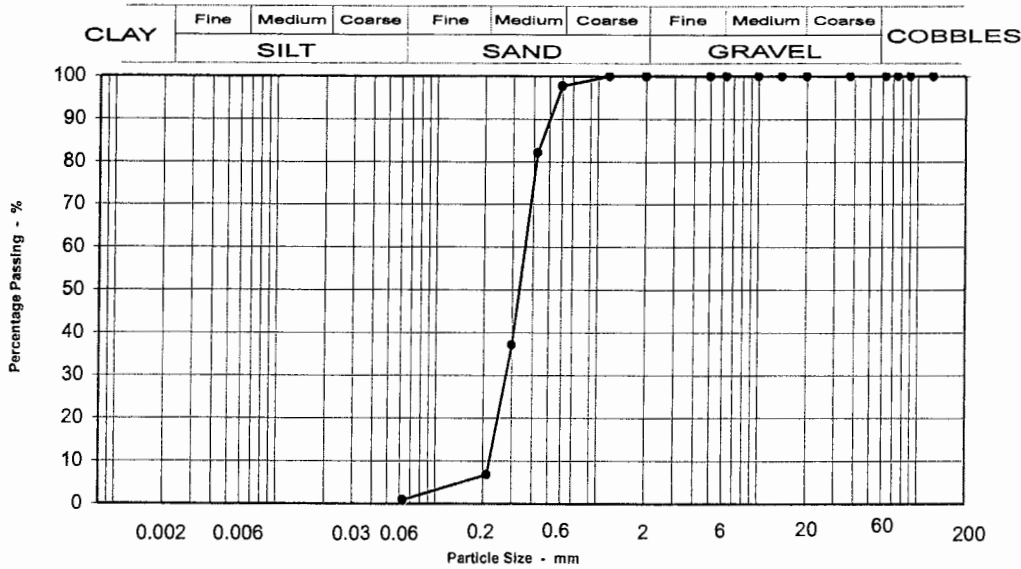


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **WS111 0.5 - m**



Seiving Particle Size mm	% Passing	Specification for Highway Works Classification
125	100	
90	100	
75	100	1B Suitable
63	100	
37.5	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
2	100	6E/6R Suitable
1.18	100	
0.600	98	
0.425	82	
0.300	37	
0.212	7	
0.063	1	6M Suitable
Moisture content %		3

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	0
Fine GRAVEL	2
Coarse SAND	0
Medium SAND	91
Fine SAND	6
Silt & Clay	1

Grading Analysis	
D100	1
D60	0.36
D10	0.221
Uniformity Coefficient	2

Description	
Light brown fine and medium SAND	

Test Code = 610



D N Houseago (Lead Technician)



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Our Report and sample No
Your Sample Ref D3
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 1

DETERMINATION OF PARTICLE DENSITY TO BS1377 : PART 2 : 1990 : SECTION 8.2

Scheme	Great Yarmouth Third River Crossing		
Location	WS111	Depth	0.8 - m
Date sampled		Date received	06-Sep-07
Date tested	03-Oct-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material Description	Small disturbed sample Light brown fine and medium SAND		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

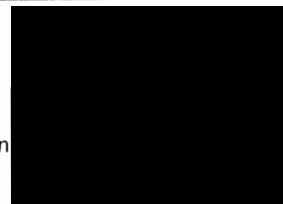
LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
	Not applicable
	PREPARATION DETAILS
METHOD OF DIVISION	Riffled
PREPARATION METHOD	Oven dried @ 105 -110°C
TEST METHOD	Gas jar method
PARTICLE DENSITY	2.65

REMARKS

Test Code = 605a



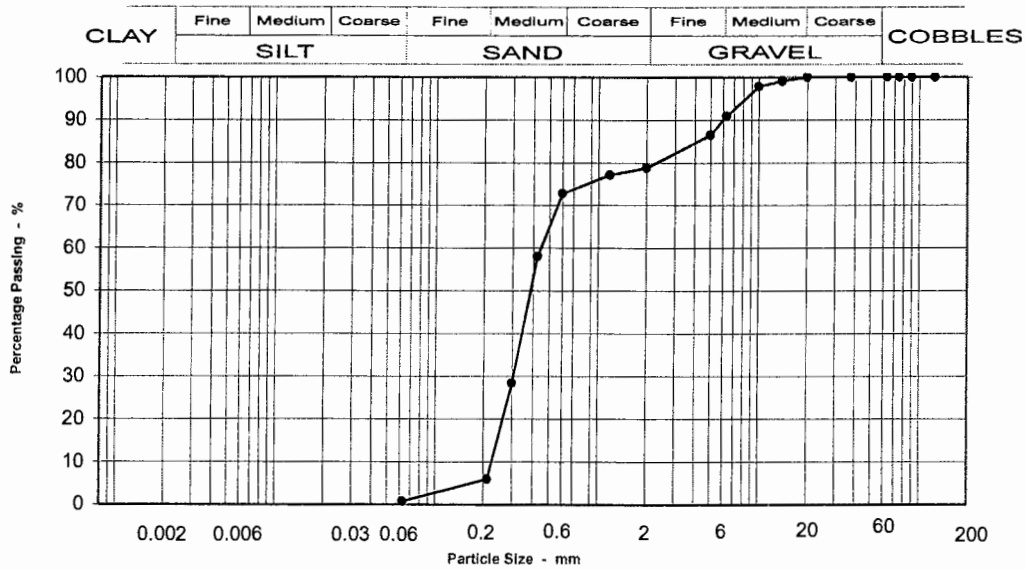
D N Houseago (Lead Technician



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: Great Yarmouth Third River Crossing

Location: WS111 1 - m



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	99
10	98
6.3	91
5	87
2	79
1.18	77
0.600	73
0.425	58
0.300	28
0.212	6
0.063	1

Specification for Highway Works Classification

1B	Suitable
6E/6R	Suitable
6M	Suitable
Moisture content %	5

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	9
Fine GRAVEL	6
Coarse SAND	12
Medium SAND	67
Fine SAND	5
Silt & Clay	1

Grading Analysis	
D100	14
D60	0.45
D10	0.228
Uniformity Coefficient	2

Description
Light brown fine and medium SAND

Test Code = 610



D N Houseago (Lead Technician)





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Our Report and sample No 99858
Your Sample Ref B6
Your Project or Order No
P&T Project No.
Date Report Issued 25-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	WS111	Depth	3.3 m
Date sampled		Date received	06-Sep-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Light brown fine and medium SAND with some fine, medium and coarse rounded flint gravel		

Supplier	Source	Ex site
Conveyance note No.		

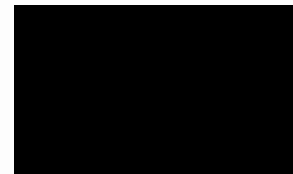
LOCATION	TEST SPECIMEN		
ORIENTATION	NOT APPLICABLE		
	NOT APPLICABLE		
METHOD OF DIVISION	PREPARATION DETAILS		
PREPARATION METHOD	QUARTERING		
	7.2.4.4 Rammer Compaction with specified effort		
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	7	
NO OF LAYERS		3	CBR VALUE TOP % 60
BLOWS PER LAYER		N/A	CBR VALUE BOTTOM % 132
METHOD		Vib.Hammer	AVERAGE CBR VALUE % 96
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	2.14	MOISTURE CONT. TOP % 10
DRY DENSITY	Mg/m ³	1.98	MOISTURE CONT. BOT % 6
INITIAL MOISTURE CONT.	%	8	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

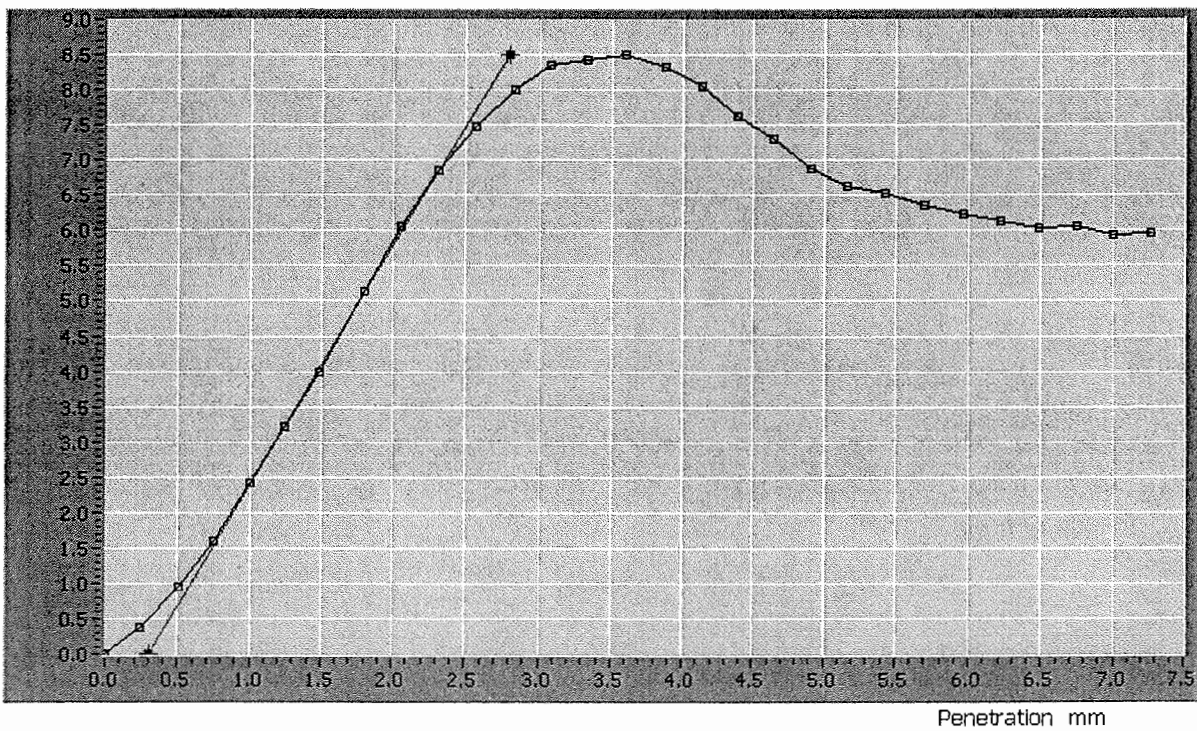


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 111 - B6	Sample	0000099858

Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	7.95	6.58	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	60.23	32.91	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 T D Brown (Section Engineer)
 D N Houseago (Lead Technician)

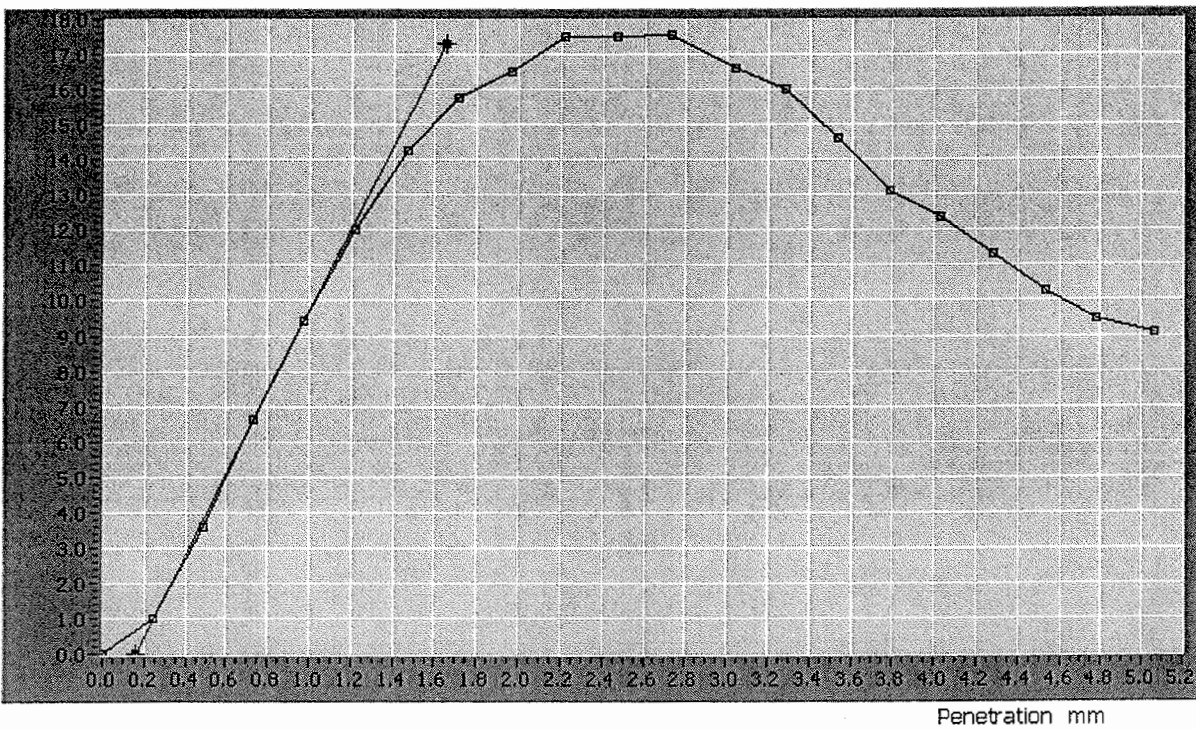


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 111 – B6	Sample	0000099858

Penetration Stage (side 2)

Load kN



Results - Bottom			
Penetration	2.50	5.00	mm
Load	17.54	9.09	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	132.87	45.45	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 99855
Your Sample Ref B7
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	WS111	Depth	4.7 m
Date sampled		Date received	06-Sep-07
Sample type	B	Sample Mass	
Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Bulk Disturbed		
Description	Light brown fine and medium SAND		

Supplier Source
Conveyance note No.

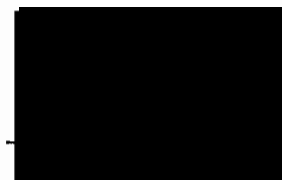
LOCATION	TEST SPECIMEN		
ORIENTATION	NOT APPLICABLE		
	NOT APPLICABLE		
	PREPARATION DETAILS		
METHOD OF DIVISION	QUARTERING		
PREPARATION METHOD	7.2.4.4 Rammer Compaction with specified effort		
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	2	
NO OF LAYERS		3	CBR VALUE TOP % 40
BLOWS PER LAYER		62 Blows	CBR VALUE BOTTOM % 50
METHOD		2.5kg	AVERAGE CBR VALUE % 45
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	1.909	MOISTURE CONT. TOP % 3
DRY DENSITY	Mg/m ³	1.846	MOISTURE CONT. BOT % 3
INITIAL MOISTURE CONT.	%	3	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

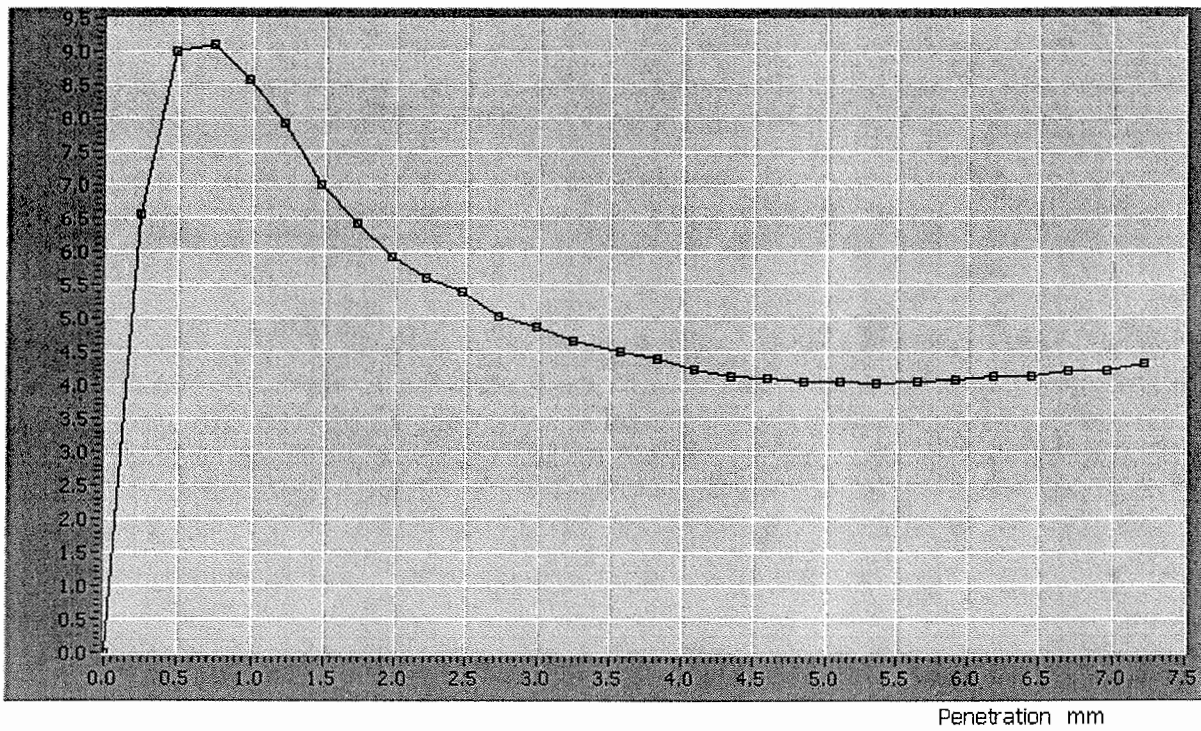


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 111 -B7	Sample	0000099855

Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	5.34	4.05	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	40.44	20.26	%

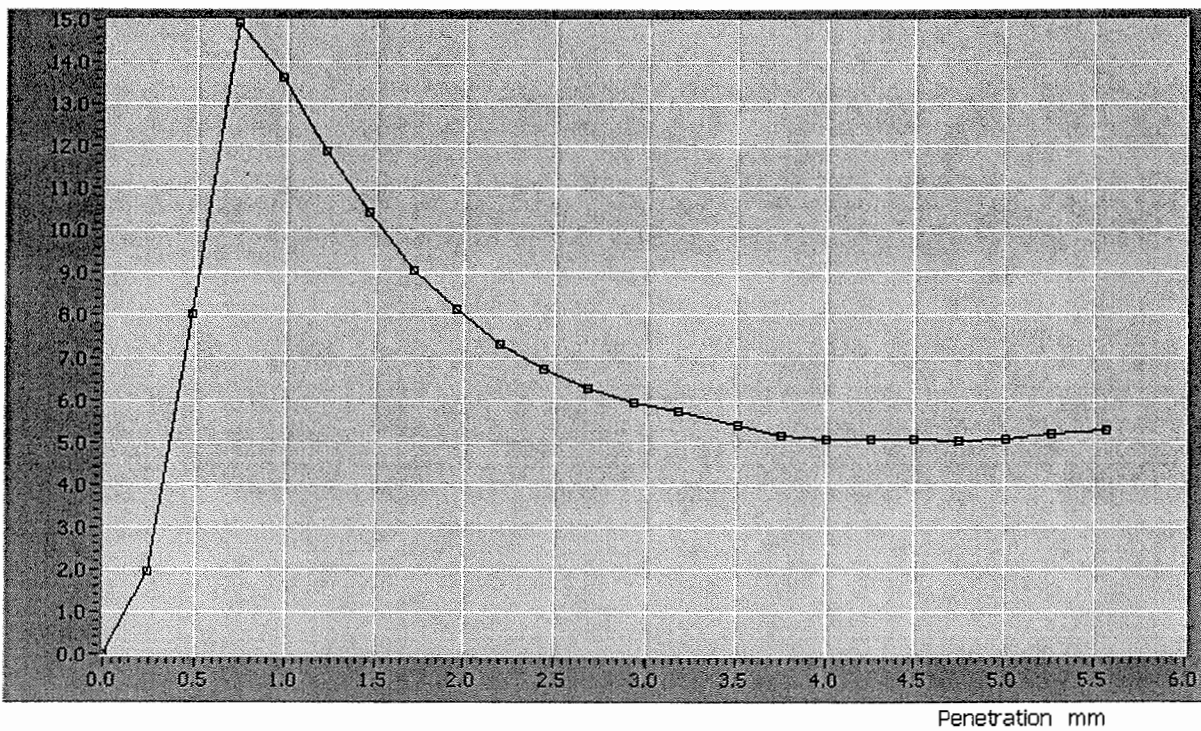
Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)

Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	WS 111 -B7	Sample	0000099855

Penetration Stage (side 2)

Load kN



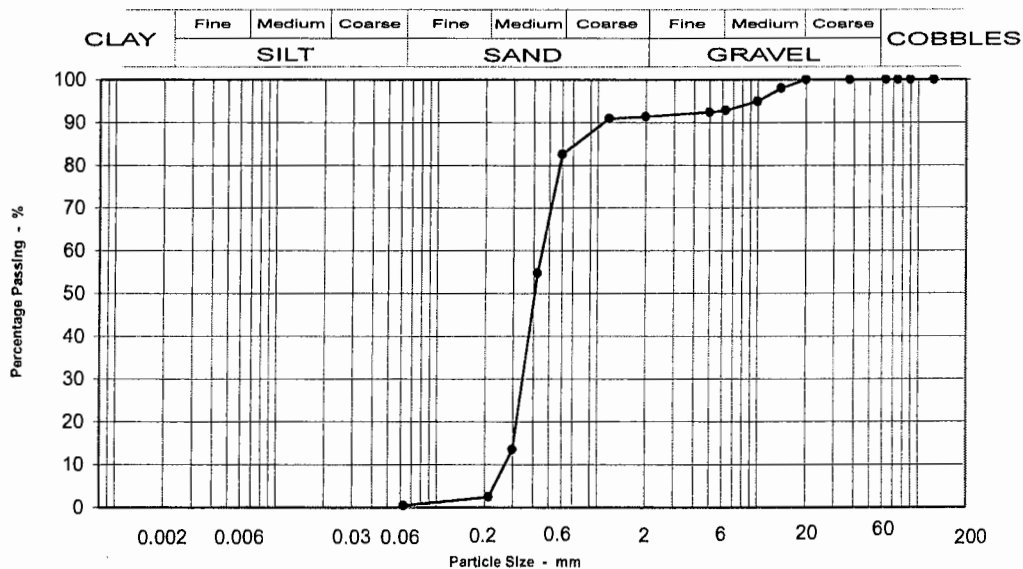
Results - Bottom			
Penetration	2.50	5.00	mm
Load	6.63	5.07	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	50.20	25.33	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **WS111 4.7 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	98
10	95
6.3	93
5	92
2	91
1.18	91
0.600	83
0.425	55
0.300	14
0.212	2
0.063	0

Specification for Highway Works Classification	
1B	Suitable
6E/6R	Suitable
6M	Suitable

Moisture content % 4

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	7
Fine GRAVEL	9
Coarse SAND	2
Medium SAND	80
Fine SAND	2
Silt & Clay	0

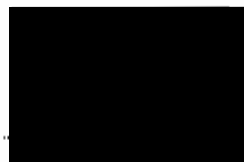
Grading Analysis	
D100	14
D60	0.46
D10	0.272
Uniformity Coefficient	2

Description	
Light brown fine and medium SAND	

Test Code = 610



D N Houseago (Lead Technician)



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Our Project No PTPZ0008
Our Report and sample No 100298
Your Sample Ref B3
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

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DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	TP 101	Depth	0.7 m
Date sampled		Date received	24-Sep-07
Sample type	B	Sample Mass	

Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.

Material	Bulk Disturbed
Description	Brown silty clayey gravelly fine and medium SAND. Gravel is angular to rounded medium to coarse flint and concrete.

Supplier	Source
Conveyance note No.	

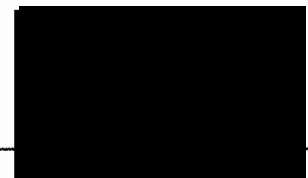
LOCATION	TEST SPECIMEN			
ORIENTATION	NOT APPLICABLE			
	PREPARATION DETAILS			
METHOD OF DIVISION	QUARTERING			
PREPARATION METHOD	7.2.4.4 Rammer Compaction with specified effort			
RETAINED 37.5mm	%	6		
RETAINED 20mm	%	12		
NO OF LAYERS		3	CBR VALUE TOP	% 10
BLOWS PER LAYER		62 Blows	CBR VALUE BOTTOM	% 14
METHOD		2.5kg	AVERAGE CBR VALUE	% 12
CONDITION		UNSOAKED		
BULK DENSITY	Mg/m ³	2.038	MOISTURE CONT. TOP	% 15
DRY DENSITY	Mg/m ³	1.776	MOISTURE CONT. BOT	% 15
INITIAL MOISTURE CONT.	%	15	MOISTURE CONT. METHOD	Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

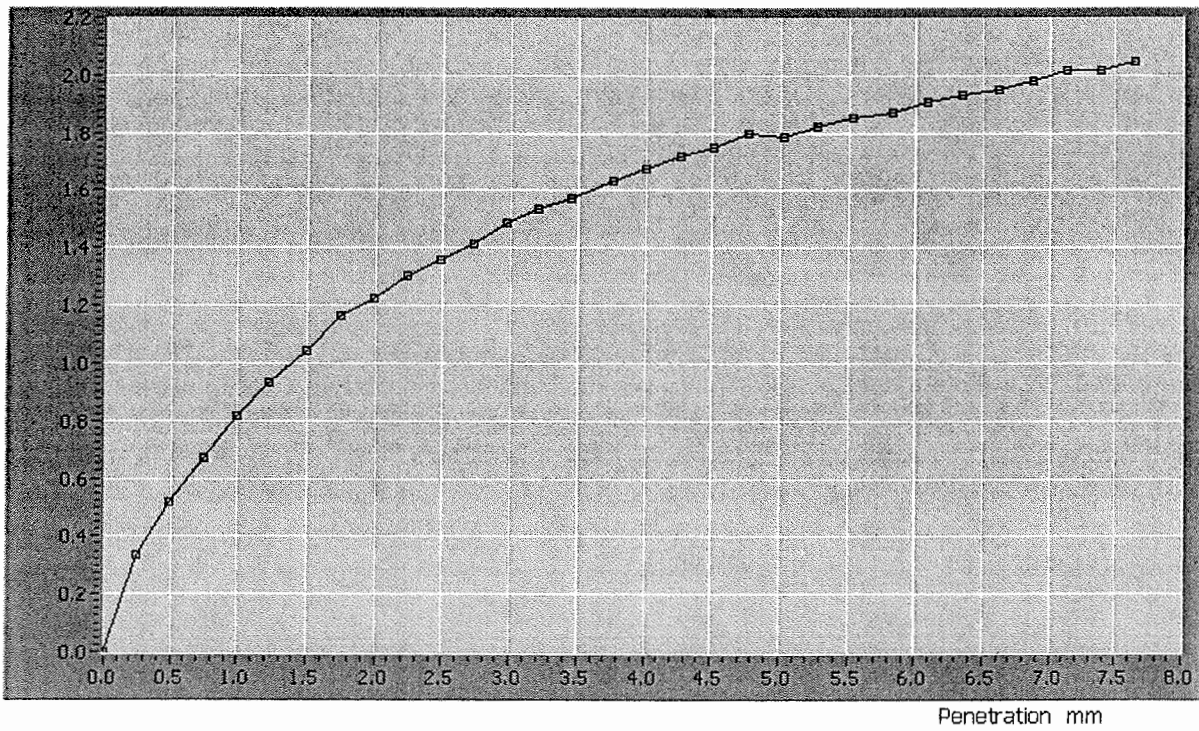


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	TP101 - B3	Sample	0000100298

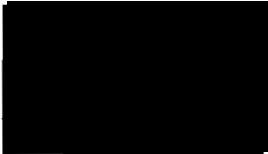
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	1.36	1.79	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	10.32	8.93	%

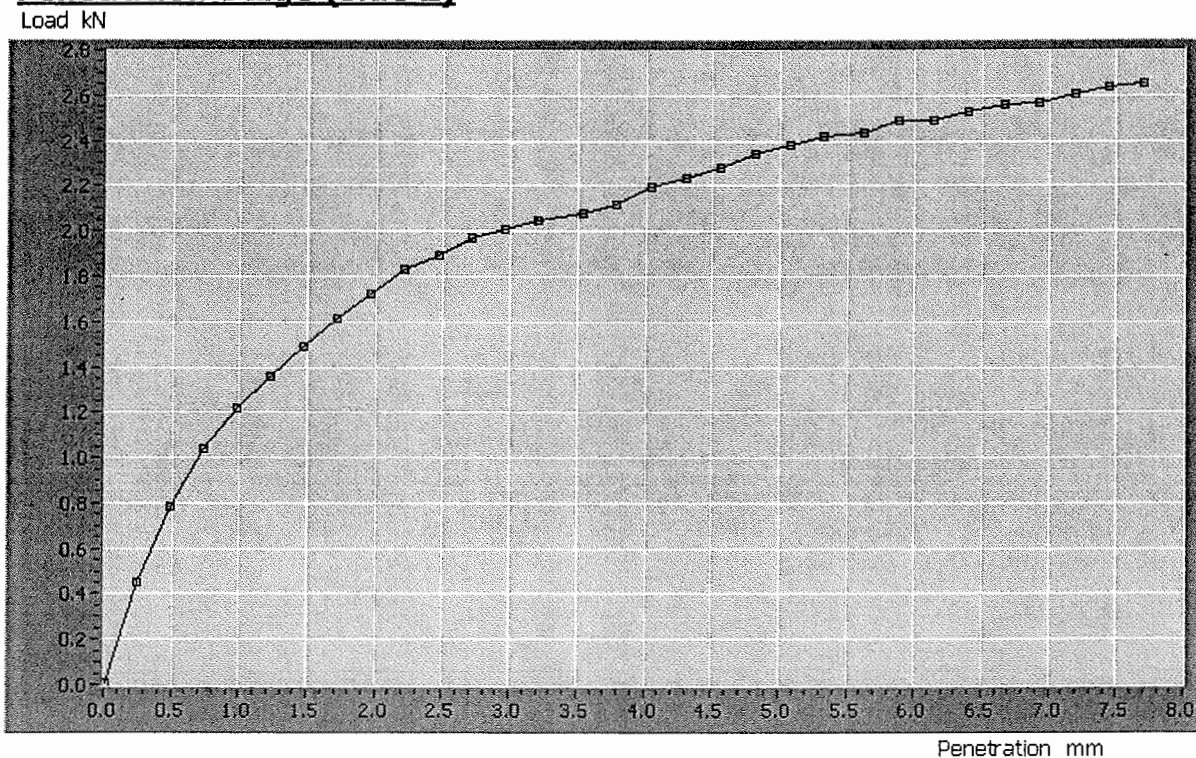
Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Norfolk Partnership Laboratory California Bearing Ratio

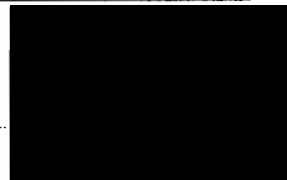
Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	TP101 - B3	Sample	0000100298

Penetration Stage (side 2)



Results - Bottom			
Penetration	2.50	5.00	mm
Load	1.91	2.37	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	14.44	11.84	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician) ...



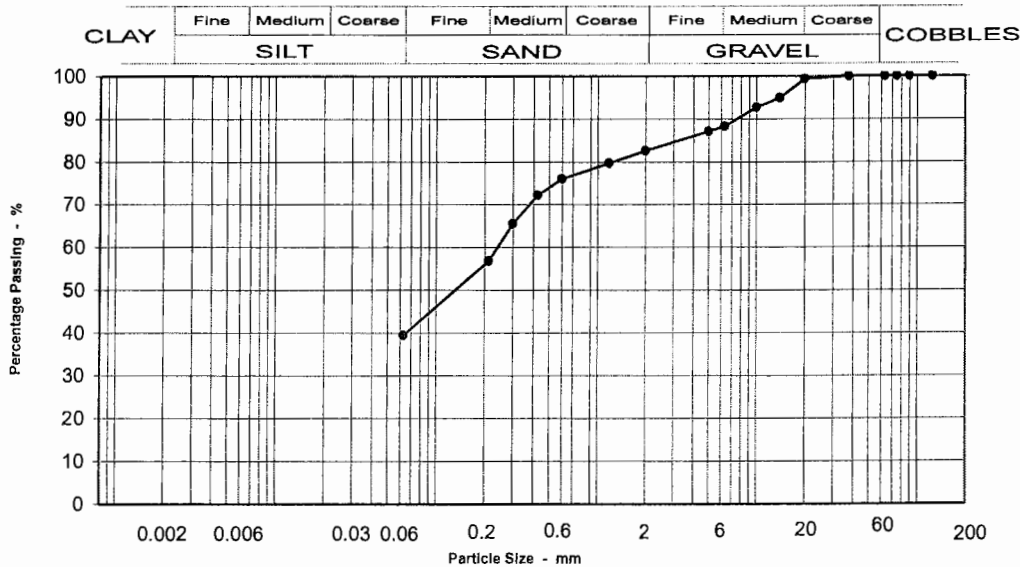
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 Norwich
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Our Project No PTPZ0008
 Our Report and sample No 100297
 Your Sample Ref B3
 Your Project or Order No
 P&T Project No.
 Date Report Issued 08 October 2007

Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **TP 101 0.7 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	99
14	95
10	93
6.3	88
5	87
2	83
1.18	80
0.600	76
0.425	72
0.300	66
0.212	57
0.063	39

Specification for Highway Works Classification	
2A/2B	Suitable

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	1
Medium GRAVEL	11
Fine GRAVEL	7
Coarse SAND	6
Medium SAND	19
Fine SAND	17
Silt & Clay	39

Grading Analysis	
D100	20
D60	0.25
D10	0.030
Uniformity Coefficient	8

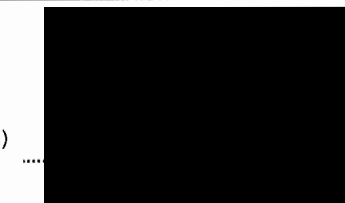
Description	

Moisture content % 32

Test Code = 610



D N Houseago (Lead Technician)





Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 100304
Your Sample Ref B4
Your Project or Order No
P&T Project No.
Date Report Issued 24-Oct-07

FAO I Brown

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

Scheme	Great Yarmouth Third River Crossing		
Location	TP 101	Depth	1.6 m
Date sampled		Date received	24-Sep-07
Date tested	05-Oct-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Firm dark grey very sandy SILT/CLAY.		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Ridffled
	Oven dried @ 105 -110°C
PASSING 2mm BS TEST SIEVE (%)	96
ORGANIC MATTER (%)	3

Test Code:620



David Houseago (Lead Technician)



Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 100306
Your Sample Ref B4
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	TP 101	Depth	1.6 m
Date sampled		Date received	24-Sep-07
Sample type	B	Sample Mass	

Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.

Material	Bulk Disturbed
Description	Firm dark grey very sandy SILT/CLAY.

Supplier	Source
Conveyance note No.	

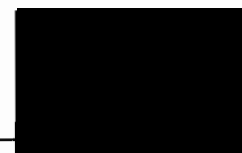
LOCATION	TEST SPECIMEN		
ORIENTATION	NOT APPLICABLE		
	NOT APPLICABLE		
	PREPARATION DETAILS		
METHOD OF DIVISION	QUARTERING		
PREPARATION METHOD	7.2.4.4 Rammer Compaction with specified effort		
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	0	
NO OF LAYERS		3	CBR VALUE TOP % 0.4
BLOWS PER LAYER		62 Blows	CBR VALUE BOTTOM % 0.6
METHOD		2.5kg	AVERAGE CBR VALUE % 0.5
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	1.841	MOISTURE CONT. TOP % 33
DRY DENSITY	Mg/m ³	1.385	MOISTURE CONT. BOT % 33
INITIAL MOISTURE CONT.	%	33	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

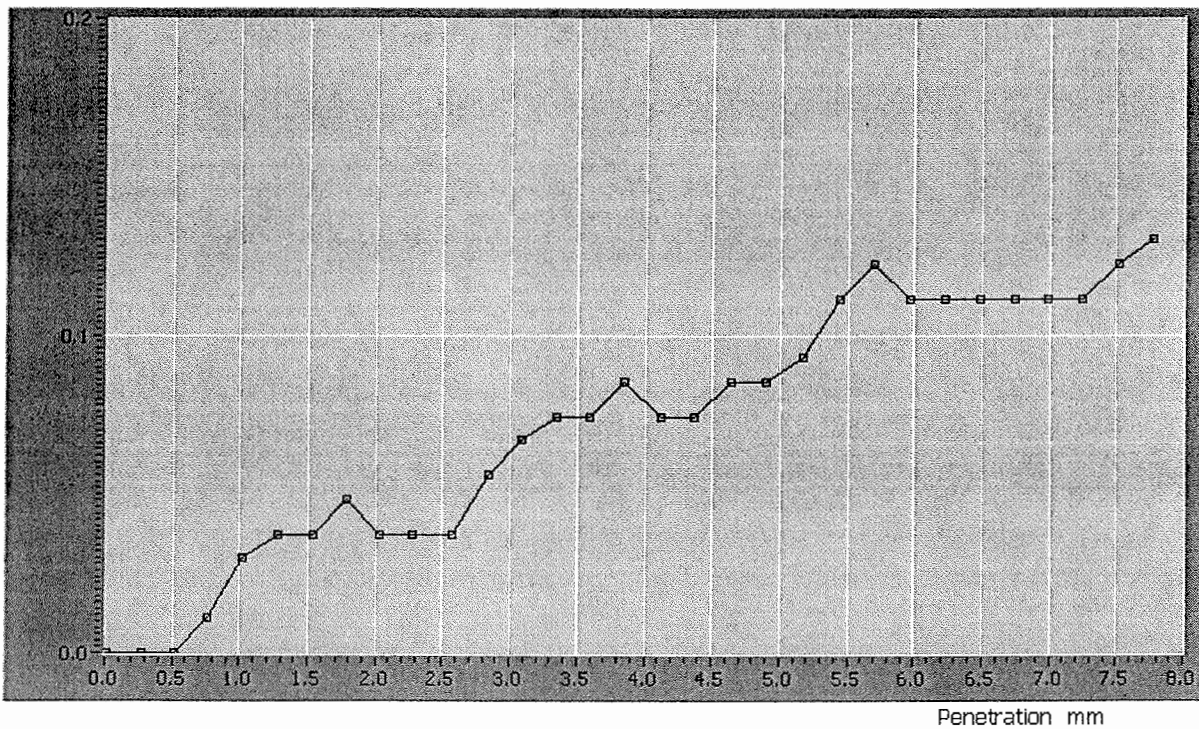


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	TP101 - B4	Sample	0000100306

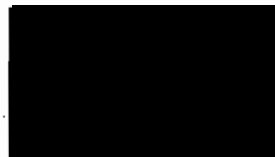
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	0.04	0.09	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	0.28	0.44	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician) ...

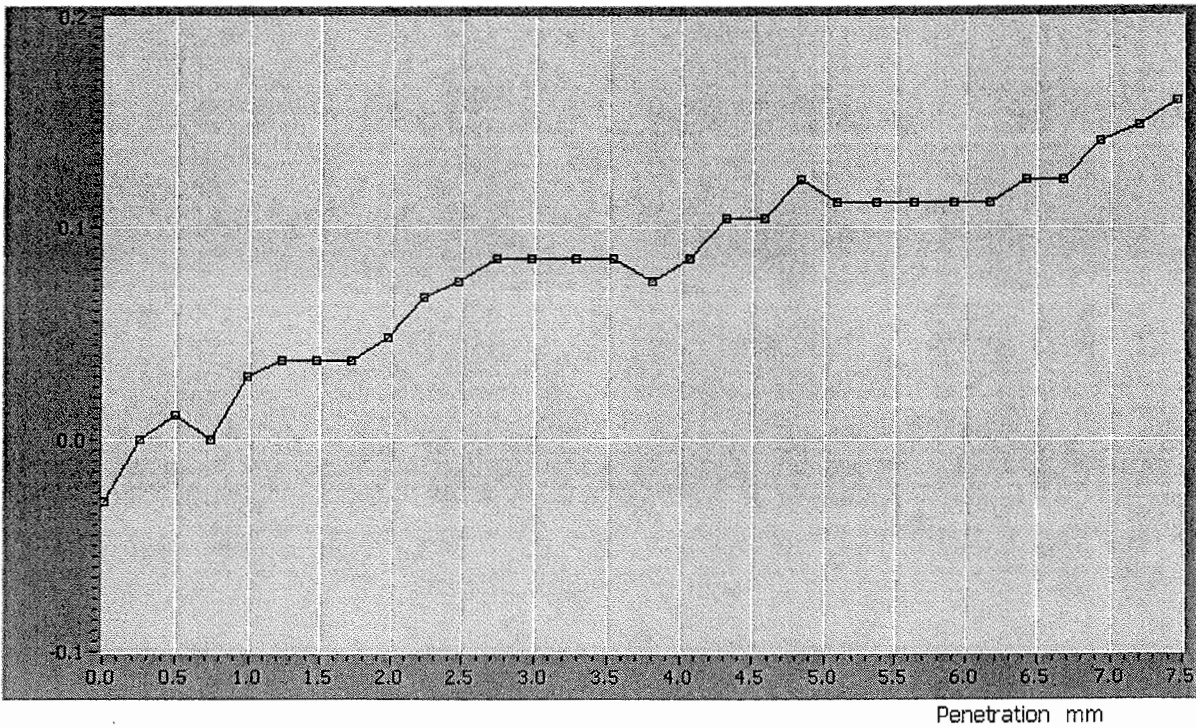


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	TP101 - B4	Sample	0000100306

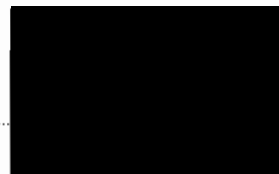
Penetration Stage (side 2)

Load kN



Results - Bottom			
Penetration	2.50	5.00	mm
Load	0.08	0.12	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	0.57	0.58	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG
FAO I Brown

Our Project No PTPZ0008
Our Report and sample No 100303
Your Sample Ref B4
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

DETERMINATION OF LIQUID LIMIT (cone penetrometer method), PLASTIC LIMIT AND PLASTICITY INDEX to BS 1377:Part 2: 1990 : CLAUSES 4.4 AND 5

Scheme	Great Yarmouth Third River Crossing		
Location	TP 101	Depth	1.6 - m
Date sampled		Date received	24-Sep-07
Date tested	02-Oct-07		
Sample type	B	Sample Mass	
Sampled by driller who is not a member of Norfolk Partnership Laboratory. If a sample certificate was provided it is available for inspection. The accuracy of information provided by third parties can not be guaranteed.			
Material	Bulk Disturbed		
Description	Firm dark grey very sandy SILT/CLAY.		
Supplier		Source	Not applicable
Conveyance note No.	Not applicable		

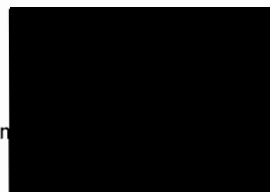
LOCATION	TEST SPECIMEN		
ORIENTATION	Not applicable		
	PREPARATION DETAILS		
METHOD OF DIVISION	Whole		
PREPARATION METHOD	Hand picking		
RETAINED 425µm (%)	5		
NATURAL MC (%)	34	OVEN DRIED @ 105°C	
LIQUID LIMIT (%)	41		
PLASTIC LIMIT (%)	24		
PLASTICITY INDEX (%)	17		
MODIFIED PI *(%)	16	*BRE Digest 240 : 1993	
SOIL CLASSIFICATION	C I		

REMARKS

Test Code = 604



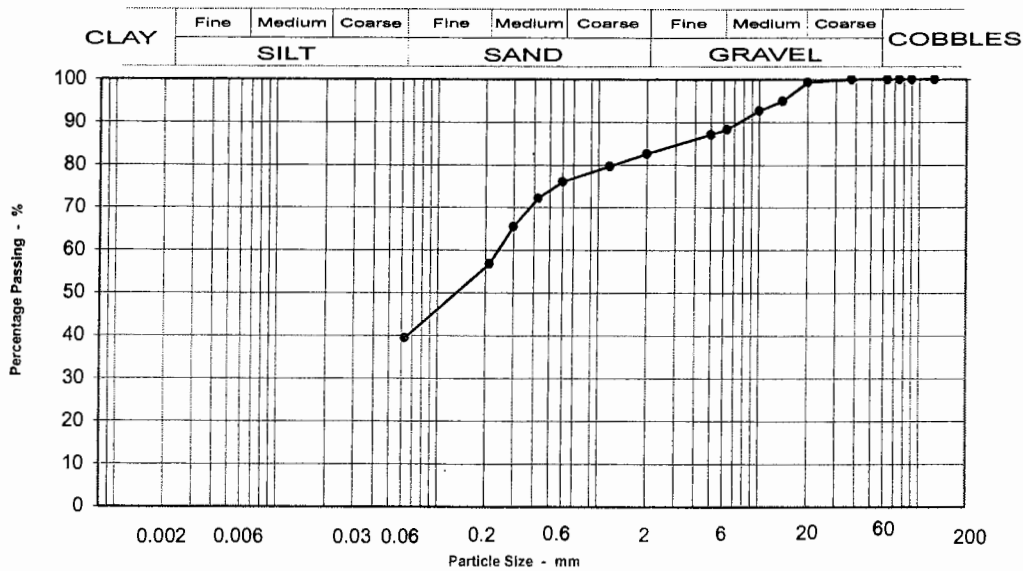
David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: Great Yarmouth Third River Crossing

Location: TP 101 0.7 - m



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	99
14	95
10	93
6.3	88
5	87
2	83
1.18	80
0.600	76
0.425	72
0.300	66
0.212	57
0.063	39

Specification for Highway Works Classification
2A/2B Suitable

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	1
Medium GRAVEL	11
Fine GRAVEL	7
Coarse SAND	6
Medium SAND	19
Fine SAND	17
Silt & Clay	39

Grading Analysis	
D100	20
D60	0.25
D10	0.030
Uniformity Coefficient	8

Description	
Brown silty clayey gravelly fine and medium SAND. Gravel is angular to rounded medium to coarse flint and concrete.	

Moisture content % 32

Test Code = 610



D N Houseago (Lead Technician)

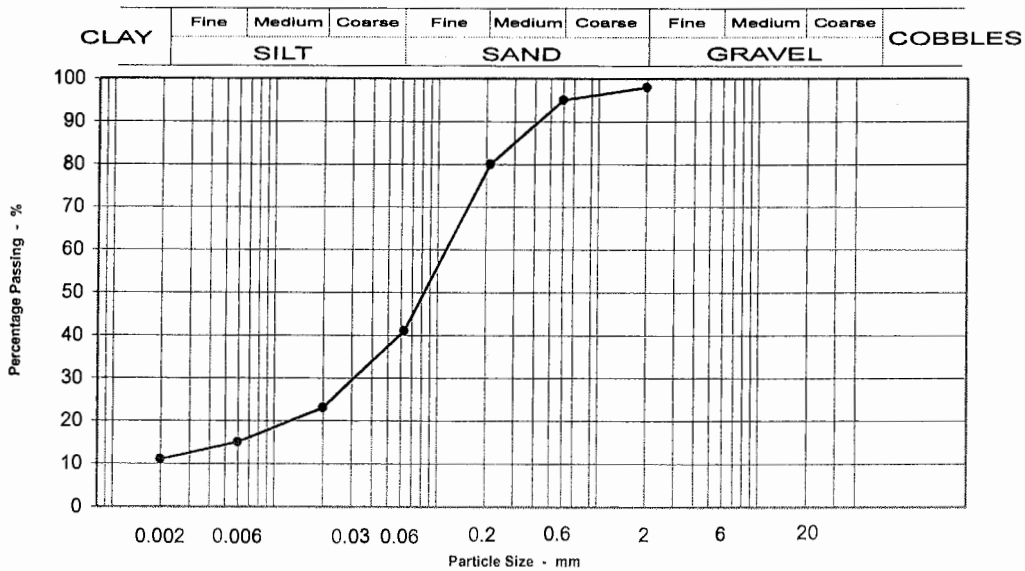


Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No
Your Sample Ref B4
Your Project or Order No
P&T Project No.
Date Report Issued 12 October 2007

**Particle Size Distribution to BS 1377 : Part2 : 1990
Sedimentation Method Section 9.4**

Scheme: **Great Yarmouth Third River Crossing** Location: **TP 101 1.6 - m**



Seiving	
Particle Size mm	% Passing
37.5	100
20	100
14	100
10	100
6.3	100
5	100
2	98
0.6	95
0.212	80
0.063	41
0.02	23
0.006	15
0.002	11

Moisture content % 33

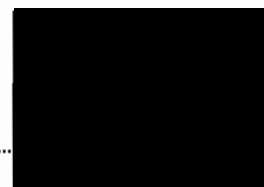
Sample Proportions	
GRAVEL	2
Coarse SAND	3
Medium SAND	15
Fine SAND	39
Coarse SILT	8
FINE SILT	4
CLAY	11

Description
Firm dark grey very sandy SILT/CLAY.

Test Code = 612



D N Houseago (Lead Technician)





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County Hall
Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 100357
Your Sample Ref B3
Your Project or Order No
P&T Project No.
Date Report Issued 24-Oct-07

FAO I Brown

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

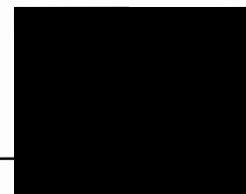
Scheme	Great Yarmouth Third River Crossing		
Location	TP 104	Depth	2 m
Date sampled		Date received	24-Sep-07
Date tested	05-Oct-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Grey and dark grey gravelly very sandy SILT/CLAY. Gravel is angular to subrounded fine and medium flint wi		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Ridffled
	Oven dried @ 105 -110°C
PASSING 2mm BS TEST SIEVE (%)	83
ORGANIC MATTER (%)	1

Test Code:620

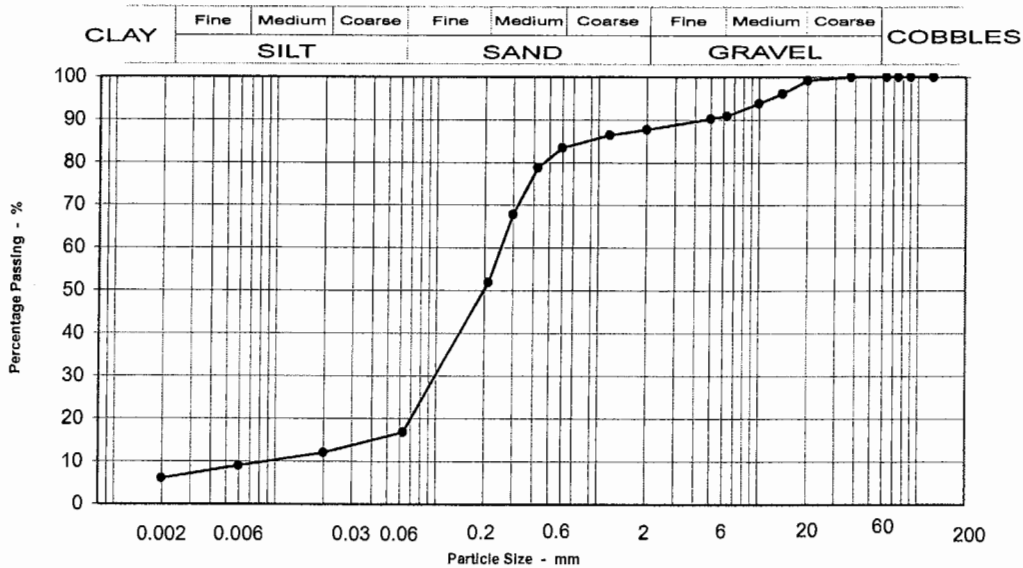


David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **TP 104 2 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	99
14	96
10	94
6.3	91
5	90
2	88
1.18	86
0.600	83
0.425	79
0.300	68
0.212	52
0.063	17
0.020	12
0.060	9
0.002	6

Specification for Highway Works Classification

2A/2B Suitable

Moisture content % 19

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	1
Medium GRAVEL	8
Fine GRAVEL	4
Coarse SAND	3
Medium SAND	32
Fine SAND	35
Silt & Clay	17

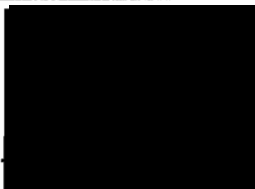
Grading Analysis	
D100	20
D60	0.26
D10	0.051
Uniformity Coefficient	5

Description	

Test Code = 610



D N Houseago (Lead Technician)



Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 100364
Your Sample Ref **B4**
Your Project or Order No
P&T Project No.
Date Report Issued 24-Oct-07

FAO I Brown

Page 1 of 1

**DETERMINATION OF ORGANIC MATTER CONTENT USING THE DICHROMATE METHOD TO BS 1377 :
Part 3 : SECTION 3.1**

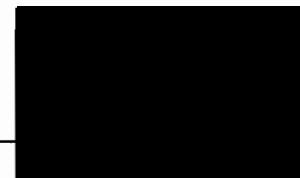
Scheme	Great Yarmouth Third River Crossing		
Location	TP 104	Depth	2.9 m
Date sampled		Date received	24-Sep-07
Date tested	05-Oct-07		
Sample type	D	Sample Mass	
Sampled by Client who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.			
Material	Small disturbed sample		
Description	Brown and grey silty gravelly medium and coarse SAND. Gravel is angular to subrounded medium flint with p		
Supplier	Not applicable	Source	Ex site
Conveyance note No.	Not applicable		

LOCATION	TEST SPECIMEN
ORIENTATION	Not applicable
METHOD OF DIVISION	PREPARATION DETAILS
PREPARATION METHOD	Ridffled
	Oven dried @ 105 -110°C
PASSING 2mm BS TEST SIEVE (%)	85
ORGANIC MATTER (%)	1

Test Code:620



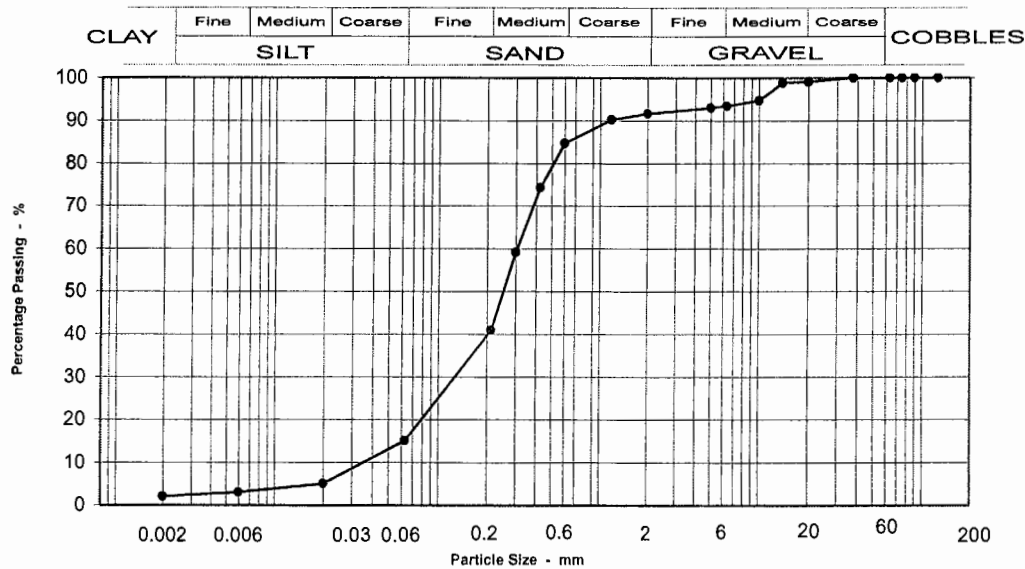
David Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing**

Location: **TP 104 2.9 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	99
14	99
10	95
6.3	93
5	93
2	92
1.18	90
0.600	85
0.425	74
0.300	59
0.212	41
0.063	15
0.020	5
0.060	3
0.002	2

Specification for Highway Works Classification
2A/2B Suitable
Moisture content % 21

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	1
Medium GRAVEL	6
Fine GRAVEL	7
Coarse SAND	2
Medium SAND	44
Fine SAND	26
Silt & Clay	15

Grading Analysis	
D100	20
D60	0.31
D10	0.092
Uniformity Coefficient	3

Description	
Brown and grey silty gravelly medium and coarse SAND. Gravel is angular to subrounded medium flint with pockets of soft grey sandy gravelly CLAY.	

Test Code = 610

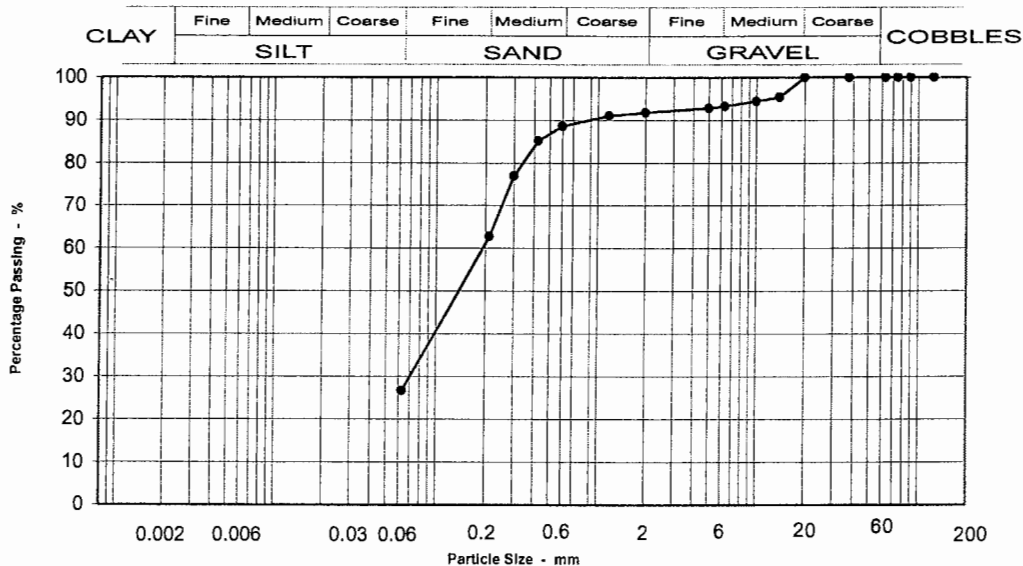


D N Houseago (Lead Technician)



Particle Size Distribution to BS 1377 : Part2 :1990

Scheme: **Great Yarmouth Third River Crossing** Location: **TP 109 0.3 - m**



Seiving Particle Size mm	% Passing
125	100
90	100
75	100
63	100
37.5	100
20	100
14	95
10	94
6.3	93
5	93
2	92
1.18	91
0.600	89
0.425	85
0.300	77
0.212	63
0.063	27

Specification for Highway Works Classification	
2A/2B	Suitable

Sample Proportions	
BOULDERS	0
COBBLES	0
Coarse GRAVEL	0
Medium GRAVEL	7
Fine GRAVEL	3
Coarse SAND	2
Medium SAND	26
Fine SAND	36
Silt & Clay	27

Grading Analysis	
D100	14
D60	0.20
D10	0.032
Uniformity Coefficient	6

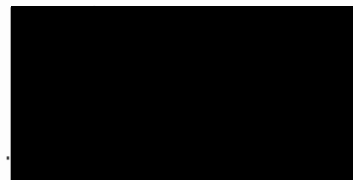
Description	

Moisture content % 12

Test Code = 610



D N Houseago (Lead Technician)



Planning & Transportation
County Hall
Martineau Lane
Norwich
NR1 2SG

Our Project No PTPZ0008
Our Report and sample No 100300
Your Sample Ref B2
Your Project or Order No
P&T Project No.
Date Report Issued 16-Oct-07

FAO I Brown

Page 1 of 3

DETERMINATION OF THE CALIFORNIA BEARING RATIO TO BS 1377 : PART 4 : 1990

Scheme	Great Yarmouth Third River Crossing		
Location	TP 109	Depth	0.3 m
Date sampled		Date received	24-Sep-07
Sample type	B	Sample Mass	

Sampled by Driller who is not a member of Norfolk Partnership Laboratory. If a Sample Certificate was provided it is available for inspection. The accuracy of information provided by third parties cannot be guaranteed.

Material	Bulk Disturbed
Description	Orangey brown silty gravelly fine and medium SAND. Gravel is angular to subrounded medium and coarse flint.

Supplier _____ **Source** _____
Conveyance note No. _____

		TEST SPECIMEN	
LOCATION		NOT APPLICABLE	
ORIENTATION		NOT APPLICABLE	
		PREPARATION DETAILS	
METHOD OF DIVISION		QUARTERING	
PREPARATION METHOD		7.2.4.4 Rammer Compaction with specified effort	
RETAINED 37.5mm	%	0	
RETAINED 20mm	%	0	
NO OF LAYERS		3	CBR VALUE TOP % 7.5
BLOWS PER LAYER		62 Blows	CBR VALUE BOTTOM % 4.8
METHOD		2.5kg	AVERAGE CBR VALUE % 6.1
CONDITION		UNSOAKED	
BULK DENSITY	Mg/m ³	2.114	MOISTURE CONT. TOP % 12
DRY DENSITY	Mg/m ³	1.871	MOISTURE CONT. BOT % 14
INITIAL MOISTURE CONT.	%	13	MOISTURE CONT. METHOD Oven dried @ 105 -110°C

REMARKS

Test Code = 642



David Houseago (Lead Technician)

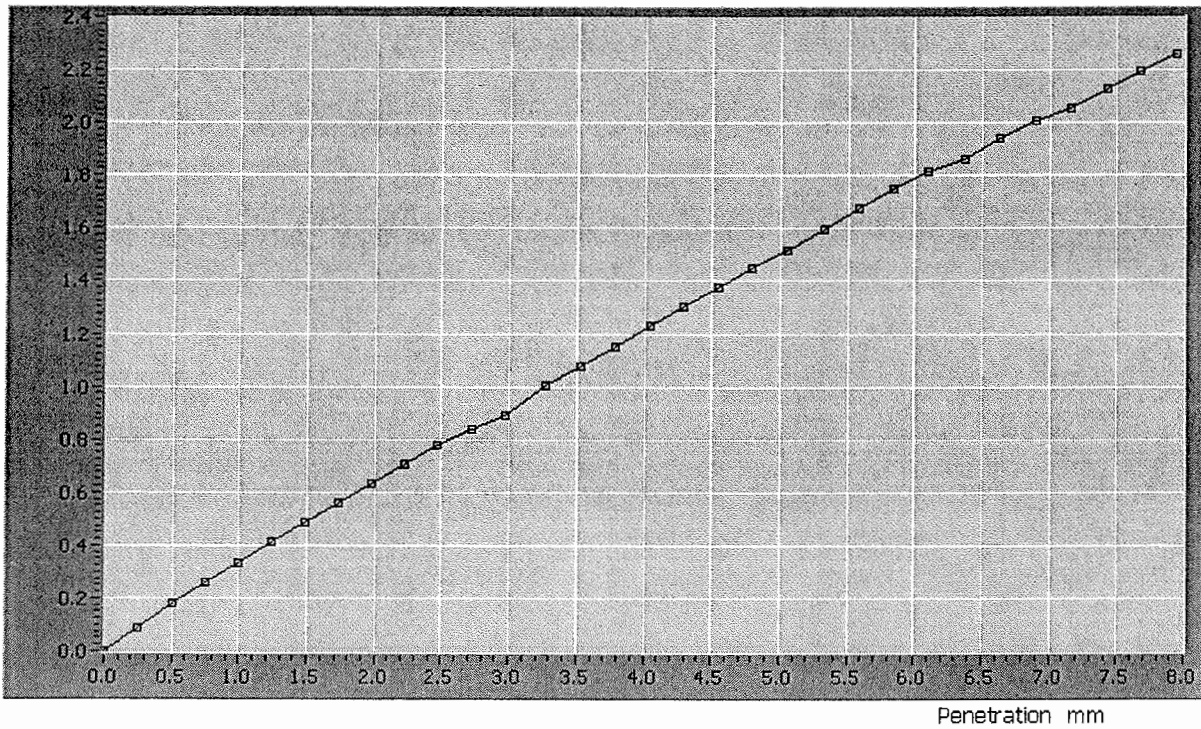


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	TP109 - B2	Sample	0000100300

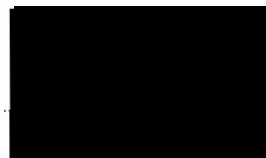
Penetration Stage

Load kN



Results - Top			
Penetration	2.50	5.00	mm
Load	0.79	1.50	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	5.96	7.52	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 D Brown (Section Engineer)
 D N Houseago (Lead Technician)

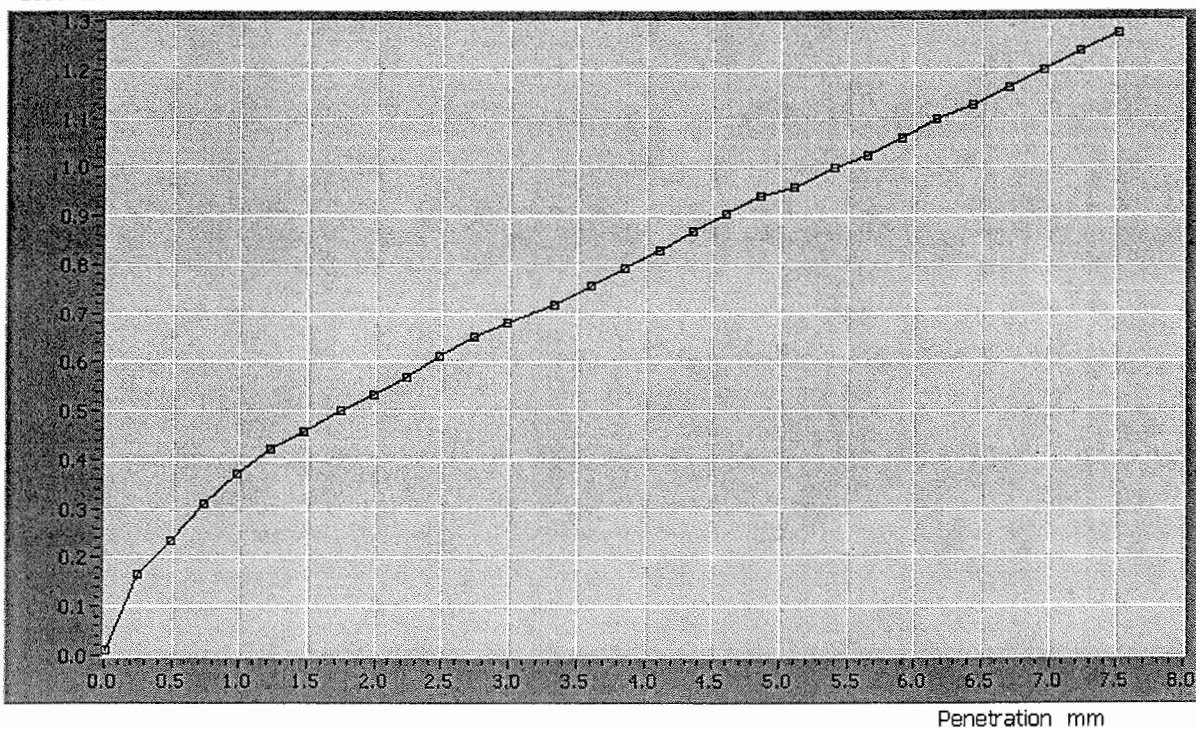


Norfolk Partnership Laboratory California Bearing Ratio

Client	P & T	Lab Ref	N/A
Project	Gt Yarmouth Third River Crossing	Job	PTPZ0008
Borehole	TP109 - B2	Sample	0000100300

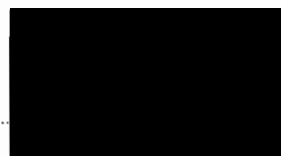
Penetration Stage (side 2)

Load kN




Results - Bottom			
Penetration	2.50	5.00	mm
Load	0.62	0.95	kN
Standard Load	13.20	20.00	kN
California Bearing Ratio	4.66	4.76	%

Authorised signatory R J Noakes (Laboratory Manager)
 M L Bumstead (Section Engineer)
 J D Brown (Section Engineer)
 D N Houseago (Lead Technician)



Appendix E


GEOTRACE - ANALYSIS REQUEST FORM AND SAMPLE CUSTODY SHEET

 ALcontrol Laboratories email: chester.schedulers@alcontrol.co.uk Tel: 01244 528 700 Fax: 01244 528 701		Client: Norfolk County Laboratory Address: County Hall Annex Martineau Lane Norwich NR1 2SG Tel: 01603 222417 Fax: 01603 222457 Code / Project Name PTPZ0008_GYTRC Email: ian.brown@norfolk.gov.uk Contact Name: Ian Brown		Date Samples Despatched: 16/08/2007 Sampler: D Joyce Quotation - yes/no Quotation Reference: 3776-2, Sarah molloy Job Continuation - no Continuation of ALcontrol job:		Sheet.. 1 of..... 1 Only one project per sheet please.	
---	--	---	--	---	--	--	--


Date of Sampling:	Sample Ref. ID	Depth in metres	Sample Preservation Y/N	(Soil or Water) (specify if other)	Suite Name/Analysis Required	Turnaround - please tick	Report format - please tick	Samplers Signature
10/08/2007	WS103	0.15	N	S	BRE SD1 Suite	10 day turnaround <input type="checkbox"/> 5 day turnaround <input type="checkbox"/> 4 day turnaround <input type="checkbox"/> 3 day turnaround <input type="checkbox"/> Other (please specify) _____ or Date required by: _____	Standard <input checked="" type="checkbox"/> LPH <input type="checkbox"/> AGS <input type="checkbox"/> Equis <input type="checkbox"/> Other <input type="checkbox"/> (please specify)	
09/08/2007	WS105	0.20	N	S		1 tub, 1 jar		
09/08/2007	WS106	0.10	N	S		1 tub, 1 jar		
09/08/2007	WS108	0.15	N	S		1 tub, 1 jar		
10/08/2007	WS111	0.20	N	S		1 tub, 1 jar		
10/08/2007	WS103	0.50	N	S		1 tub		
09/08/2007	WS105	0.50	N	S		1 tub		
09/08/2007	WS106	0.60	N	S		1 tub		
09/08/2007	WS108	0.60	N	S		1 tub		
10/08/2007	WS111	4.80	N	S		1 tub		

P.O. Number PT41117H		Invoice address if different from above :	
Date Received:		Signature:	
ALcontrol Job No.			

GEOTRACE - ANALYSIS REQUEST FORM AND SAMPLE CUSTODY SHEET

 Alcontrol Laboratories mailto:chester.schedulers@alcontrol.co.uk Tel : 01244 528 700 Fax : 01244 528 701		Client: Norfolk County Laboratory Address: County Hall Annex Martineau Lane Norwich NR1 2SG Tel: 01603 223858 Fax: 01603 222457 Code / Project Name PTPZ0008 Great Yarmouth Third River Crossin mailto:ian.brown@norfolk.gov.uk Contact Name: Ian Brown		Date Samples Despatched: 5-Sep-07 Sampler: Unknown Quotation - Quotation Reference: Job Continuation -Yes Yes Continuation of ALcontrol job:		Sheet.. 1 of..... 1 Only one project per sheet please.	
Date of Sampling:	Borehole Ref. ID	Depth in metres	Sample Ref. ID	(S)oil or (W)ater (specify if other)	Suite Name/Analysis Required		
					Turnaround - please tick	Report format - please tick	
29/08/2007	BH116	1.1	D	S	TPH to WGC UK BRE SD1 Suite MM4 TPH to WGC UK	10 day turnaround <input type="checkbox"/> 5 day turnaround <input checked="" type="checkbox"/> 4 day turnaround <input type="checkbox"/> 3 day turnaround <input type="checkbox"/> Other (please specify) _____ or Date required by : Comments	Standard <input checked="" type="checkbox"/> LPH <input type="checkbox"/> AGS <input checked="" type="checkbox"/> Equis <input type="checkbox"/> Other (please specify)
Special Instructions: including known hazards e.g asbestos and overseas source				P. O. Number PT41117H		Invoice address if different from above :	
Date Received:				Time:		Signature: ALcontrol Job No.	

GEOTRACE - ANALYSIS REQUEST FORM AND SAMPLE CUSTODY SHEET


 Alcontrol Laboratories Tel : 01244 528 700 Fax : 01244 528 701 Email: chester.schedulers@alcontrol.co.uk		Client: Norfolk County Laboratory Address: County Hall Annex Martineau Lane Norwich NR1 2SG Tel: 01603 223858 Fax: 01603 222457 Code / Project Name PTPZ0008 Great Yarmouth Third River Crossing Email: ian.brown@norfolk.gov.uk Contact Name: Ian Brown		Date Samples Despatched: 12-Sep-07 Sampler: Unknown Quotation - 3776-2 3776-2 Quotation Reference: Job Continuation - Yes Yes Continuation of ALcontrol job:		Sheet.. 1 of..... 1 Only one project per sheet please.	
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Date of Sampling:	Borehole Ref. ID	Depth in metres	Sample Ref. ID	Suite Name/Analysis Required	(Soil or Water (specify if other))	BRE SD1 Suite	MM4	TPH to WGC UK	Total PAH	Turnaround - please tick	Report format - please tick	Samplers Signature
11/09/2007	BH112	0.5			S	✓	✓	✓	✓	10 day turnaround <input type="checkbox"/>	Standard <input checked="" type="checkbox"/>	
11/09/2007	BH112	3.0			S		✓	✓	✓	5 day turnaround <input type="checkbox"/>	LPH <input type="checkbox"/>	
11/09/2007	BH102	0.5			S	✓	✓	✓	✓	4 day turnaround <input type="checkbox"/>	AGS <input type="checkbox"/>	
11/09/2007	BH102	3.0			S		✓	✓	✓	3 day turnaround <input type="checkbox"/>	Equis <input type="checkbox"/>	
										Other (please specify) _____ or	Other <input type="checkbox"/>	
										Date required by :	(please specify)	
										Comments		

Special Instructions: including known hazards e.g asbestos and overseas source

P.O.Number	PT41117H
Date Received:	Time:
Invoice address if different from above :	Signature:
	ALcontrol Job No.

GEOTRACE - ANALYSIS REQUEST FORM AND SAMPLE CUSTODY SHEET

 ALcontrol Laboratories mailto:chester.schedulers@alcontrol.co.uk Tel : 01244 528 700 Fax : 01244 528 701		Client: Norfolk County Laboratory Address: County Hall Annex Martineau Lane Norwich NR1 2SG Tel: 01603 223858 Fax: 01603 222457 Code / Project Name PTPZ008 Great Yarmouth Third River Crossing mailto:ian.brown@norfolk.gov.uk Contact Name: Ian Brown	Date Samples Despatched: 20-Sep-07 Sampler: Unknown Quotation - 3776-2, Sa Quotation Reference: Job Continuation -Yes Yes Continuation of ALcontrol job:	Sheet.. 1 of..... 1 Only one project per sheet please.
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Date of Sampling:	Borehole Ref. ID	Depth in metres	Sample Ref. ID	(S)oil or (W)ater (specify if other)	Suite Name/Analysis Required				Turnaround - please tick	Report format - please tick	Samplers Signature
					TPH1 by EZ flash	MM4	PAH Screen	BRE SD1 Suite			
	BH112	1.4	D4	S							
	BH112	4.0	d8	S							
	BH115	1.0	4	S							
	BH115	6.7	17	S							
	BH114	1.2		S							
	BH114	1.8	D	S							
	BH117	1.0	D	S							
	BH117	10.0	D	S							
	BH102	1.2	D4	S							
	BH102	10.0	D12	S							


Special Instructions: including known hazards e.g asbestos and overseas source

P.O.Number PT41117H

Invoice address if different from above : _____

Date Received: _____ Time: _____ Signature: _____ ALcontrol Job No. _____

GEOTRACE - ANALYSIS REQUEST FORM AND SAMPLE CUSTODY SHEET


 Alcontrol Laboratories Tel : 01244 528 700 Fax : 01244 528 701 mailto:chester.schedulers@alcontrol.co.uk		Client: Norfolk County Laboratory Address: County Hall Annex Martineau Lane Norwich NR1 2SG Tel: 01603 223858 Fax: 01603 222457 Code / Project Name PTPZ0008 Great Yarmouth Third River Crossin mailto:ian.brown@norfolk.gov.uk Contact Name: Ian Brown		Date Samples Despatched: 20-Sep-07 Sampler: Unknown Quotation - 3776-2_Sa Quotation Reference: Job Continuation -Yes Yes Continuation of ALcontrol job:		Sheet.. 1 of 1 Only one project per sheet please.	
Date of Sampling:	Borehole Ref. ID	Depth in metres	Sample Ref. ID	(S)oil or (W)ater (specify if other)	Suite Name/Analysis Required	Turnaround - please tick	Report format - please tick
	BH106	0.2	D	S	TPH1 by EZ flash MM4 PAH Screen BRE SD1 Suite	10 day turnaround <input type="checkbox"/> 5 day turnaround <input checked="" type="checkbox"/> 4 day turnaround <input type="checkbox"/> 3 day turnaround <input type="checkbox"/> Other (please specify) _____ or Date required by :	Standard <input checked="" type="checkbox"/> LPH <input type="checkbox"/> AGS <input checked="" type="checkbox"/> Equis <input type="checkbox"/> Other (please specify)
	BH107	1.0	D	S			
	BH104	0.5	D	S			
	BH110	0.5	D	S			
	BH110	1.0	D	S			
	BH110	2.0	D	S			
	BH110	3.0	D	S			
	BH115	1.0	D	S			
	BH115	3.0	D	S			
	BH115	0.5	D	S			
	BH117	0.4	D	S			
				Comments			
				Date required by :			
				Invoice address if different from above :			
				Signature: _____			
				ALcontrol Job No. _____			

Special Instructions: including known hazards e.g asbestos and overseas source

P.O.Number PT41117H

Date Received: _____ Time: _____

GEOTRACE - ANALYSIS REQUEST FORM AND SAMPLE CUSTODY SHEET

 ALcontrol Laboratories mailto:chester.schedulers@alcontrol.co.uk Tel : 01244 528 700 Fax : 01244 528 701		Client: Norfolk County Laboratory Address: County Hall Annex Martineau Lane Norwich NR1 2SG Tel: 01603 223858 Fax: 01603 222457 Code / Project Name PTPZ0008 Great Yarmouth Third River Crossing mailto:ian.brown@norfolk.gov.uk Contact Name: Ian Brown	Date Samples Despatched: 21-Sep-07 Sampler: Unknown Quotation - 3776-2, Sa Quotation Reference: Job Continuation -Yes Yes Continuation of ALcontrol job:	Sheet.. 1 of..... 1 Only one project per sheet please.
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Date of Sampling:	Borehole Ref. ID	Depth in metres	Sample Ref. ID	(S)oil or (W)ater (specify if other)	Suite Name/Analysis Required						Turnaround - please tick	Report format - please tick	Samplers Signature
					TPH1 by EZ flash	MM4	PAH Screen	BRE SD1 Suite	MM4 Water	Comments			
20/09/2007	BH113	0.5		S	✓	✓	✓	✓	✓	10 day turnaround <input checked="" type="checkbox"/>	Standard <input checked="" type="checkbox"/>		
20/09/2007	TP104	0.2		W	✓					5 day turnaround <input type="checkbox"/>	LPH <input type="checkbox"/>		
20/09/2007	TP104	0.2		S	✓					4 day turnaround <input type="checkbox"/>	AGS <input type="checkbox"/>		
20/09/2007	TP104	0.5		S	✓					3 day turnaround <input type="checkbox"/>	Equis <input type="checkbox"/>		
20/09/2007	TP109	0.5		S	✓					Other (please specify) _____ or	Other (please specify) <input type="checkbox"/>		
20/09/2007	TP101	0.2		S	✓					Date required by :			
20/09/2007	TP101	0.5		S	✓					Comments			

Special Instructions: including known hazards e.g asbestos and overseas source

P.O.Number PT41117H

Invoice address if different from above : _____

Date Received: _____ Time: _____ Signature: _____ Alcontrol Job No. _____

ALcontrol Geochem Analytical Services Sample Descriptions

Job Number: 07/14582/02/01

Client: Norfolk County Council

Client Ref : PTPZ0008

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1mm - 2mm Medium

2mm - 10mm Coarse

>10mm Very Coarse

Sample Identity	Depth (m)	Colour	Grain Size	Description	Batch
BH101	0.50	Brown	0.1mm - 2mm	Loamy Sand with some Stones	3
BH101	1.00	Brown	0.1mm - 2mm	Loamy Sand with some Stones	3
BH101	8.00-8.45	Brown	0.1mm - 2mm	Loamy Sand	3
BH102	0.5	Brown	0.1mm - 2mm	Sandy Clay with some Stones	6
BH102	1.20-1.65	Brown	0.1mm - 2mm	Sandy Loam with some Stones	7
BH102	3.0	Brown	0.1mm - 0.063mm	Silty Clay with some Stones	6
BH102	10.00-10.45	Light Brown	0.1mm - 2mm	Sandy Loam	7
BH103	21.0	Grey	0.1mm - 2mm	Sand	1
BH103 B1	0.5	Light Brown	0.1mm - 2mm	Sand with some Stones	1
BH103 B17	5.0	Grey	0.1mm - 2mm	Sand with some Stones	1
BH104	0.5	Brown	0.1mm - 0.063mm	Sandy Clay Loam with some Stones	7
BH104	0.6	Brown	0.1mm - 0.063mm	Silty Clay Loam with some Stones	9
BH104	25.5-25.95	Brown	0.1mm - 2mm	Sand	9
BH105	1.00	Grey	0.1mm - 0.063mm	Sandy Clay Loam	3
BH 105 B57	30.20	Grey	0.1mm - 0.063mm	Silty Clay	5
BH 105 D52	26.00	Brown	0.1mm - 2mm	Sand	5
BH 105 D63	34.00	Brown	0.1mm - 2mm	Sandy Clay with some Stones	5
BH106	0.2	Brown	0.1mm - 0.063mm	Silt Loam with some Vegetation	7
BH 106 B10	9.00	Beige	0.1mm - 2mm	Sand with some Stones	5
BH 106 D2	0.60	Beige	0.1mm - 2mm	Sand with some Stones	5
BH107	1.00	Light Brown	0.1mm - 2mm	Loamy Sand	7
BH 107 D6	3.00	Beige	0.1mm - 2mm	Sand	5
BH108	1.00	Light Brown	0.1mm - 2mm	Sand with some Stones	3
BH109	0.5	Light Brown	0.1mm - 2mm	Sand	2
BH109	17.0	Light Brown	0.1mm - 2mm	Sand with some Stones	2
BH109 B31	9.5	Light Brown	0.1mm - 2mm	Sand	2
BH110	0.50	Brown	0.1mm - 2mm	Loamy Sand with some Stones	7
BH110	1.00	Brown	0.1mm - 2mm	Sandy Loam with some Brick	7
BH110	2.00	Dark Grey	0.1mm - 0.063mm	Sandy Clay Loam	7
BH110	3.00	Brown	0.1mm - 0.063mm	Sandy Clay Loam	7
BH110 D4	4.00	Light Brown	0.1mm - 2mm	Sand with some Stones	8
BH110 D6	6.70	Brown	0.1mm - 2mm	Sand with some Stones	8
BH110 D8	11.50	Light Brown	0.1mm - 2mm	Sand	8

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

ALcontrol Geochem Analytical Services Sample Descriptions

Job Number: 07/14582/02/01

Client: Norfolk County Council

Client Ref : PTPZ0008

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1mm - 2mm Medium

2mm - 10mm Coarse

>10mm Very Coarse

Sample Identity	Depth (m)	Colour	Grain Size	Description	Batch
BH110 D9	13.00	Light Brown	0.1mm - 2mm	Sand with some Stones	8
BH111/TP5	0.2	Brown	0.1mm - 0.063mm	Silt with some Stones	2
BH111/TP5	0.7	Brown	0.1mm - 0.063mm	Silty Clay with some Stones	2
BH112	0.5	Brown	0.1mm - 0.063mm	Sandy Clay with some Crushed Brick	6
BH112	1.4	Brown	0.1mm - 2mm	Sandy Loam with some Brick	7
BH112	3.0	Brown	0.1mm - 2mm	Sandy Clay with some Stones	6
BH112	4.0-4.45	Brown	0.1mm - 2mm	Sandy Loam	7
BH113	0.50	Brown	0.1mm - 2mm	Sand with some Stones	8
BH114	1.20	Brown	0.1mm - 0.063mm	Sandy Clay Loam with some Stones	7
BH114	1.8	Light Brown	0.1mm - 2mm	Sand with some Stones	7
BH 114 SI 1288	0.50	Brown	0.1mm - 0.063mm	Silty Clay with some Stones	5
BH 114 SI 1288	2.20	Brown	0.1mm - 2mm	Sandy Clay with some Stones	5
BH115	0.5	Brown	0.1mm - 0.063mm	Sandy Clay Loam with some Stones	7
BH115	1.0	Brown	0.1mm - 2mm	Sand with some Stones	7
BH115	3.0	Brown	0.1mm - 2mm	Sandy Loam with some Stones	7
BH115	6.50	Brown	0.1mm - 2mm	Sand with some Stones	7
BH116	1.0	Black	n/a	Sand with some Plastic	4
BH 116 B50	24.50	Brown	0.1mm - 2mm	Sandy Clay	5
BH 116 B55	28.50	Brown	0.1mm - 2mm	Sandy Clay	5
BH117	0.35	Brown	0.1mm - 2mm	Sandy Loam with some Stones	7
BH117	1.0	Light Brown	0.1mm - 0.063mm	Sandy Clay Loam with some Stones	7
BH117	10.0	Brown	0.1mm - 2mm	Sandy Loam	7
TP101	0.20	Brown	0.1mm - 0.063mm	Loam (topsoil) with some Vegetation	8
TP101	0.50	Brown	0.1mm - 2mm	Sand with some Stones	8
TP104	0.20	Brown	0.1mm - 0.063mm	Loam (topsoil) with some Stones	8
TP104	0.50	Brown	0.1mm - 2mm	Sand with some Stones	8
TP109	0.50	Light Brown	0.1mm - 2mm	Sand with some Stones	8
WS104	0.50	Brown	0.1mm - 2mm	Loamy Sand	3
WS 104	0.50	Beige	0.1mm - 2mm	Sandy Clay	5
WS104	1.00	Light Brown	0.1mm - 2mm	Sand	3
WS 107	0.40	Brown	0.1mm - 2mm	Sandy Clay with some Stones	5
WS 107	0.50	Brown	0.1mm - 2mm	Sandy Clay with some Stones	5
WS110	0.15	Dark Brown	0.1mm - 2mm	Loamy Sand	3

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Validated
 Preliminary

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number: 07/14582/02/01
Client: Norfolk County Council
Client Ref. No.: PTPZ0008

Matrix: SOLID
Location: Great Yarmouth third river Crossing
Client Contact: Ian Brown

Sample Identity	BH101	BH101	BH101	BH102	BH102	BH102	BH102	BH103	BH103 B1	Method Code	LoD/Units
Depth (m)	0.50	1.00	8.00-8.45	0.5	1.20-1.65	3.0	10.00-10.45	21.0	0.5		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	21.08.07	21.08.07	21.08.07	11.09.07	11.09.07	11.09.07	11.09.07	16.08.07	16.08.07		
Sample Received Date	05.09.07	05.09.07	05.09.07	13.09.07	21.09.07	13.09.07	21.09.07	22.08.07	22.08.07		
Batch	3	3	3	6	7	6	7	1	1		
Sample Number(s)	9 (1)	10 (1)	11 (1)	47-49 (1)	57 (1)	50-52 (1)	58 (1)	1 (1)	2 (1)		
Total Sulphate	590	-	-	1800	-	1000	-	-	<100	TM129 [#] _M	<100 mg/kg
Boron Water Soluble	<3.5	-	-	<3.5	-	<3.5	-	-	<3.5	TM129 [#] _M	<3.5 mg/kg
Total Sulphate BRE	-	0.12	0.05	-	0.02	-	0.04	0.03	-	TM149	<0.01 %
Arsenic	54	-	-	5	-	18	-	-	4	TM129 [#] _M	<3.0 mg/kg
Barium	170	-	-	31	-	34	-	-	8	TM129 [#] _M	<6.0 mg/kg
Beryllium	1.2	-	-	<0.4	-	<0.4	-	-	<0.4	TM129	<0.4 mg/kg
Cadmium	3.7	-	-	<0.3	-	<0.3	-	-	<0.3	TM129	<0.3 mg/kg
Chromium	16	-	-	8.0	-	19	-	-	<4.5	TM129 [#] _M	<4.5 mg/kg
Copper	25	-	-	17	-	10	-	-	34	TM129 [#]	<6 mg/kg
Lead	24	-	-	26	-	13	-	-	10	TM129 [#] _M	<2 mg/kg
Mercury	<0.6	-	-	<0.6	-	<0.6	-	-	<0.6	TM129 [#] _M	<0.6 mg/kg
Nickel	41	-	-	7.8	-	18	-	-	2.6	TM129 [#] _M	<0.9 mg/kg
Selenium	<3	-	-	<3	-	<3	-	-	<3	TM129 [#] _M	<3 mg/kg
Vanadium	43	-	-	16	-	32	-	-	4.7	TM129 [#] _M	<1.5 mg/kg
Zinc	200	-	-	31	-	53	-	-	6.4	TM129 [#] _M	<2.5 mg/kg
Ammonium as NH4 in 2:1 Extract BRE	-	0.0004	0.0012	-	0.0009	-	<0.0003	0.0031	-	TM099 [#]	<0.0003 g/l
Nitrate (soluble) as NO3	3	-	-	9	-	54	-	-	13	TM102 [#]	<1 mg/kg
Acid Soluble Sulphide	<50	-	-	<50	-	<50	-	-	<50	TM101	<50 mg/kg
Total Cyanide	<1	-	-	<1	-	<1	-	-	<1	TM153 [#]	<1 mg/kg
Free Cyanide	<1	-	-	<1	-	<1	-	-	<1	TM153 [#]	<1 mg/kg
Complex Cyanide	<1	-	-	<1	-	<1	-	-	<1	TM153 [#]	<1 mg/kg
Asbestos Presence Screen	No Fibres Detected	-	-	No Fibres Detected	-	No Fibres Detected	-	-	No Fibres Detected	TM001	NONE
Chloride 2:1 water/soil extract BRE	-	0.014	1.3	-	0.009	-	1.2	0.29	-	TM097 [#]	<0.001 g/l
Magnesium 2:1 water/soil extract BRE	-	<0.001	0.072	-	0.001	-	0.036	0.014	-	TM129 [#]	<0.001 g/l
Nitrate 2:1 water/soil extract BRE	-	0.0021	<0.0003	-	0.0007	-	<0.0003	0.0090	-	TM102 [#]	<0.0003 g/l
pH Value	10.16	9.68	8.28	10.92	8.65	8.69	8.48	8.04	9.44	TM133 [#] _M	<1.00 pH Units
Soluble Sulphate 2:1 Extract as SO4 BRE	-	0.091	0.17	-	0.021	-	0.21	0.11	-	TM098 [#]	<0.003 g/l
Total Sulphur	0.11	0.12	0.02	0.09	0.04	0.66	0.04	0.18	0.02	TM068 [#]	<0.01 %

All results expressed on a dry weight basis.

Date 19.10.2007

Validated
Preliminary

ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/14582/02/01
Client: Norfolk County Council
Client Ref. No.: PTPZ0008

Matrix: SOLID
Location: Great Yarmouth third river Crossing
Client Contact: Ian Brown

Sample Identity	BH101	BH101	BH101	BH102	BH102	BH102	BH102	BH103	BH103 B1	Method Code	LoD/Units
Depth (m)	0.50	1.00	8.00-8.45	0.5	1.20-1.65	3.0	10.00-10.45	21.0	0.5		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	21.08.07	21.08.07	21.08.07	11.09.07	11.09.07	11.09.07	11.09.07	16.08.07	16.08.07		
Sample Received Date	05.09.07	05.09.07	05.09.07	13.09.07	21.09.07	13.09.07	21.09.07	22.08.07	22.08.07		
Batch	3	3	3	6	7	6	7	1	1		
Sample Number(s)	9 (1)	10 (1)	11 (1)	47-49 (1)	57 (1)	50-52 (1)	58 (1)	1 (1)	2 (1)		
GRO (C4-C12)	-	-	-	-	-	-	-	-	<10	TM089	<10 ug/kg
MTBE	-	-	-	-	-	-	-	-	<10	TM089 [#]	<10 ug/kg
Benzene	-	-	-	-	-	-	-	-	<10	TM089 [#] _M	<10 ug/kg
Toluene	-	-	-	-	-	-	-	-	<10	TM089 [#] _M	<10 ug/kg
Ethyl benzene	-	-	-	-	-	-	-	-	<10	TM089 [#] _M	<10 ug/kg
m & p Xylene	-	-	-	-	-	-	-	-	<10	TM089 [#] _M	<10 ug/kg
o Xylene	-	-	-	-	-	-	-	-	<10	TM089 [#] _M	<10 ug/kg
Aliphatics C5-C6	-	-	-	-	-	-	-	-	<10	TM089	<10 ug/kg
Aliphatics >C6-C8	-	-	-	-	-	-	-	-	<10	TM089	<10 ug/kg
Aliphatics >C8-C10	-	-	-	-	-	-	-	-	<10	TM089	<10 ug/kg
Aliphatics >C10-C12	-	-	-	-	-	-	-	-	<10	TM089	<10 ug/kg
Aliphatics >C12-C16	-	-	-	-	-	-	-	-	<100	TM173 [#]	<100 ug/kg
Aliphatics >C16-C21	-	-	-	-	-	-	-	-	<100	TM173 [#]	<100 ug/kg
Aliphatics >C16-C35	-	-	-	-	-	-	-	-	-	TM173	<100 ug/kg
Aliphatics >C21-C35	-	-	-	-	-	-	-	-	<100	TM173 [#]	<100 ug/kg
Aliphatics >C35-C44	-	-	-	-	-	-	-	-	-	TM173	<100 ug/kg
Total Aliphatics C5-C35	-	-	-	-	-	-	-	-	<100	TM61/89	<100 ug/kg
Total Aliphatics C5-C44	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Aromatics C6-C7	-	-	-	-	-	-	-	-	<10	TM089	<10 ug/kg
Aromatics >C7-C8	-	-	-	-	-	-	-	-	<10	TM089	<10 ug/kg
Aromatics >EC8-EC10	-	-	-	-	-	-	-	-	<10	TM089	<10 ug/kg
Aromatics >EC10-EC12	-	-	-	-	-	-	-	-	<10	TM089	<10 ug/kg
Aromatics >EC12-EC16	-	-	-	-	-	-	-	-	<100	TM173 [#]	<100 ug/kg
Aromatics >EC16-EC21	-	-	-	-	-	-	-	-	300	TM173 [#]	<100 ug/kg
Aromatics >EC21-EC35	-	-	-	-	-	-	-	-	19000	TM173 [#]	<100 ug/kg
Aromatics >EC35-EC44	-	-	-	-	-	-	-	-	-	TM173	<100 ug/kg
Total Aromatics C6-C35	-	-	-	-	-	-	-	-	19000	TM61/89	<100 ug/kg
Total Aromatics C6-C44	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C35)	-	-	-	-	-	-	-	-	19000	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C44)	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg

All results expressed on a dry weight basis.

Date 19.10.2007

Validated
 Preliminary

ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH101	BH101	BH101	BH102	BH102	BH102	BH102	BH103	BH103 B1	Method Code	LoD/Units
Depth (m)	0.50	1.00	8.00-8.45	0.5	1.20-1.65	3.0	10.00-10.45	21.0	0.5		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	21.08.07	21.08.07	21.08.07	11.09.07	11.09.07	11.09.07	11.09.07	16.08.07	16.08.07		
Sample Received Date	05.09.07	05.09.07	05.09.07	13.09.07	21.09.07	13.09.07	21.09.07	22.08.07	22.08.07		
Batch	3	3	3	6	7	6	7	1	1		
Sample Number(s)	9 (1)	10 (1)	11 (1)	47-49 (1)	57 (1)	50-52 (1)	58 (1)	1 (1)	2 (1)		
PAH by GCMS											
Naphthalene	64	-	-	190	-	330	-	-	-	TM074 [#] _M	<10 ug/kg
Acenaphthylene	9	-	-	21	-	8	-	-	-	TM074 [#] _M	<5 ug/kg
Acenaphthene	39	-	-	45	-	<14	-	-	-	TM074 [#] _M	<14 ug/kg
Fluorene	30	-	-	38	-	28	-	-	-	TM074 [#] _M	<12 ug/kg
Phenanthrene	240	-	-	480	-	62	-	-	-	TM074 [#] _M	<21 ug/kg
Anthracene	52	-	-	120	-	<9	-	-	-	TM074 [#] _M	<9 ug/kg
Fluoranthene	360	-	-	810	-	35	-	-	-	TM074 [#] _M	<25 ug/kg
Pyrene	310	-	-	610	-	28	-	-	-	TM074 [#] _M	<22 ug/kg
Benz(a)anthracene	190	-	-	370	-	29	-	-	-	TM074 [#] _M	<12 ug/kg
Chrysene	220	-	-	360	-	21	-	-	-	TM074 [#] _M	<10 ug/kg
Benzo(b)fluoranthene	130	-	-	390	-	24	-	-	-	TM074 [#] _M	<16 ug/kg
Benzo(k)fluoranthene	110	-	-	140	-	<25	-	-	-	TM074 [#] _M	<25 ug/kg
Benzo(a)pyrene	190	-	-	320	-	15	-	-	-	TM074 [#] _M	<12 ug/kg
Indeno(123cd)pyrene	92	-	-	170	-	<11	-	-	-	TM074 [#] _M	<11 ug/kg
Dibenzo(ah)anthracene	24	-	-	46	-	<8	-	-	-	TM074 [#] _M	<8 ug/kg
Benzo(ghi)perylene	120	-	-	210	-	16	-	-	-	TM074 [#] _M	<10 ug/kg
PAH 16 Total	2200	-	-	4300	-	600	-	-	-	TM074 [#] _M	<25 ug/kg

All results expressed on a dry weight basis.

Date 19.10.2007

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ALcontrol Geochem Analytical Services Table Of Results

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH103 B17	BH104	BH104	BH104	BH105	BH 105 B57	BH 105 D52	BH 105 D63	BH106	Method Code	LoD/Units
Depth (m)	5.0	0.5	0.6	25.5-25.95	1.00	30.20	26.00	34.00	0.2		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	16.08.07	14.09.07	14.09.07	19.09.07	23.08.07	31.08.07	31.08.07	31.08.07			
Sample Received Date	22.08.07	21.09.07	25.09.07	25.09.07	05.09.07	12.09.07	12.09.07	12.09.07	21.09.07		
Batch	1	7	9	9	3	5	5	5	7		
Sample Number(s)	3 (1)	59-60 (1)	124 (1)	125 (1)	12-14 (1)	29 (1)	30 (1)	31 (1)	61-63 (1)		
Total Sulphate	-	850	-	-	1700	-	-	-	980	TM129 [#] _M	<100 mg/kg
Boron Water Soluble	-	<3.5	-	-	4.3	-	-	-	<3.5	TM129 [#] _M	<3.5 mg/kg
Total Sulphate BRE	0.01	-	0.06	0.03	0.17	0.10	0.04	0.06	-	TM149	<0.01 %
Arsenic	-	6	-	-	6	-	-	-	4	TM129 [#] _M	<3.0 mg/kg
Barium	-	47	-	-	20	-	-	-	43	TM129 [#] _M	<6.0 mg/kg
Beryllium	-	<0.4	-	-	<0.4	-	-	-	<0.4	TM129	<0.4 mg/kg
Cadmium	-	<0.3	-	-	<0.3	-	-	-	<0.3	TM129	<0.3 mg/kg
Chromium	-	11	-	-	17	-	-	-	9.7	TM129 [#] _M	<4.5 mg/kg
Copper	-	72	-	-	9	-	-	-	84	TM129 [#]	<6 mg/kg
Lead	-	39	-	-	23	-	-	-	30	TM129 [#] _M	<2 mg/kg
Mercury	-	<0.6	-	-	<0.6	-	-	-	<0.6	TM129 [#] _M	<0.6 mg/kg
Nickel	-	15	-	-	13	-	-	-	6.5	TM129 [#] _M	<0.9 mg/kg
Selenium	-	<3	-	-	<3	-	-	-	<3	TM129 [#] _M	<3 mg/kg
Vanadium	-	20	-	-	29	-	-	-	15	TM129 [#] _M	<1.5 mg/kg
Zinc	-	29	-	-	39	-	-	-	45	TM129 [#] _M	<2.5 mg/kg
Ammonium as NH4 in 2:1 Extract BRE	0.0099	-	<0.0003	<0.0003	0.0021	<0.0003	<0.0003	<0.0003	-	TM099 [#]	<0.0003 g/l
Nitrate (soluble) as NO3	-	15	-	-	<1	-	-	-	28	TM102 [#]	<1 mg/kg
Acid Soluble Sulphide	-	<50	-	-	170	-	-	-	<50	TM101	<50 mg/kg
Total Cyanide	-	<1	-	-	<1	-	-	-	<1	TM153 [#]	<1 mg/kg
Free Cyanide	-	<1	-	-	<1	-	-	-	<1	TM153 [#]	<1 mg/kg
Complex Cyanide	-	<1	-	-	<1	-	-	-	<1	TM153 [#]	<1 mg/kg
Asbestos Presence Screen	-	No Fibres Detected	-	-	No Fibres Detected	-	-	-	No Fibres Detected	TM001	NONE
Chloride 2:1 water/soil extract BRE	0.098	-	0.015	0.98	0.018	1.7	0.55	0.83	-	TM097 [#]	<0.001 g/l
Magnesium 2:1 water/soil extract BRE	0.005	-	0.004	0.052	0.030	0.042	0.021	0.032	-	TM129 [#]	<0.001 g/l
Nitrate 2:1 water/soil extract BRE	0.0071	-	0.011	0.0091	<0.0003	<0.0003	<0.0003	<0.0003	-	TM102 [#]	<0.0003 g/l
pH Value	8.37	8.33	8.44	8.30	7.65	8.17	8.21	8.17	7.95	TM133 [#] _M	<1.00 pH Units
Soluble Sulphate 2:1 Extract as SO4 BRE	0.091	-	0.055	0.17	0.47	0.33	0.13	0.20	-	TM098 [#]	<0.003 g/l
Total Sulphur	0.04	0.06	0.05	0.07	0.20	0.40	0.17	0.22	0.08	TM068 [#]	<0.01 %

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH103 B17	BH104	BH104	BH104	BH105	BH 105 B57	BH 105 D52	BH 105 D63	BH106	Method Code	LoD/Units
Depth (m)	5.0	0.5	0.6	25.5-25.95	1.00	30.20	26.00	34.00	0.2		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	16.08.07	14.09.07	14.09.07	19.09.07	23.08.07	31.08.07	31.08.07	31.08.07			
Sample Received Date	22.08.07	21.09.07	25.09.07	25.09.07	05.09.07	12.09.07	12.09.07	12.09.07	21.09.07		
Batch	1	7	9	9	3	5	5	5	7		
Sample Number(s)	3 (1)	59-60 (1)	124 (1)	125 (1)	12-14 (1)	29 (1)	30 (1)	31 (1)	61-63 (1)		
GRO (C4-C12)	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
MTBE	-	-	-	-	<10	-	-	-	-	TM089 [#]	<10 ug/kg
Benzene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
Toluene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
Ethyl benzene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
m & p Xylene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
o Xylene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
Aliphatics C5-C6	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C6-C8	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C8-C10	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C10-C12	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C12-C16	-	-	-	-	<100	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C16-C21	-	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C16-C35	-	-	-	-	3100	-	-	-	-	TM173	<100 ug/kg
Aliphatics >C21-C35	-	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C35-C44	-	-	-	-	<100	-	-	-	-	TM173	<100 ug/kg
Total Aliphatics C5-C35	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aliphatics C5-C44	-	-	-	-	3100	-	-	-	-	TM61/89	<100 ug/kg
Aromatics C6-C7	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aromatics >C7-C8	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aromatics >EC8-EC10	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aromatics >EC10-EC12	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aromatics >EC12-EC16	-	-	-	-	<100	-	-	-	-	TM173 [#]	<100 ug/kg
Aromatics >EC16-EC21	-	-	-	-	<100	-	-	-	-	TM173 [#]	<100 ug/kg
Aromatics >EC21-EC35	-	-	-	-	19000	-	-	-	-	TM173 [#]	<100 ug/kg
Aromatics >EC35-EC44	-	-	-	-	4800	-	-	-	-	TM173	<100 ug/kg
Total Aromatics C6-C35	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aromatics C6-C44	-	-	-	-	24000	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C35)	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C44)	-	-	-	-	27000	-	-	-	-	TM61/89	<100 ug/kg

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH103 B17	BH104	BH104	BH104	BH105	BH 105 B57	BH 105 D52	BH 105 D63	BH106	Method Code	LoD/Units
Depth (m)	5.0	0.5	0.6	25.5-25.95	1.00	30.20	26.00	34.00	0.2		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	16.08.07	14.09.07	14.09.07	19.09.07	23.08.07	31.08.07	31.08.07	31.08.07			
Sample Received Date	22.08.07	21.09.07	25.09.07	25.09.07	05.09.07	12.09.07	12.09.07	12.09.07	21.09.07		
Batch	1	7	9	9	3	5	5	5	7		
Sample Number(s)	3 (1)	59-60 (1)	124 (1)	125 (1)	12-14 (1)	29 (1)	30 (1)	31 (1)	61-63 (1)		
PAH by GCMS											
Naphthalene	-	-	-	-	690	-	-	-	-	TM074 [#] _M	<10 ug/kg
Acenaphthylene	-	-	-	-	<5	-	-	-	-	TM074 [#] _M	<5 ug/kg
Acenaphthene	-	-	-	-	17	-	-	-	-	TM074 [#] _M	<14 ug/kg
Fluorene	-	-	-	-	21	-	-	-	-	TM074 [#] _M	<12 ug/kg
Phenanthrene	-	-	-	-	56	-	-	-	-	TM074 [#] _M	<21 ug/kg
Anthracene	-	-	-	-	<9	-	-	-	-	TM074 [#] _M	<9 ug/kg
Fluoranthene	-	-	-	-	<25	-	-	-	-	TM074 [#] _M	<25 ug/kg
Pyrene	-	-	-	-	<22	-	-	-	-	TM074 [#] _M	<22 ug/kg
Benz(a)anthracene	-	-	-	-	27	-	-	-	-	TM074 [#] _M	<12 ug/kg
Chrysene	-	-	-	-	15	-	-	-	-	TM074 [#] _M	<10 ug/kg
Benzo(b)fluoranthene	-	-	-	-	<16	-	-	-	-	TM074 [#] _M	<16 ug/kg
Benzo(k)fluoranthene	-	-	-	-	<25	-	-	-	-	TM074 [#] _M	<25 ug/kg
Benzo(a)pyrene	-	-	-	-	13	-	-	-	-	TM074 [#] _M	<12 ug/kg
Indeno(123cd)pyrene	-	-	-	-	16	-	-	-	-	TM074 [#] _M	<11 ug/kg
Dibenzo(ah)anthracene	-	-	-	-	<8	-	-	-	-	TM074 [#] _M	<8 ug/kg
Benzo(ghi)perylene	-	-	-	-	28	-	-	-	-	TM074 [#] _M	<10 ug/kg
PAH 16 Total	-	-	-	-	890	-	-	-	-	TM074 [#] _M	<25 ug/kg

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH 106 B10	BH 106 D2	BH107	BH 107 D6	BH108	BH109	BH109	BH109 B31	BH110	Method Code	LoD/Units
Depth (m)	9.00	0.60	1.00	3.00	1.00	0.5	17.0	9.5	0.50		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	30.08.07	29.08.07		05.09.07	23.08.07				17.09.07		
Sample Received Date	12.09.07	12.09.07	21.09.07	12.09.07	05.09.07	28.08.07	28.08.07	28.08.07	21.09.07		
Batch	5	5	7	5	3	2	2	2	7		
Sample Number(s)	33 (1)	32 (1)	64-66 (1)	34 (1)	15-18 (1)	4 (1)	5 (1)	6 (1)	67-69 (1)		
Total Sulphate	-	-	<100	-	<100	<100	-	-	3700	TM129 ^M	<100 mg/kg
Boron Water Soluble	-	-	<3.5	-	<3.5	<3.5	-	-	3.6	TM129 ^M	<3.5 mg/kg
Total Sulphate BRE	0.01	0.06	-	<0.01	<0.01	-	0.03	0.01	0.37	TM149	<0.01 %
Arsenic	-	-	<3	-	3	<3	-	-	3	TM129 ^M	<3.0 mg/kg
Barium	-	-	9	-	9	<6	-	-	260	TM129 ^M	<6.0 mg/kg
Beryllium	-	-	<0.4	-	<0.4	<0.4	-	-	<0.4	TM129	<0.4 mg/kg
Cadmium	-	-	<0.3	-	<0.3	<0.3	-	-	0.8	TM129	<0.3 mg/kg
Chromium	-	-	<4.5	-	<4.5	<4.5	-	-	57	TM129 ^M	<4.5 mg/kg
Copper	-	-	<6	-	<6	<6	-	-	330	TM129 ^M	<6 mg/kg
Lead	-	-	6	-	4	4	-	-	78	TM129 ^M	<2 mg/kg
Mercury	-	-	<0.6	-	<0.6	<0.6	-	-	<0.6	TM129 ^M	<0.6 mg/kg
Nickel	-	-	1.7	-	3.3	<0.9	-	-	29	TM129 ^M	<0.9 mg/kg
Selenium	-	-	<3	-	<3	<3	-	-	<3	TM129 ^M	<3 mg/kg
Vanadium	-	-	<1.5	-	4.5	2.9	-	-	59	TM129 ^M	<1.5 mg/kg
Zinc	-	-	22	-	8.8	4.2	-	-	1500	TM129 ^M	<2.5 mg/kg
Ammonium as NH4 in 2:1 Extract BRE	<0.0003	<0.0003	-	0.0008	<0.0003	-	<0.0003	<0.0003	0.0009	TM099 ^M	<0.0003 g/l
Nitrate (soluble) as NO3	-	-	<1	-	1	12	-	-	12	TM102 ^M	<1 mg/kg
Acid Soluble Sulphide	-	-	<50	-	<50	<50	-	-	1100	TM101	<50 mg/kg
Total Cyanide	-	-	<1	-	<1	<1	-	-	<1	TM153 ^M	<1 mg/kg
Free Cyanide	-	-	<1	-	<1	<1	-	-	<1	TM153 ^M	<1 mg/kg
Complex Cyanide	-	-	<1	-	<1	-	-	-	<1	TM153 ^M	<1 mg/kg
Asbestos Presence Screen	-	-	No Fibres Detected	-	No Fibres Detected	No Fibres Detected	-	-	No Fibres Detected	TM001	NONE
Chloride 2:1 water/soil extract BRE	0.031	0.061	-	0.008	0.016	-	0.51	0.052	0.15	TM097 ^M	<0.001 g/l
Magnesium 2:1 water/soil extract BRE	0.002	<0.001	-	<0.001	0.002	-	0.024	0.003	<0.001	TM129 ^M	<0.001 g/l
Nitrate 2:1 water/soil extract BRE	0.0012	0.0037	-	0.0048	0.0004	-	<0.0003	<0.0003	0.0054	TM102 ^M	<0.0003 g/l
pH Value	8.28	9.87	8.69	7.76	8.66	8.69	8.62	8.54	11.52	TM133 ^M	<1.00 pH Units
Soluble Sulphate 2:1 Extract as SO4 BRE	0.012	0.052	-	0.012	0.007	-	0.098	0.015	0.19	TM098 ^M	<0.003 g/l
Total Sulphur	0.03	0.04	0.02	0.01	0.03	0.01	0.04	0.02	0.27	TM068 ^M	<0.01 %

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH 106 B10	BH 106 D2	BH107	BH 107 D6	BH108	BH109	BH109	BH109 B31	BH110	Method Code	LoD/Units
Depth (m)	9.00	0.60	1.00	3.00	1.00	0.5	17.0	9.5	0.50		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	30.08.07	29.08.07		05.09.07	23.08.07				17.09.07		
Sample Received Date	12.09.07	12.09.07	21.09.07	12.09.07	05.09.07	28.08.07	28.08.07	28.08.07	21.09.07		
Batch	5	5	7	5	3	2	2	2	7		
Sample Number(s)	33 (1)	32 (1)	64-66 (1)	34 (1)	15-18 (1)	4 (1)	5 (1)	6 (1)	67-69 (1)		
GRO (C4-C12)	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
MTBE	-	-	-	-	<10	-	-	-	-	TM089 [#]	<10 ug/kg
Benzene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
Toluene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
Ethyl benzene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
m & p Xylene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
o Xylene	-	-	-	-	<10	-	-	-	-	TM089 ^{#M}	<10 ug/kg
Aliphatics C5-C6	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C6-C8	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C8-C10	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C10-C12	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C12-C16	-	-	-	-	<100	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C16-C21	-	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C16-C35	-	-	-	-	<100	-	-	-	-	TM173	<100 ug/kg
Aliphatics >C21-C35	-	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C35-C44	-	-	-	-	<100	-	-	-	-	TM173	<100 ug/kg
Total Aliphatics C5-C35	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aliphatics C5-C44	-	-	-	-	<100	-	-	-	-	TM61/89	<100 ug/kg
Aromatics C6-C7	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aromatics >C7-C8	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aromatics >EC8-EC10	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aromatics >EC10-EC12	-	-	-	-	<10	-	-	-	-	TM089	<10 ug/kg
Aromatics >EC12-EC16	-	-	-	-	<100	-	-	-	-	TM173 [#]	<100 ug/kg
Aromatics >EC16-EC21	-	-	-	-	<100	-	-	-	-	TM173 [#]	<100 ug/kg
Aromatics >EC21-EC35	-	-	-	-	<100	-	-	-	-	TM173 [#]	<100 ug/kg
Aromatics >EC35-EC44	-	-	-	-	<100	-	-	-	-	TM173	<100 ug/kg
Total Aromatics C6-C35	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aromatics C6-C44	-	-	-	-	<100	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C35)	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C44)	-	-	-	-	<100	-	-	-	-	TM61/89	<100 ug/kg

All results expressed on a dry weight basis.

Date 19.10.2007

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ALcontrol Geochem Analytical Services Table Of Results

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH 106 B10	BH 106 D2	BH107	BH 107 D6	BH108	BH109	BH109	BH109 B31	BH110	Method Code	LOD/Units
Depth (m)	9.00	0.60	1.00	3.00	1.00	0.5	17.0	9.5	0.50		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	30.08.07	29.08.07		05.09.07	23.08.07				17.09.07		
Sample Received Date	12.09.07	12.09.07	21.09.07	12.09.07	05.09.07	28.08.07	28.08.07	28.08.07	21.09.07		
Batch	5	5	7	5	3	2	2	2	7		
Sample Number(s)	33 (1)	32 (1)	64-66 (1)	34 (1)	15-18 (1)	4 (1)	5 (1)	6 (1)	67-69 (1)		
PAH by GCMS											
Naphthalene	-	-	-	-	17	-	-	-	-	TM074 [#] _M	<10 ug/kg
Acenaphthylene	-	-	-	-	<5	-	-	-	-	TM074 [#] _M	<5 ug/kg
Acenaphthene	-	-	-	-	<14	-	-	-	-	TM074 [#] _M	<14 ug/kg
Fluorene	-	-	-	-	<12	-	-	-	-	TM074 [#] _M	<12 ug/kg
Phenanthrene	-	-	-	-	<21	-	-	-	-	TM074 [#] _M	<21 ug/kg
Anthracene	-	-	-	-	<9	-	-	-	-	TM074 [#] _M	<9 ug/kg
Fluoranthene	-	-	-	-	<25	-	-	-	-	TM074 [#] _M	<25 ug/kg
Pyrene	-	-	-	-	<22	-	-	-	-	TM074 [#] _M	<22 ug/kg
Benz(a)anthracene	-	-	-	-	21	-	-	-	-	TM074 [#] _M	<12 ug/kg
Chrysene	-	-	-	-	<10	-	-	-	-	TM074 [#] _M	<10 ug/kg
Benzo(b)fluoranthene	-	-	-	-	<16	-	-	-	-	TM074 [#] _M	<16 ug/kg
Benzo(k)fluoranthene	-	-	-	-	<25	-	-	-	-	TM074 [#] _M	<25 ug/kg
Benzo(a)pyrene	-	-	-	-	<12	-	-	-	-	TM074 [#] _M	<12 ug/kg
Indeno(123cd)pyrene	-	-	-	-	12	-	-	-	-	TM074 [#] _M	<11 ug/kg
Dibenzo(ah)anthracene	-	-	-	-	<8	-	-	-	-	TM074 [#] _M	<8 ug/kg
Benzo(ghi)perylene	-	-	-	-	19	-	-	-	-	TM074 [#] _M	<10 ug/kg
PAH 16 Total	-	-	-	-	69	-	-	-	-	TM074 [#] _M	<25 ug/kg

All results expressed on a dry weight basis.

Date 19.10.2007

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ALcontrol Geochem Analytical Services Table Of Results

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Job Number: 07/14582/02/01

Matrix: SOLID

Client: Norfolk County Council

Location: Great Yarmouth third river Crossing

Client Ref. No.: PTPZ0008

Client Contact: Ian Brown

Sample Identity	BH110	BH110	BH110	BH110 D4	BH110 D6	BH110 D8	BH110 D9	BH111/TP 5	BH111/TP 5	Method Code	LoD/Units	
Depth (m)	1.00	2.00	3.00	4.00	6.70	11.50	13.00	0.2	0.7			
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID			
Sampled Date	17.09.07	17.09.07	17.09.07	17.09.07	17.09.07	17.09.07	17.09.07					
Sample Received Date	21.09.07	21.09.07	21.09.07	22.09.07	22.09.07	22.09.07	22.09.07	28.08.07	28.08.07			
Batch	7	7	7	8	8	8	8	2	2			
Sample Number(s)	70-72 (1)	73-75 (1)	76-78 (1)	97-99 (1)	100-102 (1)	103-105 (1)	106-108 (1)	7 (1)	8 (1)			
Total Sulphate	5400	1400	1300	1600	470	580	420	520	-	TM129 [#] _M	<100 mg/kg	
Boron Water Soluble	3.6	4.3	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	-	TM129 [#] _M	<3.5 mg/kg	
Total Sulphate BRE	0.54	-	-	-	-	-	-	-	0.08	TM149	<0.01 %	
Arsenic	<3	8	6	<3	<3	23	14	7	-	TM129 [#] _M	<3.0 mg/kg	
Barium	94	66	40	11	11	<6	<6	37	-	TM129 [#] _M	<6.0 mg/kg	
Beryllium	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	-	TM129	<0.4 mg/kg	
Cadmium	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	TM129	<0.3 mg/kg	
Chromium	24	23	16	8.6	<4.5	<4.5	<4.5	11	-	TM129 [#] _M	<4.5 mg/kg	
Copper	57	200	170	<6	<6	<6	<6	27	-	TM129 [#]	<6 mg/kg	
Lead	42	12	10	24	9	6	3	40	-	TM129 [#] _M	<2 mg/kg	
Mercury	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	-	TM129 [#] _M	<0.6 mg/kg	
Nickel	12	19	14	8.4	5.0	2.9	2.8	15	-	TM129 [#] _M	<0.9 mg/kg	
Selenium	<3	<3	<3	<3	<3	<3	<3	<3	-	TM129 [#] _M	<3 mg/kg	
Vanadium	22	42	27	16	8.0	11	9.4	18	-	TM129 [#] _M	<1.5 mg/kg	
Zinc	190	83	45	24	13	11	9.7	55	-	TM129 [#] _M	<2.5 mg/kg	
Ammonium as NH4 in 2:1 Extract BRE	0.0015	-	-	-	-	-	-	-	<0.0003	TM099 [#]	<0.0003 g/l	
Nitrate (soluble) as NO3	2	<1	<1	<1	<1	<1	<1	21	-	TM102 [#]	<1 mg/kg	
Acid Soluble Sulphide	<50	150	90	1200	<50	<50	<50	110	-	TM101	<50 mg/kg	
Total Cyanide	1	36	8	2	<1	<1	<1	<1	-	TM153 [#]	<1 mg/kg	
Free Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	-	TM153 [#]	<1 mg/kg	
Complex Cyanide	1	36	8	2	<1	<1	<1	-	-	TM153 [#]	<1 mg/kg	
Asbestos Presence Screen	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	-	TM001	NONE
Chloride 2:1 water/soil extract BRE	0.18	-	-	-	-	-	-	-	0.018	TM097 [#]	<0.001 g/l	
Magnesium 2:1 water/soil extract BRE	<0.001	-	-	-	-	-	-	-	<0.001	TM129 [#]	<0.001 g/l	
Nitrate 2:1 water/soil extract BRE	0.0013	-	-	-	-	-	-	-	0.0075	TM102 [#]	<0.0003 g/l	
pH Value	11.34	9.02	8.58	8.93	8.59	8.03	8.15	8.76	8.22	TM133 [#] _M	<1.00 pH Units	
Soluble Sulphate 2:1 Extract as SO4 BRE	0.45	-	-	-	-	-	-	-	0.060	TM098 [#]	<0.003 g/l	
Total Sulphur	0.22	0.49	0.79	0.38	0.07	0.05	0.05	0.05	0.09	TM068 [#]	<0.01 %	

All results expressed on a dry weight basis.

Date 19.10.2007

Validated
 Preliminary

ALcontrol Geochem Analytical Services Table Of Results

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH110	BH110	BH110	BH110 D4	BH110 D6	BH110 D8	BH110 D9	BH111/TP 5	BH111/TP 5	Method Code	LoD/Units
Depth (m)	1.00	2.00	3.00	4.00	6.70	11.50	13.00	0.2	0.7		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	17.09.07	17.09.07	17.09.07	17.09.07	17.09.07	17.09.07	17.09.07				
Sample Received Date	21.09.07	21.09.07	21.09.07	22.09.07	22.09.07	22.09.07	22.09.07	28.08.07	28.08.07		
Batch	7	7	7	8	8	8	8	2	2		
Sample Number(s)	70-72 (1)	73-75 (1)	76-78 (1)	97-99 (1)	100-102 (1)	103-105 (1)	106-108 (1)	7 (1)	8 (1)		
GRO (C4-C12)	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
MTBE	-	-	-	-	-	-	-	<10	-	TM089 ^f	<10 ug/kg
Benzene	-	-	-	-	-	-	-	<10	-	TM089 ^f _M	<10 ug/kg
Toluene	-	-	-	-	-	-	-	<10	-	TM089 ^f _M	<10 ug/kg
Ethyl benzene	-	-	-	-	-	-	-	<10	-	TM089 ^f _M	<10 ug/kg
m & p Xylene	-	-	-	-	-	-	-	<10	-	TM089 ^f _M	<10 ug/kg
o Xylene	-	-	-	-	-	-	-	<10	-	TM089 ^f _M	<10 ug/kg
Aliphatics C5-C6	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aliphatics >C6-C8	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aliphatics >C8-C10	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aliphatics >C10-C12	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aliphatics >C12-C16	-	-	-	-	-	-	-	1800	-	TM173 ^f	<100 ug/kg
Aliphatics >C16-C21	-	-	-	-	-	-	-	16000	-	TM173 ^f	<100 ug/kg
Aliphatics >C16-C35	-	-	-	-	-	-	-	-	-	TM173	<100 ug/kg
Aliphatics >C21-C35	-	-	-	-	-	-	-	48000	-	TM173 ^f	<100 ug/kg
Aliphatics >C35-C44	-	-	-	-	-	-	-	-	-	TM173	<100 ug/kg
Total Aliphatics C5-C35	-	-	-	-	-	-	-	66000	-	TM61/89	<100 ug/kg
Total Aliphatics C5-C44	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Aromatics C6-C7	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aromatics >C7-C8	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aromatics >EC8-EC10	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aromatics >EC10-EC12	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aromatics >EC12-EC16	-	-	-	-	-	-	-	4100	-	TM173 ^f	<100 ug/kg
Aromatics >EC16-EC21	-	-	-	-	-	-	-	110000	-	TM173 ^f	<100 ug/kg
Aromatics >EC21-EC35	-	-	-	-	-	-	-	660000	-	TM173 ^f	<100 ug/kg
Aromatics >EC35-EC44	-	-	-	-	-	-	-	-	-	TM173	<100 ug/kg
Total Aromatics C6-C35	-	-	-	-	-	-	-	780000	-	TM61/89	<100 ug/kg
Total Aromatics C6-C44	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C35)	-	-	-	-	-	-	-	840000	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C44)	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg

All results expressed on a dry weight basis.

Date 19.10.2007

Validated
 Preliminary

ALcontrol Geochem Analytical Services Table Of Results

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Job Number: 07/14582/02/01

Matrix: SOLID

Client: Norfolk County Council

Location: Great Yarmouth third river Crossing

Client Ref. No.: PTPZ0008

Client Contact: Ian Brown

Sample Identity	BH112	BH112	BH112	BH112	BH113	BH114	BH114	BH 114 SI 1288	BH 114 SI 1288	Method Code	LoD/Units
Depth (m)	0.5	1.4	3.0	4.0-4.45	0.50	1.20	1.8	0.50	2.20		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	11.09.07	11.09.07	11.09.07		20.09.07	05.09.07	06.09.07	05.09.07	05.09.07		
Sample Received Date	13.09.07	21.09.07	13.09.07	21.09.07	22.09.07	21.09.07	21.09.07	12.09.07	12.09.07		
Batch	6	7	6	7	8	7	7	5	5		
Sample Number(s)	53-55 (1)	79 (1)	56 (1)	80 (1)	109-111 (1)	81 (1)	82 (1)	35-37 (1)	38-40 (1)		
Total Sulphate	2100	-	-	-	830	-	-	640	430	TM129 [#] _M	<100 mg/kg
Boron Water Soluble	<3.5	-	-	-	<3.5	-	-	<3.5	<3.5	TM129 [#] _M	<3.5 mg/kg
Total Sulphate BRE	-	0.59	0.04	0.01	0.08	0.03	0.01	-	-	TM149	<0.01 %
Arsenic	5	-	-	-	12	-	-	4	8	TM129 [#] _M	<3.0 mg/kg
Barium	170	-	-	-	680	-	-	26	38	TM129 [#] _M	<6.0 mg/kg
Beryllium	<0.4	-	-	-	<0.4	-	-	<0.4	<0.4	TM129	<0.4 mg/kg
Cadmium	0.3	-	-	-	<0.3	-	-	<0.3	<0.3	TM129	<0.3 mg/kg
Chromium	18	-	-	-	17	-	-	7.7	7.0	TM129 [#] _M	<4.5 mg/kg
Copper	44	-	-	-	66	-	-	25	16	TM129 [#]	<6 mg/kg
Lead	95	-	-	-	1600	-	-	34	33	TM129 [#] _M	<2 mg/kg
Mercury	<0.6	-	-	-	<0.6	-	-	<0.6	<0.6	TM129 [#] _M	<0.6 mg/kg
Nickel	13	-	-	-	18	-	-	7.8	6.8	TM129 [#] _M	<0.9 mg/kg
Selenium	<3	-	-	-	<3	-	-	<3	<3	TM129 [#] _M	<3 mg/kg
Vanadium	24	-	-	-	32	-	-	14	14	TM129 [#] _M	<1.5 mg/kg
Zinc	380	-	-	-	190	-	-	110	58	TM129 [#] _M	<2.5 mg/kg
Ammonium as NH4 in 2:1 Extract BRE	-	0.0010	<0.0003	0.0009	<0.0003	0.0006	0.0012	-	-	TM099 [#]	<0.0003 g/l
Nitrate (soluble) as NO3	26	-	-	-	22	-	-	<1	<1	TM102 [#]	<1 mg/kg
Acid Soluble Sulphide	<50	-	-	-	<50	-	-	<50	<50	TM101	<50 mg/kg
Total Cyanide	<1	-	-	-	<1	-	-	<1	<1	TM153 [#]	<1 mg/kg
Free Cyanide	<1	-	-	-	<1	-	-	<1	<1	TM153 [#]	<1 mg/kg
Complex Cyanide	<1	-	-	-	<1	-	-	<1	<1	TM153 [#]	<1 mg/kg
Asbestos Presence Screen	No Fibres Detected	-	-	-	No Fibres Detected	-	-	No Fibres Detected	No Fibres Detected	TM001	NONE
Chloride 2:1 water/soil extract BRE	-	0.027	0.011	0.006	0.005	0.008	0.010	-	-	TM097 [#]	<0.001 g/l
Magnesium 2:1 water/soil extract BRE	-	<0.001	<0.001	<0.001	0.002	0.003	<0.001	-	-	TM129 [#]	<0.001 g/l
Nitrate 2:1 water/soil extract BRE	-	0.018	0.0013	0.0014	0.021	0.0028	<0.0003	-	-	TM102 [#]	<0.0003 g/l
pH Value	9.74	10.04	10.39	8.37	8.24	8.49	7.90	9.82	8.63	TM133 [#] _M	<1.00 pH Units
Soluble Sulphate 2:1 Extract as SO4 BRE	-	0.72	0.047	0.032	0.035	0.048	0.026	-	-	TM098 [#]	<0.003 g/l
Total Sulphur	0.23	0.24	0.04	0.02	0.19	0.05	0.03	0.06	0.06	TM068 [#]	<0.01 %

All results expressed on a dry weight basis.

Date 19.10.2007

Validated
 Preliminary

ALcontrol Geochem Analytical Services

Table Of Results

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH112	BH112	BH112	BH112	BH113	BH114	BH114	BH 114 SI 1288	BH 114 SI 1288	Method Code	LoD/Units
Depth (m)	0.5	1.4	3.0	4.0-4.45	0.50	1.20	1.8	0.50	2.20		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	11.09.07	11.09.07	11.09.07		20.09.07	05.09.07	06.09.07	05.09.07	05.09.07		
Sample Received Date	13.09.07	21.09.07	13.09.07	21.09.07	22.09.07	21.09.07	21.09.07	12.09.07	12.09.07		
Batch	6	7	6	7	8	7	7	5	5		
Sample Number(s)	53-55 (1)	79 (1)	56 (1)	80 (1)	109-111 (1)	81 (1)	82 (1)	35-37 (1)	38-40 (1)		
GRO (C4-C12)	<10	-	-	-	-	-	-	31	890	TM089	<10 ug/kg
MTBE	<10	-	-	-	-	-	-	<10	<10	TM089 [#]	<10 ug/kg
Benzene	<10	-	-	-	-	-	-	<10	<10	TM089 ^{#M}	<10 ug/kg
Toluene	<10	-	-	-	-	-	-	12	180	TM089 ^{#M}	<10 ug/kg
Ethyl benzene	<10	-	-	-	-	-	-	<10	<10	TM089 ^{#M}	<10 ug/kg
m & p Xylene	<10	-	-	-	-	-	-	<10	<10	TM089 ^{#M}	<10 ug/kg
o Xylene	<10	-	-	-	-	-	-	<10	<10	TM089 ^{#M}	<10 ug/kg
Aliphatics C5-C6	<10	-	-	-	-	-	-	<10	26	TM089	<10 ug/kg
Aliphatics >C6-C8	<10	-	-	-	-	-	-	19	670	TM089	<10 ug/kg
Aliphatics >C8-C10	<10	-	-	-	-	-	-	<10	<10	TM089	<10 ug/kg
Aliphatics >C10-C12	<10	-	-	-	-	-	-	<10	<10	TM089	<10 ug/kg
Aliphatics >C12-C16	2700	-	-	-	-	-	-	8400	<100	TM173 [#]	<100 ug/kg
Aliphatics >C16-C21	16000	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C16-C35	-	-	-	-	-	-	-	160000	2500	TM173	<100 ug/kg
Aliphatics >C21-C35	110000	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C35-C44	-	-	-	-	-	-	-	36000	<100	TM173	<100 ug/kg
Total Aliphatics C5-C35	130000	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aliphatics C5-C44	-	-	-	-	-	-	-	210000	3200	TM61/89	<100 ug/kg
Aromatics C6-C7	<10	-	-	-	-	-	-	<10	<10	TM089	<10 ug/kg
Aromatics >C7-C8	<10	-	-	-	-	-	-	12	180	TM089	<10 ug/kg
Aromatics >EC8-EC10	<10	-	-	-	-	-	-	<10	13	TM089	<10 ug/kg
Aromatics >EC10-EC12	<10	-	-	-	-	-	-	<10	<10	TM089	<10 ug/kg
Aromatics >EC12-EC16	15000	-	-	-	-	-	-	880	<100	TM173 [#]	<100 ug/kg
Aromatics >EC16-EC21	53000	-	-	-	-	-	-	7000	<100	TM173 [#]	<100 ug/kg
Aromatics >EC21-EC35	400000	-	-	-	-	-	-	40000	1800	TM173 [#]	<100 ug/kg
Aromatics >EC35-EC44	-	-	-	-	-	-	-	8600	<100	TM173	<100 ug/kg
Total Aromatics C6-C35	470000	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aromatics C6-C44	-	-	-	-	-	-	-	56000	2000	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C35)	600000	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C44)	-	-	-	-	-	-	-	260000	5200	TM61/89	<100 ug/kg

All results expressed on a dry weight basis.

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH112	BH112	BH112	BH112	BH113	BH114	BH114	BH 114 SI 1288	BH 114 SI 1288	Method Code	LoD/Units		
Depth (m)	0.5	1.4	3.0	4.0-4.45	0.50	1.20	1.8	0.50	2.20				
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID				
Sampled Date	11.09.07	11.09.07	11.09.07		20.09.07	05.09.07	06.09.07	05.09.07	05.09.07				
Sample Received Date	13.09.07	21.09.07	13.09.07	21.09.07	22.09.07	21.09.07	21.09.07	12.09.07	12.09.07				
Batch	6	7	6	7	8	7	7	5	5				
Sample Number(s)	53-55 (1)	79 (1)	56 (1)	80 (1)	109-111 (1)	81 (1)	82 (1)	35-37 (1)	38-40 (1)				
PAH by GCMS													
Naphthalene	4800	-	-	-	-	-	-	-	-			TM074 [#] _M	<10 ug/kg
Acenaphthylene	170	-	-	-	-	-	-	-	-			TM074 [#] _M	<5 ug/kg
Acenaphthene	2100	-	-	-	-	-	-	-	-	TM074 [#] _M	<14 ug/kg		
Fluorene	1500	-	-	-	-	-	-	-	-	TM074 [#] _M	<12 ug/kg		
Phenanthrene	25000	-	-	-	-	-	-	-	-	TM074 [#] _M	<21 ug/kg		
Anthracene	5000	-	-	-	-	-	-	-	-	TM074 [#] _M	<9 ug/kg		
Fluoranthene	42000	-	-	-	-	-	-	-	-	TM074 [#] _M	<25 ug/kg		
Pyrene	33000	-	-	-	-	-	-	-	-	TM074 [#] _M	<22 ug/kg		
Benz(a)anthracene	19000	-	-	-	-	-	-	-	-	TM074 [#] _M	<12 ug/kg		
Chrysene	19000	-	-	-	-	-	-	-	-	TM074 [#] _M	<10 ug/kg		
Benzo(b)fluoranthene	26000	-	-	-	-	-	-	-	-	TM074 [#] _M	<16 ug/kg		
Benzo(k)fluoranthene	7700	-	-	-	-	-	-	-	-	TM074 [#] _M	<25 ug/kg		
Benzo(a)pyrene	20000	-	-	-	-	-	-	-	-	TM074 [#] _M	<12 ug/kg		
Indeno(123cd)pyrene	9800	-	-	-	-	-	-	-	-	TM074 [#] _M	<11 ug/kg		
Dibenzo(ah)anthracene	3100	-	-	-	-	-	-	-	-	TM074 [#] _M	<8 ug/kg		
Benzo(ghi)perylene	11000	-	-	-	-	-	-	-	-	TM074 [#] _M	<10 ug/kg		
PAH 16 Total	230000	-	-	-	-	-	-	-	-	TM074 [#] _M	<25 ug/kg		

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH115	BH115	BH115	BH115	BH116	BH 116 B50	BH 116 B55	BH117	BH117	Method Code	LoD/Units
Depth (m)	0.5	1.0	3.0	6.50	1.0	24.50	28.50	0.35	0.35		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	14.09.07	04.09.07	06.09.07	07.09.07	29.08.07	03.09.07	03.09.07		07.09.07		
Sample Received Date	21.09.07	21.09.07	21.09.07	21.09.07	07.09.07	12.09.07	12.09.07	21.09.07	21.09.07		
Batch	7	7	7	7	4	5	5	7	7		
Sample Number(s)	94 (1)	83-86 (1)	87-89 (1)	90 (1)	26-28 (1)	41 (1)	42 (1)	92-93 (1)	91 (1)		
Total Sulphate	-	-	350	-	<100	-	-	-	23000	TM129 ^{#M}	<100 mg/kg
Boron Water Soluble	-	<3.5	<3.5	-	<3.5	-	-	-	<3.5	TM129 ^{#M}	<3.5 mg/kg
Total Sulphate BRE	0.06	0.25	-	<0.01	-	0.05	0.05	-	-	TM149	<0.01 %
Arsenic	-	5	<3	-	<3	-	-	-	8	TM129 ^{#M}	<3.0 mg/kg
Barium	-	55	12	-	<6	-	-	-	71	TM129 ^{#M}	<6.0 mg/kg
Beryllium	-	<0.4	<0.4	-	<0.4	-	-	-	<0.4	TM129	<0.4 mg/kg
Cadmium	-	<0.3	<0.3	-	<0.3	-	-	-	0.4	TM129	<0.3 mg/kg
Chromium	-	8.3	<4.5	-	<4.5	-	-	-	12	TM129 ^{#M}	<4.5 mg/kg
Copper	-	20	<6	-	14	-	-	-	14	TM129 [#]	<6 mg/kg
Lead	-	16	3	-	<2	-	-	-	72	TM129 ^{#M}	<2 mg/kg
Mercury	-	<0.6	<0.6	-	<0.6	-	-	-	<0.6	TM129 ^{#M}	<0.6 mg/kg
Nickel	-	4.6	1.5	-	<0.9	-	-	-	9.8	TM129 ^{#M}	<0.9 mg/kg
Selenium	-	<3	<3	-	<3	-	-	-	<3	TM129 ^{#M}	<3 mg/kg
Vanadium	-	11	2.7	-	<1.5	-	-	-	18	TM129 ^{#M}	<1.5 mg/kg
Zinc	-	80	94	-	<2.5	-	-	-	50	TM129 ^{#M}	<2.5 mg/kg
Ammonium as NH4 in 2:1 Extract BRE	0.0005	0.0009	-	0.0006	-	0.0010	0.0014	-	-	TM099 [#]	<0.0003 g/l
Nitrate (soluble) as NO3	-	6	<1	-	<1	-	-	-	<1	TM102 [#]	<1 mg/kg
Acid Soluble Sulphide	-	<50	<50	-	<50	-	-	200	-	TM101	<50 mg/kg
Total Cyanide	-	<1	<1	-	<1	-	-	37	-	TM153 [#]	<1 mg/kg
Free Cyanide	-	<1	<1	-	<1	-	-	<1	-	TM153 [#]	<1 mg/kg
Complex Cyanide	-	<1	<1	-	<1	-	-	37	-	TM153 [#]	<1 mg/kg
Asbestos Presence Screen	-	No Fibres Detected	No Fibres Detected	-	No Fibres Detected	-	-	No Fibres Detected	-	TM001	NONE
Chloride 2:1 water/soil extract BRE	0.013	0.078	-	0.017	-	0.39	0.53	-	-	TM097 [#]	<0.001 g/l
Magnesium 2:1 water/soil extract BRE	0.005	<0.001	-	<0.001	-	0.013	0.020	-	-	TM129 [#]	<0.001 g/l
Nitrate 2:1 water/soil extract BRE	0.0082	0.0036	-	<0.0003	-	<0.0003	<0.0003	-	-	TM102 [#]	<0.0003 g/l
pH Value	8.32	10.23	9.72	7.71	7.68	8.37	8.30	8.30	-	TM133 ^{#M}	<1.00 pH Units
Soluble Sulphate 2:1 Extract as SO4 BRE	0.049	0.13	-	0.010	-	0.12	0.13	-	-	TM098 [#]	<0.003 g/l
Total Sulphur	0.07	0.14	0.02	0.02	4.1	0.16	0.20	-	0.37	TM068 [#]	<0.01 %

All results expressed on a dry weight basis.

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH115	BH115	BH115	BH115	BH116	BH 116 B50	BH 116 B55	BH117	BH117	Method Code	LoD/Units
Depth (m)	0.5	1.0	3.0	6.50	1.0	24.50	28.50	0.35	0.35		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	14.09.07	04.09.07	06.09.07	07.09.07	29.08.07	03.09.07	03.09.07		07.09.07		
Sample Received Date	21.09.07	21.09.07	21.09.07	21.09.07	07.09.07	12.09.07	12.09.07	21.09.07	21.09.07		
Batch	7	7	7	7	4	5	5	7	7		
Sample Number(s)	94 (1)	83-86 (1)	87-89 (1)	90 (1)	26-28 (1)	41 (1)	42 (1)	92-93 (1)	91 (1)		
GRO (C4-C12)	-	-	-	-	<30	-	-	-	-	TM089	<10 ug/kg
MTBE	-	-	-	-	<30	-	-	-	-	TM089 [#]	<10 ug/kg
Benzene	-	-	-	-	<30	-	-	-	-	TM089 ^{#M}	<10 ug/kg
Toluene	-	-	-	-	<30	-	-	-	-	TM089 ^{#M}	<10 ug/kg
Ethyl benzene	-	-	-	-	<30	-	-	-	-	TM089 ^{#M}	<10 ug/kg
m & p Xylene	-	-	-	-	<30	-	-	-	-	TM089 ^{#M}	<10 ug/kg
o Xylene	-	-	-	-	<30	-	-	-	-	TM089 ^{#M}	<10 ug/kg
Aliphatics C5-C6	-	-	-	-	<30	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C6-C8	-	-	-	-	<30	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C8-C10	-	-	-	-	<30	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C10-C12	-	-	-	-	<30	-	-	-	-	TM089	<10 ug/kg
Aliphatics >C12-C16	-	-	-	-	<100	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C16-C21	-	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C16-C35	-	-	-	-	7800000	-	-	-	-	TM173	<100 ug/kg
Aliphatics >C21-C35	-	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C35-C44	-	-	-	-	17000000	-	-	-	-	TM173	<100 ug/kg
Total Aliphatics C5-C35	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aliphatics C5-C44	-	-	-	-	24000000	-	-	-	-	TM61/89	<100 ug/kg
Aromatics C6-C7	-	-	-	-	<30	-	-	-	-	TM089	<10 ug/kg
Aromatics >C7-C8	-	-	-	-	<30	-	-	-	-	TM089	<10 ug/kg
Aromatics >EC8-EC10	-	-	-	-	<30	-	-	-	-	TM089	<10 ug/kg
Aromatics >EC10-EC12	-	-	-	-	<30	-	-	-	-	TM089	<10 ug/kg
Aromatics >EC12-EC16	-	-	-	-	<100	-	-	-	-	TM173 [#]	<100 ug/kg
Aromatics >EC16-EC21	-	-	-	-	300000	-	-	-	-	TM173 [#]	<100 ug/kg
Aromatics >EC21-EC35	-	-	-	-	18000000	-	-	-	-	TM173 [#]	<100 ug/kg
Aromatics >EC35-EC44	-	-	-	-	35000000	-	-	-	-	TM173	<100 ug/kg
Total Aromatics C6-C35	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aromatics C6-C44	-	-	-	-	53000000	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C35)	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C44)	-	-	-	-	78000000	-	-	-	-	TM61/89	<100 ug/kg

All results expressed on a dry weight basis.

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH117	BH117	TP101	TP101	TP104	TP104	TP109	WS104	WS 104	Method Code	LoD/Units
Depth (m)	1.0	10.0	0.20	0.50	0.20	0.50	0.50	0.50	0.50		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	07.09.07	10.09.07	20.09.07	20.09.07	20.09.07	20.09.07	20.09.07	10.08.07	06.09.07		
Sample Received Date	21.09.07	21.09.07	22.09.07	22.09.07	22.09.07	22.09.07	22.09.07	05.09.07	12.09.07		
Batch	7	7	8	8	8	8	8	3	5		
Sample Number(s)	95 (1)	96 (1)	112-114 (1)	115 (1)	116-118 (1)	119 (1)	120-122 (1)	19-20 (1)	43 (1)		
Total Sulphate	-	-	850	-	660	-	910	160	-	TM129 [#] _M	<100 mg/kg
Boron Water Soluble	-	-	<3.5	-	<3.5	-	<3.5	<3.5	-	TM129 [#] _M	<3.5 mg/kg
Total Sulphate BRE	1.3	0.01	-	0.03	-	0.05	0.09	-	<0.01	TM149	<0.01 %
Arsenic	-	-	8	-	13	-	12	4	-	TM129 [#] _M	<3.0 mg/kg
Barium	-	-	68	-	78	-	12	23	-	TM129 [#] _M	<6.0 mg/kg
Beryllium	-	-	<0.4	-	<0.4	-	<0.4	<0.4	-	TM129	<0.4 mg/kg
Cadmium	-	-	<0.3	-	0.3	-	<0.3	<0.3	-	TM129	<0.3 mg/kg
Chromium	-	-	13	-	9.2	-	8.9	<4.5	-	TM129 [#] _M	<4.5 mg/kg
Copper	-	-	14	-	26	-	14	65	-	TM129 [#]	<6 mg/kg
Lead	-	-	96	-	130	-	15	54	-	TM129 [#] _M	<2 mg/kg
Mercury	-	-	<0.6	-	<0.6	-	<0.6	<0.6	-	TM129 [#] _M	<0.6 mg/kg
Nickel	-	-	12	-	15	-	9.6	3.8	-	TM129 [#] _M	<0.9 mg/kg
Selenium	-	-	<3	-	<3	-	<3	<3	-	TM129 [#] _M	<3 mg/kg
Vanadium	-	-	26	-	13	-	18	8.2	-	TM129 [#] _M	<1.5 mg/kg
Zinc	-	-	89	-	110	-	43	23	-	TM129 [#] _M	<2.5 mg/kg
Ammonium as NH4 in 2:1 Extract BRE	0.0030	0.0013	-	0.0003	-	<0.0003	<0.0003	-	0.0003	TM099 [#]	<0.0003 g/l
Nitrate (soluble) as NO3	-	-	13	-	2	-	2	2	-	TM102 [#]	<1 mg/kg
Acid Soluble Sulphide	-	-	<50	-	<50	-	<50	<50	-	TM101	<50 mg/kg
Total Cyanide	-	-	<1	-	2	-	<1	<1	-	TM153 [#]	<1 mg/kg
Free Cyanide	-	-	<1	-	<1	-	<1	<1	-	TM153 [#]	<1 mg/kg
Complex Cyanide	-	-	<1	-	2	-	<1	<1	-	TM153 [#]	<1 mg/kg
Asbestos Presence Screen	-	-	No Fibres Detected	-	No Fibres Detected	-	No Fibres Detected	No Fibres Detected	-	TM001	NONE
Chloride 2:1 water/soil extract BRE	0.010	0.043	-	0.002	-	0.010	0.003	-	0.009	TM097 [#]	<0.001 g/l
Magnesium 2:1 water/soil extract BRE	0.003	0.003	-	0.001	-	0.002	<0.001	-	<0.001	TM129 [#]	<0.001 g/l
Nitrate 2:1 water/soil extract BRE	<0.0003	0.011	-	0.013	-	0.012	0.013	-	0.0016	TM102 [#]	<0.0003 g/l
pH Value	8.33	8.61	8.16	8.51	8.16	8.25	8.00	8.50	8.69	TM133 [#] _M	<1.00 pH Units
Soluble Sulphate 2:1 Extract as SO4 BRE	1.1	0.034	-	0.009	-	0.043	0.020	-	0.004	TM098 [#]	<0.003 g/l
Total Sulphur	0.36	0.02	0.13	0.06	0.09	0.06	0.08	0.04	0.02	TM068 [#]	<0.01 %

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH117	BH117	TP101	TP101	TP104	TP104	TP109	WS104	WS 104	Method Code	LoD/Units
Depth (m)	1.0	10.0	0.20	0.50	0.20	0.50	0.50	0.50	0.50		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	07.09.07	10.09.07	20.09.07	20.09.07	20.09.07	20.09.07	20.09.07	10.08.07	06.09.07		
Sample Received Date	21.09.07	21.09.07	22.09.07	22.09.07	22.09.07	22.09.07	22.09.07	05.09.07	12.09.07		
Batch	7	7	8	8	8	8	8	3	5		
Sample Number(s)	95 (1)	96 (1)	112-114 (1)	115 (1)	116-118 (1)	119 (1)	120-122 (1)	19-20 (1)	43 (1)		
GRO (C4-C12)	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
MTBE	-	-	-	-	-	-	-	<10	-	TM089 [#]	<10 ug/kg
Benzene	-	-	-	-	-	-	-	<10	-	TM089 ^{#M}	<10 ug/kg
Toluene	-	-	-	-	-	-	-	<10	-	TM089 ^{#M}	<10 ug/kg
Ethyl benzene	-	-	-	-	-	-	-	<10	-	TM089 ^{#M}	<10 ug/kg
m & p Xylene	-	-	-	-	-	-	-	<10	-	TM089 ^{#M}	<10 ug/kg
o Xylene	-	-	-	-	-	-	-	<10	-	TM089 ^{#M}	<10 ug/kg
Aliphatics C5-C6	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aliphatics >C6-C8	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aliphatics >C8-C10	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aliphatics >C10-C12	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aliphatics >C12-C16	-	-	-	-	-	-	-	<100	-	TM173 [#]	<100 ug/kg
Aliphatics >C16-C21	-	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C16-C35	-	-	-	-	-	-	-	<100	-	TM173	<100 ug/kg
Aliphatics >C21-C35	-	-	-	-	-	-	-	-	-	TM173 [#]	<100 ug/kg
Aliphatics >C35-C44	-	-	-	-	-	-	-	<100	-	TM173	<100 ug/kg
Total Aliphatics C5-C35	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aliphatics C5-C44	-	-	-	-	-	-	-	<100	-	TM61/89	<100 ug/kg
Aromatics C6-C7	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aromatics >C7-C8	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aromatics >EC8-EC10	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aromatics >EC10-EC12	-	-	-	-	-	-	-	<10	-	TM089	<10 ug/kg
Aromatics >EC12-EC16	-	-	-	-	-	-	-	<100	-	TM173 [#]	<100 ug/kg
Aromatics >EC16-EC21	-	-	-	-	-	-	-	<100	-	TM173 [#]	<100 ug/kg
Aromatics >EC21-EC35	-	-	-	-	-	-	-	5800	-	TM173 [#]	<100 ug/kg
Aromatics >EC35-EC44	-	-	-	-	-	-	-	<100	-	TM173	<100 ug/kg
Total Aromatics C6-C35	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
Total Aromatics C6-C44	-	-	-	-	-	-	-	5800	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C35)	-	-	-	-	-	-	-	-	-	TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C44)	-	-	-	-	-	-	-	5800	-	TM61/89	<100 ug/kg

All results expressed on a dry weight basis.

Date 19.10.2007

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ALcontrol Geochem Analytical Services

Table Of Results

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH117	BH117	TP101	TP101	TP104	TP104	TP109	WS104	WS 104	Method Code	LoD/Units
Depth (m)	1.0	10.0	0.20	0.50	0.20	0.50	0.50	0.50	0.50		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	07.09.07	10.09.07	20.09.07	20.09.07	20.09.07	20.09.07	20.09.07	10.08.07	06.09.07		
Sample Received Date	21.09.07	21.09.07	22.09.07	22.09.07	22.09.07	22.09.07	22.09.07	05.09.07	12.09.07		
Batch	7	7	8	8	8	8	8	3	5		
Sample Number(s)	95 (1)	96 (1)	112-114 (1)	115 (1)	116-118 (1)	119 (1)	120-122 (1)	19-20 (1)	43 (1)		
PAH by GCMS											
Naphthalene	-	-	-	-	-	-	-	150	-	TM074 [#] _M	<10 ug/kg
Acenaphthylene	-	-	-	-	-	-	-	13	-	TM074 [#] _M	<5 ug/kg
Acenaphthene	-	-	-	-	-	-	-	<14	-	TM074 [#] _M	<14 ug/kg
Fluorene	-	-	-	-	-	-	-	<12	-	TM074 [#] _M	<12 ug/kg
Phenanthrene	-	-	-	-	-	-	-	67	-	TM074 [#] _M	<21 ug/kg
Anthracene	-	-	-	-	-	-	-	15	-	TM074 [#] _M	<9 ug/kg
Fluoranthene	-	-	-	-	-	-	-	180	-	TM074 [#] _M	<25 ug/kg
Pyrene	-	-	-	-	-	-	-	160	-	TM074 [#] _M	<22 ug/kg
Benz(a)anthracene	-	-	-	-	-	-	-	120	-	TM074 [#] _M	<12 ug/kg
Chrysene	-	-	-	-	-	-	-	150	-	TM074 [#] _M	<10 ug/kg
Benzo(b)fluoranthene	-	-	-	-	-	-	-	220	-	TM074 [#] _M	<16 ug/kg
Benzo(k)fluoranthene	-	-	-	-	-	-	-	150	-	TM074 [#] _M	<25 ug/kg
Benzo(a)pyrene	-	-	-	-	-	-	-	130	-	TM074 [#] _M	<12 ug/kg
Indeno(123cd)pyrene	-	-	-	-	-	-	-	99	-	TM074 [#] _M	<11 ug/kg
Dibenzo(ah)anthracene	-	-	-	-	-	-	-	27	-	TM074 [#] _M	<8 ug/kg
Benzo(ghi)perylene	-	-	-	-	-	-	-	140	-	TM074 [#] _M	<10 ug/kg
PAH 16 Total	-	-	-	-	-	-	-	1600	-	TM074 [#] _M	<25 ug/kg

All results expressed on a dry weight basis.

Date 19.10.2007

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ALcontrol Geochem Analytical Services Table Of Results

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Job Number: 07/14582/02/01

Matrix: SOLID

Client: Norfolk County Council

Location: Great Yarmouth third river Crossing

Client Ref. No.: PTPZ0008

Client Contact: Ian Brown

Sample Identity	WS104	WS 107	WS 107	WS110							Method Code	LoD/Units
Depth (m)	1.00	0.40	0.50	0.15								
Sample Type	SOLID	SOLID	SOLID	SOLID								
Sampled Date	10.08.07	06.09.07	06.09.07	10.08.07								
Sample Received Date	05.09.07	12.09.07	12.09.07	05.09.07								
Batch	3	5	5	3								
Sample Number(s)	21-23 (1)	44 (1)	45-46 (1)	24-25 (1)								
Total Sulphate	-	-	350	500							TM129 [#] _M	<100 mg/kg
Boron Water Soluble	-	-	<3.5	<3.5							TM129 [#] _M	<3.5 mg/kg
Total Sulphate BRE	<0.01	0.02	-	-							TM149	<0.01 %
Arsenic	-	-	<3	8							TM129 [#] _M	<3.0 mg/kg
Barium	-	-	50	78							TM129 [#] _M	<6.0 mg/kg
Beryllium	-	-	<0.4	<0.4							TM129	<0.4 mg/kg
Cadmium	-	-	<0.3	<0.3							TM129	<0.3 mg/kg
Chromium	-	-	<4.5	6.1							TM129 [#] _M	<4.5 mg/kg
Copper	-	-	11	35							TM129 [#]	<6 mg/kg
Lead	-	-	20	89							TM129 [#] _M	<2 mg/kg
Mercury	-	-	<0.6	<0.6							TM129 [#] _M	<0.6 mg/kg
Nickel	-	-	3.8	30							TM129 [#] _M	<0.9 mg/kg
Selenium	-	-	<3	<3							TM129 [#] _M	<3 mg/kg
Vanadium	-	-	6.2	21							TM129 [#] _M	<1.5 mg/kg
Zinc	-	-	39	120							TM129 [#] _M	<2.5 mg/kg
Ammonium as NH4 in 2:1 Extract BRE	0.0003	0.0014	-	-							TM099 [#]	<0.0003 g/l
Nitrate (soluble) as NO3	-	-	5	9							TM102 [#]	<1 mg/kg
Acid Soluble Sulphide	-	-	<50	<50							TM101	<50 mg/kg
Total Cyanide	-	-	<1	<1							TM153 [#]	<1 mg/kg
Free Cyanide	-	-	<1	<1							TM153 [#]	<1 mg/kg
Complex Cyanide	-	-	<1	<1							TM153 [#]	<1 mg/kg
Asbestos Presence Screen	-	-	No Fibres Detected	No Fibres Detected							TM001	NONE
Chloride 2:1 water/soil extract BRE	0.006	0.016	-	-							TM097 [#]	<0.001 g/l
Magnesium 2:1 water/soil extract BRE	0.002	<0.001	-	-							TM129 [#]	<0.001 g/l
Nitrate 2:1 water/soil extract BRE	0.0008	0.0029	-	-							TM102 [#]	<0.0003 g/l
pH Value	7.47	8.59	8.59	9.11							TM133 [#] _M	<1.00 pH Units
Soluble Sulphate 2:1 Extract as SO4 BRE	<0.003	0.018	-	-							TM098 [#]	<0.003 g/l
Total Sulphur	0.02	0.05	0.05	0.07							TM068 [#]	<0.01 %

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Table Of Results

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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	WS104	WS 107	WS 107	WS110							Method Code	LoD/Units
Depth (m)	1.00	0.40	0.50	0.15								
Sample Type	SOLID	SOLID	SOLID	SOLID								
Sampled Date	10.08.07	06.09.07	06.09.07	10.08.07								
Sample Received Date	05.09.07	12.09.07	12.09.07	05.09.07								
Batch	3	5	5	3								
Sample Number(s)	21-23 (1)	44 (1)	45-46 (1)	24-25 (1)								
GRO (C4-C12)	-	-	-	<10							TM089	<10 ug/kg
MTBE	-	-	-	<10							TM089 [#]	<10 ug/kg
Benzene	-	-	-	<10							TM089 ^{#M}	<10 ug/kg
Toluene	-	-	-	<10							TM089 ^{#M}	<10 ug/kg
Ethyl benzene	-	-	-	<10							TM089 ^{#M}	<10 ug/kg
m & p Xylene	-	-	-	<10							TM089 ^{#M}	<10 ug/kg
o Xylene	-	-	-	<10							TM089 ^{#M}	<10 ug/kg
Aliphatics C5-C6	-	-	-	<10							TM089	<10 ug/kg
Aliphatics >C6-C8	-	-	-	<10							TM089	<10 ug/kg
Aliphatics >C8-C10	-	-	-	<10							TM089	<10 ug/kg
Aliphatics >C10-C12	-	-	-	<10							TM089	<10 ug/kg
Aliphatics >C12-C16	-	-	-	<100							TM173 [#]	<100 ug/kg
Aliphatics >C16-C21	-	-	-	-							TM173 [#]	<100 ug/kg
Aliphatics >C16-C35	-	-	-	62000							TM173	<100 ug/kg
Aliphatics >C21-C35	-	-	-	-							TM173 [#]	<100 ug/kg
Aliphatics >C35-C44	-	-	-	50000							TM173	<100 ug/kg
Total Aliphatics C5-C35	-	-	-	-							TM61/89	<100 ug/kg
Total Aliphatics C5-C44	-	-	-	110000							TM61/89	<100 ug/kg
Aromatics C6-C7	-	-	-	<10							TM089	<10 ug/kg
Aromatics >C7-C8	-	-	-	<10							TM089	<10 ug/kg
Aromatics >EC8-EC10	-	-	-	<10							TM089	<10 ug/kg
Aromatics >EC10-EC12	-	-	-	<10							TM089	<10 ug/kg
Aromatics >EC12-EC16	-	-	-	6600							TM173 [#]	<100 ug/kg
Aromatics >EC16-EC21	-	-	-	15000							TM173 [#]	<100 ug/kg
Aromatics >EC21-EC35	-	-	-	110000							TM173 [#]	<100 ug/kg
Aromatics >EC35-EC44	-	-	-	76000							TM173	<100 ug/kg
Total Aromatics C6-C35	-	-	-	-							TM61/89	<100 ug/kg
Total Aromatics C6-C44	-	-	-	210000							TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C35)	-	-	-	-							TM61/89	<100 ug/kg
TPH (Aliphatics and Aromatics C5-C44)	-	-	-	320000							TM61/89	<100 ug/kg

All results expressed on a dry weight basis.

Date 19.10.2007

Validated
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ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited
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Job Number: 07/14582/02/01 **Matrix:** SOLID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	WS104	WS 107	WS 107	WS110							Method Code	LoD/Units
Depth (m)	1.00	0.40	0.50	0.15								
Sample Type	SOLID	SOLID	SOLID	SOLID								
Sampled Date	10.08.07	06.09.07	06.09.07	10.08.07								
Sample Received Date	05.09.07	12.09.07	12.09.07	05.09.07								
Batch	3	5	5	3								
Sample Number(s)	21-23 (1)	44 (1)	45-46 (1)	24-25 (1)								
PAH by GCMS												
Naphthalene	-	-	-	570							TM074 [#] _M	<10 ug/kg
Acenaphthylene	-	-	-	150							TM074 [#] _M	<5 ug/kg
Acenaphthene	-	-	-	36							TM074 [#] _M	<14 ug/kg
Fluorene	-	-	-	39							TM074 [#] _M	<12 ug/kg
Phenanthrene	-	-	-	890							TM074 [#] _M	<21 ug/kg
Anthracene	-	-	-	220							TM074 [#] _M	<9 ug/kg
Fluoranthene	-	-	-	2200							TM074 [#] _M	<25 ug/kg
Pyrene	-	-	-	1900							TM074 [#] _M	<22 ug/kg
Benz(a)anthracene	-	-	-	1200							TM074 [#] _M	<12 ug/kg
Chrysene	-	-	-	1400							TM074 [#] _M	<10 ug/kg
Benzo(b)fluoranthene	-	-	-	1800							TM074 [#] _M	<16 ug/kg
Benzo(k)fluoranthene	-	-	-	810							TM074 [#] _M	<25 ug/kg
Benzo(a)pyrene	-	-	-	1500							TM074 [#] _M	<12 ug/kg
Indeno(123cd)pyrene	-	-	-	940							TM074 [#] _M	<11 ug/kg
Dibenzo(ah)anthracene	-	-	-	240							TM074 [#] _M	<8 ug/kg
Benzo(ghi)perylene	-	-	-	1100							TM074 [#] _M	<10 ug/kg
PAH 16 Total	-	-	-	15000							TM074 [#] _M	<25 ug/kg

All results expressed on a dry weight basis.

Date 19.10.2007

Validated
Preliminary

ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/14582/02/01 **Matrix:** LIQUID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH104 SHALLO W	BH105 DEEP	BH107 SHALLO W	BH108 DEEP	BH110 SHALLO W	BH112 DEEP	BH114 SHALLO W	BH115 DEEP	BH117 DEEP	Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-	-	-		
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID		
Sampled Date	26.09.07	25.09.07	25.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	25.09.07		
Sample Received Date	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07		
Batch	10	10	10	10	10	10	10	10	10		
Sample Number(s)	126-127 (1)	128-129 (1)	130-131 (1)	132-133 (1)	134-135 (1)	136-137 (1)	138-139 (1)	140-141 (1)	142-143 (1)		
Arsenic Dissolved (ICP-MS)	35	20	3	33	35	6	14	10	4	TM152 [#]	<1 ug/l
Barium Dissolved (ICP-MS)	370	110	10	430	290	86	61	49	47	TM152 [#]	<1 ug/l
Beryllium Dissolved (ICP-MS)	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM152 [#]	<1 ug/l
Boron Dissolved (ICP-MS)	3000	1400	260	2700	840	570	74	950	630	TM152 [#]	<10 ug/l
Cadmium Dissolved (ICP-MS)	0.6	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	TM152 [#]	<0.4 ug/l
Chromium Dissolved (ICP-MS)	16	9	7	14	6	6	3	9	8	TM152 [#]	<1 ug/l
Copper Dissolved (ICP-MS)	1	<1	<1	1	<1	<1	<1	<1	2	TM152 [#]	<1 ug/l
Lead Dissolved (ICP-MS)	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM152 [#]	<1 ug/l
Nickel Dissolved (ICP-MS)	31	14	2	47	26	15	4	5	10	TM152 [#]	<1 ug/l
Selenium Dissolved (ICP-MS)	100	66	5	130	53	19	<1	31	17	TM152 [#]	<1 ug/l
Vanadium Dissolved (ICP-MS)	4	5	<1	10	6	<1	2	2	<1	TM152 [#]	<1 ug/l
Zinc Dissolved (ICP-MS)	40	14	<3	160	<3	130	<3	<3	<3	TM152 [#]	<3 ug/l
Mercury Dissolved (CVAA)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	TM127 [#]	<0.05 ug/l
Nitrate as NO3	<0.3	<0.3	56	<0.3	<0.3	53	<0.3	<0.3	<0.3	TM102 [#]	<0.3 mg/l
Sulphate (soluble)	1100	1000	130	1600	1400	390	8	640	380	TM098 [#]	<3 mg/l
Sulphide	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	TM101	<0.5 mg/l
Total Cyanide	<0.05	<0.05	<0.05	<0.05	3.5	0.16	<0.05	<0.05	<0.05	TM153 [#]	<0.05 mg/l
Free Cyanide	<0.05	<0.05	<0.05	<0.05	0.94	<0.05	<0.05	<0.05	<0.05	TM153 [#]	<0.05 mg/l
Complex Cyanide	-	-	-	-	-	-	-	-	-	TM153 [#]	<0.05 mg/l
Free Sulphur	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	<0.05	<0.05	<0.05	TM136 [#]	<0.05 mg/l
pH Value	7.91	8.00	8.07	7.72	7.89	8.12	8.10	8.08	8.16	TM133 [#]	<1.00 pH Units
EPH (DRO) (C10-C40) Aqueous	300	120	<10	140	3200	4300	490	<10	<10	TM172 [#]	<10 ug/l

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ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited
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 * Subcontracted test
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Job Number: 07/14582/02/01 **Matrix:** LIQUID
Client: Norfolk County Council **Location:** Great Yarmouth third river Crossing
Client Ref. No.: PTPZ0008 **Client Contact:** Ian Brown

Sample Identity	BH104 SHALLO W	BH105 DEEP	BH107 SHALLO W	BH108 DEEP	BH110 SHALLO W	BH112 DEEP	BH114 SHALLO W	BH115 DEEP	BH117 DEEP	Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-	-	-		
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID		
Sampled Date	26.09.07	25.09.07	25.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	25.09.07		
Sample Received Date	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07	29.09.07		
Batch	10	10	10	10	10	10	10	10	10		
Sample Number(s)	126-127 (1)	128-129 (1)	130-131 (1)	132-133 (1)	134-135 (1)	136-137 (1)	138-139 (1)	140-141 (1)	142-143 (1)		
PAH by GCMS											
Naphthalene Aqueous	28	<26	<26	<26	67000	<26	<26	<26	<26	TM074	<26 ng/l
Acenaphthylene Aqueous	120	<11	<11	<11	1300	<11	<11	<11	<11	TM074	<11 ng/l
Acenaphthene Aqueous	100	<15	<15	<15	1900	<15	<15	<15	<15	TM074	<15 ng/l
Fluorene Aqueous	26	<14	<14	<14	3200	<14	<14	<14	<14	TM074	<14 ng/l
Phenanthrene Aqueous	60	<22	35	24	13000	<22	<22	<22	<22	TM074	<22 ng/l
Anthracene Aqueous	17	<15	<15	<15	1300	<15	<15	<15	<15	TM074	<15 ng/l
Fluoranthene Aqueous	19	<17	<17	<17	3600	<17	<17	<17	<17	TM074	<17 ng/l
Pyrene Aqueous	18	<15	<15	<15	2100	<15	<15	16	<15	TM074	<15 ng/l
Benz(a)anthracene Aqueous	<17	<17	<17	<17	180	<17	<17	<17	<17	TM074	<17 ng/l
Chrysene Aqueous	<13	<13	<13	<13	130	<13	<13	<13	<13	TM074	<13 ng/l
Benzo(b)fluoranthene Aqueous	<23	<23	<23	<23	63	<23	<23	<23	<23	TM074	<23 ng/l
Benzo(k)fluoranthene Aqueous	<27	<27	<27	<27	<27	<27	<27	<27	<27	TM074	<27 ng/l
Benzo(a)pyrene Aqueous	<9	<9	<9	<9	34	<9	<9	<9	<9	TM074	<9 ng/l
Indeno(123cd)pyrene Aqueous	<14	<14	<14	<14	<14	<14	<14	<14	<14	TM074	<14 ng/l
Dibenzo(ah)anthracene Aqueous	<16	<16	<16	<16	<16	<16	<16	<16	<16	TM074	<16 ng/l
Benzo(ghi)perylene Aqueous	<16	<16	<16	<16	<16	<16	<16	<16	<16	TM074	<16 ng/l
PAH 16 Total Aqueous	390	<27	35	<27	93000	<27	<27	<27	<27	TM074	<27 ng/l

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ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 07/14582/02/01
 Client: Norfolk County Council
 Client Ref. No.: PTPZ0008

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM001	In - house Method	Screening of Soils for Fibres			WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)			WET	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	✓		WET	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	✓	✓	WET	
TM097	Modified: US EPA Method 325.1 & 325.2	Determination of Chloride using the Kone Analyser	✓		DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	✓		DRY	
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	✓		WET	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			WET	
TM102	Method 4500H, AWWA/APHA, 20th Ed., 1999	Determination of Total Oxidised Nitrogen using the Kone Analyser	✓		DRY	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy	✓		NA	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 07/14582/02/01
 Client: Norfolk County Council
 Client Ref. No.: PTPZ0008

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP No Determination Possible * Subcontracted test
 NFD No Fibres Detected » Result previously reported (Incremental reports only)
 # ISO 17025 accredited M MCERTS Accredited
 PFD Possible Fibres Detected EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer			DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓		DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓		NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	
TM136	Method 17.10, Second Site property, March 2003	Determination of Sulphur by HPLC	✓		NA	
TM149	BS 1377: Part 3 1990 (Extraction)	Analysis of Total Sulphate using ICP-OES Spectrophotometer			DRY	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	✓		NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓		WET	
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40			WET	
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	✓		WET	
TM172		EPH in Waters	✓		NA	
TM173		Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID			DRY	
TM173		Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	✓		DRY	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

Appendix F

BH No.	Depth	Dia meter (mm)	Water Level (mbgl)	Water Sample Taken? (Y/N)	date complete	time complete
101	3.20	50	1.60	n	24-Sep	11.00
101	9.00	19	1.51	n		
102	3.10	50	2.30	n	26-Sep	9.20
102	24.65	50	2.04	n		
103	1.62	50	0.79	n	25-Sep	11.00
103	35.00	19	1.01	n		
104	5.50	50	1.37	y	25-Sep	12.40
104	28.50	50	1.34	n		
105	3.00	50	1.14	n	25-Sep	14.55
105	26.40	19	1.14	y		
105	40.00	19	1.33	n		
106	3.57	50	1.15	n	26-Sep	11.00
106	11.90	19	1.17	n		
107	2.95	50	2.49	n	25-Sep	9.30
107	10.00	19	2.56	y		
107		19	2.52	n		
108	2.80	50	1.12	n	26-Sep	13.00
108	19.90	19	1.35	y		
109	2.50	50	1.27	n	25-Sep	17.15
109	39.00	19	1.29	n		
110	2.60	50	2.04	y	26-Sep	14.00
110	28.10	50	1.55	n		
111	1.85	50	dry	n	26-Sep	8.20
111	19.50	19	2.70	n		
112	2.60	50	2.57	n	26-Sep	13.00
112	19.70	19	2.65	y		
113		50		n		
113		50		n		
114	2.80	50	1.64	y	25-Sep	16.00
115	3.00	50	2.85	n	25-Sep	13.30
115	27.70	50	2.85	y		
116	2.50	50	2.02	n	25-Sep	8.10
116	7.30	19	2.02	n		
117	5.80	50	1.91	n	25-Sep	12.30
117	40.00	50	1.94	y		

BH No.	Depth	Diameter (mm)	Water Level (mbgl)	Water Sample Taken? (Y/N)	date complete	time complete
101	3.20	50	1.69	n	05-Oct	17.40
101	9.00	19	1.73	n		
102	3.10	50	1.81	n	05-Oct	16.35
102	24.65	50	1.84	n		
103	1.62	50	0.92	n	05-Oct	15.10
103	35.00	19	1.05	n		
104	5.50	50	2.43	n	05-Oct	17.30
104	28.50	50	2.52	n		
105	3.00	50	1.16	n	05-Oct	13.50
105	26.40	19	1.21	n		
105	40.00	19	1.09	n		
106	3.57	50	1.21	n	05-Oct	14.20
106	11.90	19	1.23	n		
107	2.95	50	2.51	n	05-Oct	14.55
107	10.00	19	2.51	n		
107	19.80	19	2.51	n		
108	2.80	50	1.06	n	05-Oct	16.15
108	19.90	19	1.31	n		
109	2.50	50	1.24	n	05-Oct	14.40
109	39.00	19	1.29	n		
110	2.60	50	1.99	n	05-Oct	17.05
110	28.10	50	2.83	n		
111	1.85	50	dry	n	05-Oct	15.30
111	19.50	19	2.75	n		
112	2.60	50	2.56	n	05-Oct	16.00
112	19.70	19	3.01	n		
113	1.62	50	dry	n	05-Oct	15.47
113	4.20	50	2.34	n		
114	2.80	50	1.97	n	05-Oct	13.15
115	3.00	50	2.84	n	05-Oct	12.15
115	27.70	50	2.83	n		
116	2.50	50	2.00	n	05-Oct	12.50
116	7.30	19	2.00	n		
117	5.80	50	2.01	n	05-Oct	13.35
117	40.00	50	1.96	n		

BH No.	Depth	Diameter (mm)	Water Level (mbgl)	Water Sample Taken? (Y/N)	date complete	time complete
101	3.20	50	1.44	n	12-Oct	14.00
101	9.00	19	1.55	n		
102	3.10	50	2.19	n	12-Oct	11.45
102	24.65	50	2.27	n		
103	1.62	50	0.86	n	12-Oct	16.25
103	35.00	19	1.04	n		
104	5.50	50	1.42	n	12-Oct	12.05
104	28.50	50	1.44	n		
105	3.00	50	1.08	n	12-Oct	15.45
105	26.40	19	1.09	n		
105	40.00	19	1.09	n		
106	3.57	50	1.19	n	12-Oct	15.55
106	11.90	19	1.19	n		
107	2.95	50	2.52	n	12-Oct	16.10
107	10.00	19	2.53	n		
107	19.80	19	2.52	n		
108	2.80	50	1.01	n	12-Oct	13.40
108	19.90	19	0.95	n		
109	2.50	50	1.17	n	12-Oct	15.20
109	39.00	19	0.77	n		
110	2.60	50	1.95	n	12-Oct	13.20
110	28.10	50	2.52	n		
111	1.85	50	dry	n	12-Oct	13.00
111	19.50	19	2.60	n		
112	2.60	50	2.55	n	12-Oct	12.20
112	19.70	19	2.74	n		
113	3.11	50	2.09	n	12-Oct	12.40
113	4.20	50	1.99	n		
114	2.80	50	1.77	n	12-Oct	14.20
115	3.00	50	2.88	n	12-Oct	14.40
115	27.70	50	2.89	n		
116	2.50	50	1.92	n	12-Oct	15.00
116	7.30	19	1.93	n		
117	5.80	50	1.92	n	12-Oct	16.30
117	40.00	50	1.75	n		

BH No.	Depth	Diameter (mm)	Water Level (mbgl)	Water Sample Taken? (Y/N)	Date complete	time complete
101	3.20	50	1.60	n	19.10.07	14.11
101	9.00	19	1.57	n		
102	3.10	50	2.23	n	19.10.07	14.30
102	24.65	50	2.51	n		
103	1.62	50	0.78	n	19.10.07	13.50
103	35.00	19	1.00	n		
104	5.50	50	1.73	n	19.10.07	14.55
104	28.50	50	1.72	n		
105	3.00	50	1.10	n	19.10.07	12.50
105	26.40	19	1.07	n		
105	40.00	19	1.07	n		
106	3.57	50	1.22	n	19.10.07	13.10
106	11.90	19	1.23	n		
107	2.95	50	2.52	n	19.10.07	13.30
107	10.00	19	2.53	n		
107	19.80	19	2.52	n		
108	2.80	50	1.02	n	19.10.07	15.10
108	19.90	19	1.11	n		
109	2.50	50	1.21	n	19.10.07	12.35
109	39.00	19	1.25	n		
110	2.60	50	1.97	n	19.10.07	15.00
110	28.10	50	2.73	n		
111	1.85	50	dry	n	19.10.07	15.20
111	19.50	19	2.73	n		
112	2.60	50	2.55	n	19.10.07	15.40
112	19.70	19	2.77	n		
113	3.11	50	2.24	n	19.10.07	1600.00
113	4.20	50	2.21	n		
114	2.80	50	1.88	n	19.10.07	11.40
115	3.00	50	2.84	n	19.10.07	11.15
115	27.70	50	2.83	n		
116	2.50	50	1.98	n	19.10.07	12.00
116	7.30	19	1.97	n		
117	5.80	50	1.92	n	19.10.07	12.15
117	40.00	50	1.90	n		

BH No.	Depth	Diameter (mm)	Water Level (mbgl)	Water Sample Taken? (Y/N)	Date complete	Time complete
101	3.20	50	1.57	n	22.10.07	12.05
101	9.00	19	1.60	n		
102	3.10	50	2.36	n	22.10.07	11.50
102	24.65	50	2.30	n		
103	1.62	50	0.86	n	22.10.07	9.20
103	35.00	19	1.12	n		
104	5.50	50	1.87	n	22.10.07	11.40
104	28.50	50	1.86	n		
105	3.00	50	1.10	n	22.10.07	9.30
105	26.40	19	1.12	n		
105	40.00	19	1.12	n		
106	3.57	50	1.20	n	22.10.07	110.00
106	11.90	19	1.22	n		
107	2.95	50	2.55	n	22.10.07	9.45
107	10.00	19	2.54	n		
107	19.80	19	2.53	n		
108	2.80	50	1.02	n	22.10.07	11.25
108	19.90	19	1.11	n		
109	2.50	50	1.22	n	22.10.07	9.10
109	39.00	19	1.24	n		
110	2.60	50	1.95	n	22.10.07	11.10
110	28.10	50	2.59	n		
111	1.85	50	dry	n	22.10.07	10.50
111	19.50	19	2.68	n		
112	2.60	50	2.55	n	22.10.07	10.30
112	19.70	19	2.79	n		
113	3.11	50	2.11	n	22.10.07	10.15
113	4.20	50	2.06	n		
114	2.80	50	1.84	n	22.10.07	9.00
115	3.00	50	2.86	n	22.10.07	8.00
115	27.70	50	2.86	n		
116	2.50	50	2.00	n	22.10.07	8.30
116	7.30	19	2.01	n		
117	5.80	50	1.91	n	22.10.07	8.45
117	40.00	50	1.87	n		

Appendix G

BH No.	Depth	Diameter (mm)	Atmospheric Pressure	CO2 (%)	CH4 (%)	O2 (%)	LEL (%)	Flow Rate	Water Level (mbgl)	Water Sample Taken? (Y/N)	date complete	time complete
101	3.20	50	1000	1.7	0.0	15.4	0.5	0.1	1.60	n	24-Sep	11.00
101	9.00	19		1.7	0.0	1.0	0.0	0.0	1.51	n		
102	3.10	50	1015	0.2	0.0	15.4	0.0	0.0	2.30	n	26-Sep	9.20
102	24.65	50		0.0	0.0	18.9	0.0	0.0	2.04	n		
103	1.62	50	1008	0.0	0.0	20.7	0.0	0.0	0.79	n	25-Sep	11.00
103	35.00	19		0.0	0.0	20.7	0.0	0.0	1.01	n		
104	5.50	50	1007	2.9	0.0	14.4	0.0	0.1	1.37	y	25-Sep	12.40
104	28.50	50		0.1	0.0	19.2	0.0	0.0	1.34	n		
105	3.00	50	1007	0.4	0.1	16.2	2.0	-1.2	1.14	n	25-Sep	14.55
105	26.40	19		0.0	0.0	20.0	0.0	0.0	1.14	y		
105	40.00	19		0.0	0.0	19.7	0.0	0.0	1.33	n		
106	3.57	50	1015	0.0	0.0	21.0	0.0	0.0	1.15	n	26-Sep	11.00
106	11.90	19		0.0	0.0	21.7	0.0	0.0	1.17	n		
107	2.95	50	1007	6.4	0.0	19.5	0.0	0.0	2.49	n	25-Sep	9.30
107	10.00	19		0.0	0.0	20.0	0.0	0.0	2.56	y		
107		19		0.0	0.0	20.0	0.0	0.0	2.52	n		
108	2.80	50	1015	0.0	0.0	11.8	0.0	0.0	1.12	n	26-Sep	13.00
108	19.90	19		0.0	0.0	20.1	0.0	0.0	1.35	y		
109	2.50	50	1007	1.6	0.0	14.5	0.0	0.1	1.27	n	25-Sep	17.15
109	39.00	19		0.0	0.0	20.7	0.0	0.0	1.29	n		
110	2.60	50	1015	0.0	0.0	9.9	0.0	0.0	2.04	y	26-Sep	14.00
110	28.10	50		0.0	0.0	15.2	0.0	0.0	1.55	n		
111	1.85	50	1015	0.4	0.0	18.8	0.0	0.0	dry	n	26-Sep	8.20
111	19.50	19		0.0	0.0	18.9	0.0	0.0	2.70	n		
112	2.60	50	1016	0.0	0.0	19.6	0.0	0.0	2.57	n	26-Sep	13.00
112	19.70	19		0.0	0.0	19.4	0.0	0.0	2.65	y		
113		50		0.0	0.0	0.0	0.0	0.0		n		
113		50		0.0	0.0	0.0	0.0	0.0		n		
114	2.80	50	1008	0.4	0.1	9.4	2.0	0.0	1.64	y	25-Sep	16.00
115	3.00	50	1008	0.3	0.0	12.6	0.0	0.0	2.85	n	25-Sep	13.30
115	27.70	50		0.0	0.0	19.5	0.0	0.0	2.85	y		
116	2.50	50	1008	0.0	0.0	20.9	0.0	0.0	2.02	n	25-Sep	8.10
116	7.30	19		0.0	0.0	20.9	0.0	0.0	2.02	n		
117	5.80	50	1008	0.0	0.0	18.2	0.0	0.1	1.91	n	25-Sep	12.30
117	40.00	50		0.0	0.0	19.5	0.0	0.0	1.94	y		

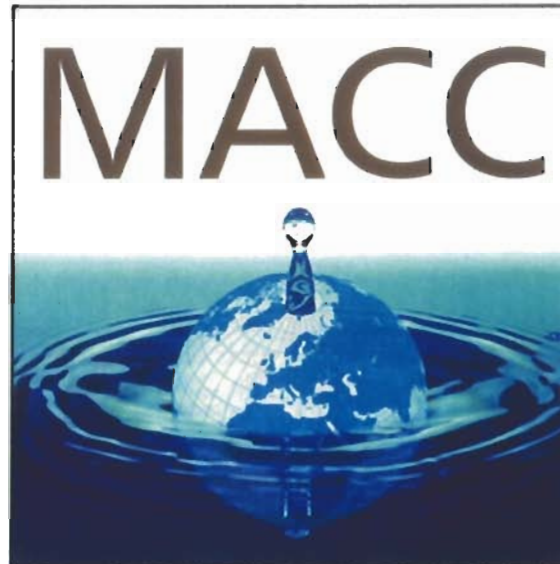
BH No.	Depth	Diameter (mm)	Atmospheric Pressure	CO2 (%)	CH4 (%)	O2 (%)	LEL (%)	Flow Rate	Water Level (mbgl)	Water Sample Taken? (Y/N)	date complete	time complete
101	3.20	50	1022	1.3	0.0	6.7	0.0	0.0	1.69	n	05-Oct	17.40
101	9.00	19		0.0	0.0	19.8	0.0	0.0	1.73	n		
102	3.10	50	1022	6.3	0.0	10.1	0.0	0.0	1.81	n	05-Oct	16.35
102	24.65	50		0.0	0.0	20.0	0.0	0.0	1.84	n		
103	1.62	50	1022	0.0	0.0	20.3	0.0	0.0	0.92	n	05-Oct	15.10
103	35.00	19		0.0	0.0	20.5	0.0	0.0	1.05	n		
104	5.50	50	1022	0.1	0.0	16.8	0.0	0.0	2.43	n	05-Oct	17.30
104	28.50	50		0.0	0.0	19.4	0.0	0.0	2.52	n		
105	3.00	50	1022	0.1	0.0	18.8	0.0	0.1	1.16	n	05-Oct	13.50
105	26.40	19		0.0	0.0	19.7	0.0	0.0	1.21	n		
105	40.00	19		0.0	0.0	18.3	0.0	0.0	1.09	n		
106	3.57	50	1022	0.3	0.0	18.3	0.0	0.0	1.21	n	05-Oct	14.20
106	11.90	19		0.2	0.0	18.4	0.0	0.0	1.23	n		
107	2.95	50	1022	0.3	0.0	19.7	0.0	0.0	2.51	n	05-Oct	14.55
107	10.00	19		0.0	0.0	20.2	0.0	0.0	2.51	n		
107	19.80	19		0.0	0.0	19.5	0.0	0.0	2.51	n		
108	2.80	50	1022	0.0	0.0	20.5	0.0	0.0	1.06	n	05-Oct	16.15
108	19.90	19		0.0	0.0	20.4	0.0	0.0	1.31	n		
109	2.50	50	1022	0.4	0.0	18.0	0.0	0.0	1.24	n	05-Oct	14.40
109	39.00	19		0.0	0.0	20.4	0.0	0.0	1.29	n		
110	2.60	50	1022	0.0	0.0	11.5	0.0	0.0	1.99	n	05-Oct	17.05
110	28.10	50		0.0	0.0	19.4	0.0	0.0	2.83	n		
111	1.85	50	1022	0.0	0.0	20.4	0.0	0.0	dry	n	05-Oct	15.30
111	19.50	19		0.0	0.0	20.3	0.0	0.0	2.75	n		
112	2.60	50	1022	0.0	0.0	20.4	0.0	0.0	2.56	n	05-Oct	16.00
112	19.70	19		0.0	0.0	20.1	0.0	0.0	3.01	n		
113	1.62	50	1022	0.0	0.0	18.6	0.0	0.0	dry	n	05-Oct	15.47
113	4.20	50		0.3	0.0	16.8	0.0	0.0	2.34	n		
114	2.80	50	1022	0.7	0.0	8.1	0.0	0.0	1.97	n	05-Oct	13.15
115	3.00	50		0.0	0.0	20.0	0.0	0.0	2.84	n		
115	27.70	50		0.0	0.0	20.2	0.0	0.0	2.83	n		
116	2.50	50	1022	0.0	0.0	20.7	0.0	0.0	2.00	n	05-Oct	12.50
116	7.30	19		0.0	0.0	20.8	0.0	0.0	2.00	n		
117	5.80	50	1022	0.0	0.0	18.4	0.0	0.0	2.01	n	05-Oct	13.35
117	40.00	50		0.0	0.0	19.3	0.0	0.0	1.96	n		

BH No.	Depth	Diameter (mm)	Atmospheric Pressure	CO2 (%)	CH4 (%)	O2 (%)	LEL (%)	Flow Rate	Water Level (mbgl)	Water Sample Taken? (Y/N)	date complete	time complete
101	3.20	50	1022	1.4	0.0	5.7	0.0	0.0	1.44	n	12-Oct	14.00
101	9.00	19		0.0	0.0	20.0	0.0	0.0	1.55	n		
102	3.10	50	1022	0.2	0.0	16.2	0.0	0.0	2.19	n	12-Oct	11.45
102	24.65	50		0.1	0.0	18.2	0.0	0.0	2.27	n		
103	1.62	50	1022	0.0	0.0	20.5	0.0	0.1	0.86	n	12-Oct	16.25
103	35.00	19		0.0	0.0	20.4	0.0	0.0	1.04	n		
104	5.50	50	1022	4.4	0.0	11.1	0.0	0.0	1.42	n	12-Oct	12.05
104	28.50	50		0.4	0.0	16.9	0.0	0.0	1.44	n		
105	3.00	50	1022	0.1	0.0	19.6	0.0	0.0	1.08	n	12-Oct	15.45
105	26.40	19		0.0	0.0	20.1	0.0	0.0	1.09	n		
105	40.00	19		0.0	0.0	20.0	0.0	0.0	1.09	n		
106	3.57	50	1022	0.1	0.0	19.7	0.0	0.0	1.19	n	12-Oct	15.55
106	11.90	19		0.0	0.0	19.1	0.0	0.0	1.19	n		
107	2.95	50	1022	3.2	0.0	18.9	0.0	0.0	2.52	n	12-Oct	16.10
107	10.00	19		0.0	0.0	20.0	0.0	0.0	2.53	n		
107	19.80	19		0.0	0.0	20.1	0.0	0.0	2.52	n		
108	2.80	50	1022	0.0	0.0	20.4	0.0	0.0	1.01	n	12-Oct	13.40
108	19.90	19		0.0	0.0	20.2	0.0	0.0	0.95	n		
109	2.50	50	1022	0.3	0.0	18.2	0.0	0.0	1.17	n	12-Oct	15.20
109	39.00	19		0.0	0.0	20.4	0.0	0.0	0.77	n		
110	2.60	50	1022	0.0	0.0	14.2	0.0	0.0	1.95	n	12-Oct	13.20
110	28.10	50		0.0	0.0	19.8	0.0	0.0	2.52	n		
111	1.85	50	1022	0.0	0.0	19.6	0.0	0.0	dry	n	12-Oct	13.00
111	19.50	19		0.0	0.0	19.5	0.0	0.0	2.60	n		
112	2.60	50	1022	0.1	0.0	18.1	0.0	0.0	2.55	n	12-Oct	12.20
112	19.70	19		0.0	0.0	19.8	0.0	0.0	2.74	n		
113	3.11	50	1022	0.2	0.0	17.8	0.0	0.0	2.09	n	12-Oct	12.40
113	4.20	50		2.4	0.0	10.0	0.0	0.0	1.99	n		
114	2.80	50	1022	0.0	0.0	19.5	0.0	0.0	1.77	n	12-Oct	14.20
115	3.00	50		0.3	0.0	12.0	0.0	0.0	2.88	n		
115	27.70	50		0.0	0.0	15.7	0.0	0.0	2.89	n		
116	2.50	50	1022	0.0	0.0	19.3	0.0	0.0	1.92	n	12-Oct	15.00
116	7.30	19		0.0	0.0	20.3	0.0	0.0	1.93	n		
117	5.80	50	1022	1.0	0.0	4.5	46.0	0.0	1.92	n	12-Oct	16.30
117	40.00	50		0.1	0.0	18.3	0.0	0.0	1.75	n		

BH No.	Depth	Diameter (mm)	Atmospheric Pressure	CO2 (%)	CH4 (%)	O2 (%)	LEL (%)	Flow Rate	Water Level (mbgl)	Water Sample Taken? (Y/N)	date complete	time complete
101	3.20	50	1033	0.50	0.00	3.60	0.00	0.00	1.60	n	19.10.07	14.11
101	9.00	19		0.10	0.00	21.00	0.00	0.00	1.57	n		
102	3.10	50	1033	0.00	0.00	19.80	0.00	0.00	2.23	n	19.10.07	14.30
102	24.65	50		0.10	0.00	17.10	0.00	0.00	2.51	n		
103	1.62	50	1033	0.00	0.00	20.30	0.00	0.00	0.78	n	19.10.07	13.50
103	35.00	19		0.00	0.00	20.50	0.00	0.00	1.00	n		
104	5.50	50	1033	3.20	0.00	13.20	0.00	0.00	1.73	n	19.10.07	14.55
104	28.50	50		0.80	0.00	18.20	0.00	0.00	1.72	n		
105	3.00	50	1033	0.00	0.00	20.10	0.00	0.00	1.10	n	19.10.07	12.50
105	26.40	19		0.00	0.00	20.40	0.00	0.00	1.07	n		
105	40.00	19		0.00	0.00	20.50	0.00	0.00	1.07	n		
106	3.57	50	1033	0.30	0.00	18.40	0.00	0.00	1.22	n	19.10.07	13.10
106	11.90	19		0.00	0.00	20.80	0.00	0.00	1.23	n		
107	2.95	50	1033	0.30	0.00	19.70	0.00	0.00	2.52	n	19.10.07	13.30
107	10.00	19		0.00	0.00	20.10	0.00	0.00	2.53	n		
107	19.80	19		0.00	0.00	20.40	0.00	0.00	2.52	n		
108	2.80	50	1033	0.00	0.00	20.30	0.00	0.00	1.02	n	19.10.07	15.10
108	19.90	19		0.00	0.00	20.30	0.00	0.00	1.11	n		
109	2.50	50	1033	0.30	0.00	19.30	0.00	0.00	1.21	n	19.10.07	12.35
109	39.00	19		0.00	0.00	20.40	0.00	0.00	1.25	n		
110	2.60	50	1033	0.00	0.00	13.60	0.00	0.00	1.97	n	19.10.07	15.00
110	28.10	50		0.00	0.00	16.70	0.00	0.00	2.73	n		
111	1.85	50	1033	0.00	0.00	20.30	0.00	0.00	dry	n	19.10.07	15.20
111	19.50	19		0.00	0.00	20.20	0.00	0.00	2.73	n		
112	2.60	50	1033	0.00	0.00	19.90	0.00	0.00	2.55	n	19.10.07	15.40
112	19.70	19		0.00	0.00	20.20	0.00	0.00	2.77	n		
113	3.11	50	1033	0.30	0.00	17.80	0.00	0.00	2.24	n	19.10.07	1600.00
113	4.20	50		1.70	0.00	14.00	0.00	0.00	2.21	n		
114	2.80	50	1033	0.80	0.50	7.50	6.00	0.10	1.88	n	19.10.07	11.40
115	3.00	50		0.30	0.00	7.10	0.00	0.00	2.84	n		
115	27.70	50		0.10	0.00	11.20	0.00	0.00	2.83	n		
116	2.50	50	1033	0.00	0.00	20.80	0.00	0.00	1.98	n	19.10.07	12.00
116	7.30	19		0.00	0.00	20.70	0.00	0.00	1.97	n		
117	5.80	50	1033	0.60	2.60	7.00	27.90	0.10	1.92	n	19.10.07	12.15
117	40.00	50		0.00	0.20	14.90	9.60	0.00	1.90	n		

BH No.	Depth	Diameter (mm)	Atmospheric Pressure	CO2 (%)	CH4 (%)	O2 (%)	LEL (%)	Flow Rate	Water Level (mbgl)	Water Sample Taken? (Y/N)	date complete	time complete
101	3.20	50	1023	1.0	0.0	4.7	0.1	0.2	1.57	n	22.10.07	12.05
101	9.00	19		0.0	0.0	19.6	0.0	0.0	1.60	n		
102	3.10	50	1023	0.4	0.0	17.7	0.0	0.0	2.36	n	22.10.07	11.50
102	24.65	50		0.0	0.0	19.3	0.0	0.0	2.30	n		
103	1.62	50	1023	0.0	0.0	20.5	0.0	0.0	0.86	n	22.10.07	9.20
103	35.00	19		0.0	0.0	20.4	0.0	0.0	1.12	n		
104	5.50	50	1023	3.1	0.0	14.6	0.0	0.1	1.87	n	22.10.07	11.40
104	28.50	50		0.3	0.0	19.3	0.0	0.0	1.86	n		
105	3.00	50	1023	0.2	0.0	19.8	0.0	0.1	1.10	n	22.10.07	9.30
105	26.40	19		0.0	0.0	20.0	0.0	0.0	1.12	n		
105	40.00	19		0.0	0.0	20.1	0.0	0.0	1.12	n		
106	3.57	50	1023	0.1	0.0	19.3	0.0	0.0	1.20	n	22.10.07	110.00
106	11.90	19		0.0	0.0	19.4	0.0	0.0	1.22	n		
107	2.95	50	1023	0.4	0.0	19.3	0.0	0.0	2.55	n	22.10.07	9.45
107	10.00	19		0.0	0.0	20.1	0.0	0.0	2.54	n		
107	19.80	19		0.0	0.0	20.2	0.0	0.0	2.53	n		
108	2.80	50	1023	0.0	0.0	20.3	0.0	0.0	1.02	n	22.10.07	11.25
108	19.90	19		0.0	0.0	20.4	0.0	0.0	1.11	n		
109	2.50	50	1023	0.5	0.0	18.2	0.0	0.0	1.22	n	22.10.07	9.10
109	39.00	19		0.0	0.0	20.1	0.0	0.0	1.24	n		
110	2.60	50	1023	0.0	0.0	14.2	0.0	0.1	1.95	n	22.10.07	11.10
110	28.10	50		0.0	0.0	18.6	0.0	0.1	2.59	n		
111	1.85	50	1023	0.0	0.0	19.7	0.0	0.0	dry	n	22.10.07	10.50
111	19.50	19		0.0	0.0	19.7	0.0	0.0	2.68	n		
112	2.60	50	1023	0.0	0.0	19.7	0.0	0.0	2.55	n	22.10.07	10.30
112	19.70	19		0.0	0.0	19.7	0.0	0.0	2.79	n		
113	3.11	50	1023	0.4	0.0	17.6	0.0	0.0	2.11	n	22.10.07	10.15
113	4.20	50		1.6	0.0	15.7	0.0	0.0	2.06	n		
114	2.80	50	1023	0.9	0.2	8.0	4.3	0.1	1.84	n	22.10.07	9.00
115	3.00	50		0.3	0.0	14.2	0.0	0.0	2.86	n		
115	27.70	50		0.0	0.0	14.8	0.0	0.0	2.86	n		
116	2.50	50	1023	0.0	0.0	20.2	0.0	0.0	2.00	n	22.10.07	8.30
116	7.30	19		0.0	0.0	20.3	0.0	0.0	2.01	n		
117	5.80	50	1023	0.4	2.0	9.0	31.7	0.0	1.91	n	22.10.07	8.45
117	40.00	50		0.0	0.0	15.6	6.1	0.0	1.87	n		

Appendix H



**DESK STUDY
FOR
UNEXPLODED ORDNANCE
FOR
3RD RIVER CROSSING
GREAT YARMOUTH**

Prepared for: Norfolk Partnership Laboratory

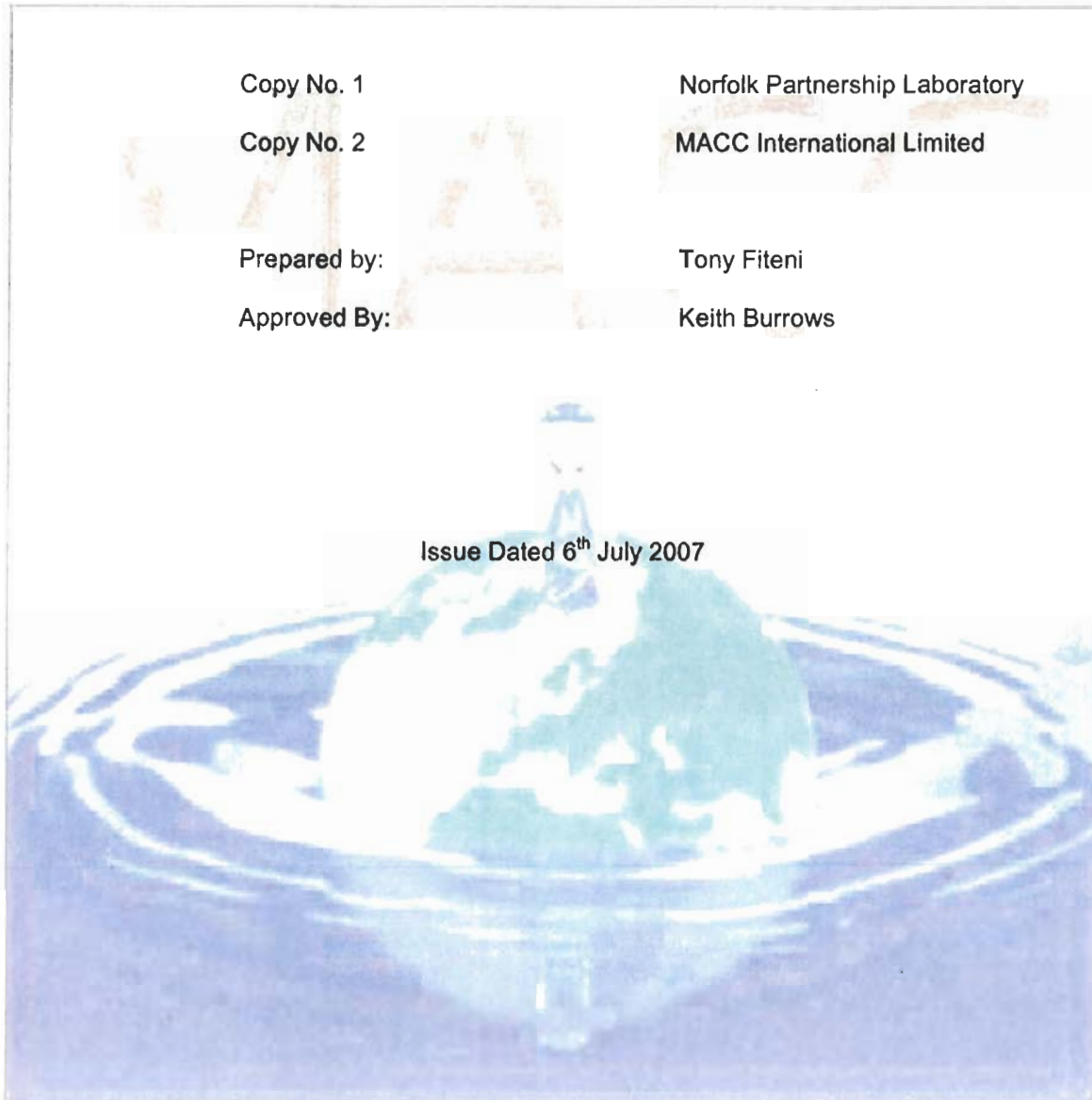
Project Number: 3154

Report Number: 3154/01

Dated: 6th July 2007

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DISTRIBUTION



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TERMS AND DEFINITIONS

Anti Aircraft Shells (AA)

Small HE shells ranging up to 40mm in diameter.

Anti Personnel Bomb (APB)

Small sub-munitions dispensed from a main carrier may be aimable or non-aimable these are highly dangerous and are to be treated with extreme caution,

Battlefield Area Clearance (BAC)

The systematic clearance of munitions from military property or old battle sites e.g. ranges, airfields etc.

Borehole Search

The placing of boreholes in a set pattern, then using a magnetometer to take readings at specific depths along each borehole. When used with a geophysical survey system this will give a magnetic signature of the area. The depth of the borehole and the pattern will depend upon the type of UXB and the geology of the ground.

Doodle Bug (See Pilotless Aircraft)

Explosive Ordnance (EO)

All munitions containing explosives, nuclear fission or fusion materials and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket and small arms ammunition; all mines, torpedoes and depth charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature.

Explosive Ordnance Disposal (EOD)

The detection, identification, field evaluation, render safe, recovery and disposal of UXO.

Fragmentation Hazard Zone

The area that could be reached by fragmentation following detonation for a given explosive item, explosive storage or mine/UXO contaminated area.

Note: Several factors should be considered when determining this zone; the amount of explosive, body construction, type of material, ground conditions etc. See also [secondary fragmentation].

Geophysical Survey

The survey of an area using a Magnetometer and geophysical gathering device, after interpretation, this will produce a geophysical map and an object list for any metallic hotspots.

High Explosive (HE)

High explosives burn/detonate at rates of up to 9,000 m/per second.

Incendiary Bomb (IB)

Incendiary bombs ranged from 1kg in size to 500kg the larger sizes were sometimes called Oil Bombs. Fills range from thermite mixtures, phosphorus to kerosene.

Intrusive Search

The use of a cone penetrometer or boreholes to take magnetometer test in a set pattern (see borehole search)

Land Service Ammunition (LSA)

LSA is defined as "All items containing explosives or pyrotechnic compounds which are placed, thrown or projected so as to cause damage to men and equipment during land warfare.

Long Range Rocket (LRR)

The long range rocket sometimes codenamed Big Ben is the V2 rocket designed to deliver an approximate payload of 1000 kg.

Oil Bomb (OB)

A bomb containing a flammable liquid normally the KC 250 Flam or the C 500 flam.

Pilot less Aircraft (PAC)

A flying bomb (Fly) or doodlebug is the V1 rocket or predecessors designed to deliver an explosive payload of approximately 500kg - 800kg.

Parachute Flare (PF)

Parachute Mine (PM)

Air dropped mine may have been used as a blast effect bomb maximum explosive content 1600lb always fitted with anti-handling and anti-stripping equipment.

Phosphorus (PH) see WP

Secondary Fragmentation

In an explosive event, fragmentation that was not originally part of the UXO.

Unexploded Bomb (UXB)

Any air dropped bomb that has failed to operate.

Unexploded Ordnance (UXO)

Explosive ordnance that has been primed, fused, armed or otherwise prepared for use or used. It may have been fired, dropped, launched or projected yet remains unexploded either through malfunction or design or for any other cause.

Unexploded Parachute Mine (UXPM)

Any unexploded parachute mine.

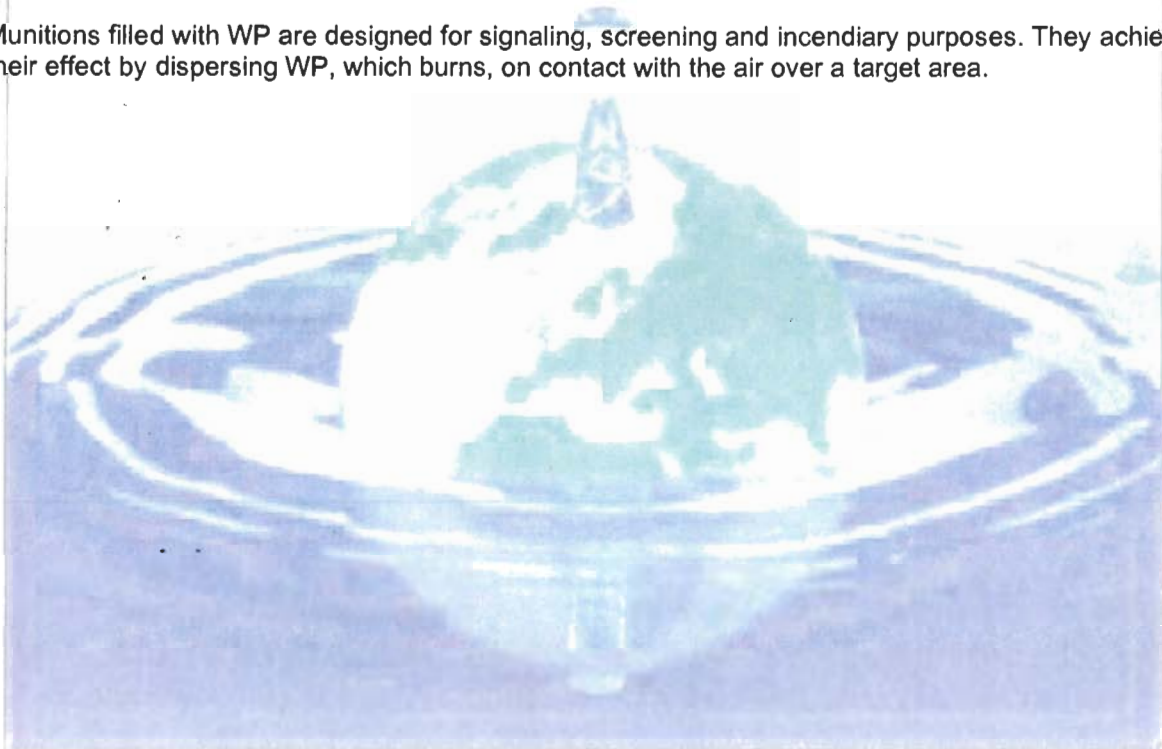
Vengeance Weapons (V)

V1 see Pilot less Aircraft.

V2 see Long Range Rocket.

White Phosphorus (WP)

Munitions filled with WP are designed for signaling, screening and incendiary purposes. They achieve their effect by dispersing WP, which burns, on contact with the air over a target area.



1 **INTRODUCTION**

1.1 **INSTRUCTION**

MACC International Limited, at the request of Norfolk Partnership Laboratory has conducted a Desk Study for Explosive Ordnance (EO)/Unexploded Ordnance (UXO) in the vicinity of the intended 3rd river crossing, Great Yarmouth.

This desk study is a collation and review of existing records and documentation.

1.2 **SCOPE OF WORK**

The purpose of this desk study is to assess the likelihood of buried EO/UXO within the vicinity of the intended 3rd river crossing, Great Yarmouth.

This report has been specifically prepared for Norfolk Partnership Laboratory, without the benefit of knowing the intentions of any third parties; therefore, it should not be used by such organizations without prior consultation with MACC International Limited.

1.3 **REPORTING CONDITIONS**

It must be emphasized that a desk study can only indicate the potential for EO/UXO to be present on the site. A Geophysical survey and intrusive investigation is fundamentally important to provide proof that the site is free of EO/UXO threat.

This report was written with the site conditions prevailing at the time of the study and no liability can be accepted by MACC International Limited for any change in the condition of the area.

The reader is reminded that the majority of military information from pre WWII has not been retained and the only available documentation is old maps, which rarely denote any specifics and sometimes are just a blank area.

This desk study relies on the information contained in the documents consulted and MACC International Limited will in no circumstances be held responsible for the accuracy of such information or data supplied (in some instances circa 1939/40 these documents were compiled in a wartime scenario).

The mapping system used throughout WWII is the War Office False Ordnance System (WOFO).

1.4 **SENSITIVE DOCUMENTATION**

Information may be classified, restricted or deemed to be confidential in nature to MACC International Limited, where such material has been gained a summary of the documentation has been approved.

2 SOURCES OF INFORMATION

Research of the sites history, with regard to military usage, bombing raids and bomb impacts has been undertaken to establish the following:

- Frequency and intensity of enemy bombing raids for the site and immediate vicinity up to 1000m radius.
- Bomb impacts and associated damage on the Site and in the immediate vicinity.
- The potential for UXO to remain on the Site and in the vicinity.
- Records of UXO removal activities for the Site and immediate vicinity.

Due to reasons of National Security defence related information, such as maps detailing wartime bombing campaigns, the location of unexploded bombs (UXB's) and military bases are generally not indicated on publicly available plans. It is for this reason that information regarding such sites is often difficult to locate and access.

The main sources of information consulted include:

- MACC International Limited defence related site records.
- MACC International Limited company records.
- Ministry of Defence records. The relevant records are attached.
- Specific research into the military history and development of the Site.
- Local Authority records.
- National Government Records Office.

3 LOCATION OF THE SITE

The site is located in Great Yarmouth and is centred on TG5256305773. The client provided the site location map, shown at Annex A, with an amended brief that the eastern boundary is to be extended to the adjoining North Sea coastline.

4 HISTORICAL INFORMATION

4.1 UK DEFENCE HISTORY

Records of air raids, bomb damage, casualties and the locations of UXO are rarely released into the public domain. Details relating to these records are often difficult to locate. Prior to WWII records of EO/UXO found are minimal and only the possible military usage of an area can be defined.

The records compiled during WWII were only as detailed and accurate as the availability of time, personnel and the ease of access to information would allow. Densely populated areas associated with the major cities tended to have a greater number of records than those produced for the more provincial or rural areas.

Prior to 1942, the mapping and information collation for bomb strikes/unexploded bombs was limited due to the ability of the persons recording the data. In April 1942 the Ministry of Home Security instigated a training programme for all personnel carrying out bomb census records, this standardised records and greatly improved the accuracy of the data.

Official records were often supplemented by press reports and local information. This source of information was sometimes discredited by being inadvertently inaccurate or purposely made inaccurate, in order to confuse enemy intelligence. Even the accuracy of classified official records is somewhat dubious. This stance has been borne out by the number of unrecorded UXO and part exploded ordnance discovered since 1945.

4.2 WORLD WAR I

The first attack on Great Yarmouth was on 3rd November 1914 when the town was shelled by the German Navy at 7am. No damage was done as the shells fell harmlessly on the beach. Two more bombardments followed later in the war, one on 25th April 1915 when some damage was sustained and a more serious attack on 14th January 1918 when 50 shells hit the town within 5 minutes, killing four people and injuring eight.

On 19th January 1915 at 8.30pm a Zeppelin airship of the German Navy passed slowly over the town and dropped ten bombs. The bombs fell in line from Albemarle Road to the South Denes, destroying buildings and causing fatalities.

4.3 WORLD WAR II

In 1939 the Royal Navy established a series of shore bases to protect the vital East Coast Convoy Route, a shipping lane from the Firth of Forth to the Thames. Through this channel convoys of merchant ships would carry essential supplies for the war effort. These convoys had to be protected and Great Yarmouth was one of the bases from which mine sweepers, motor torpedo boats, air sea rescue boats and salvage tugs operated throughout the war.

Also in 1939, precautions against possible invasion were put in place. The beaches were heavily mined, lined with barbed wire and tank traps constructed along the beaches to the north of the town. Three Gun batteries were also constructed to protect the harbour and beaches. In addition to these main batteries anti-aircraft guns were placed at strategic points around the town, including one on Stonecutters Quay and several along the sea front.

The first of over **ninety** air raids on Great Yarmouth was at 6.30am on 11th July 1940, a single German aircraft dropped bombs on the junction of Gordon Road and Wolseley Road, Southtown. The worst year of the war was 1941, during frequent air raids over 15,000 incendiary bombs and 800 high explosive bombs were dropped. The most severe of these raids began on 9th July when 68 HE bombs were dropped on the town.



Admiralty Road, June 5th, 1941

**An unexploded high explosive bomb recovered in Admiralty Road.
This bomb was the only one dropped in a raid on 5th June 1941.**



Fredrick Road, Gorleston, June 12th, 1941

**A 4,000lb bomb which failed to explode in Fredrick Road, Gorleston.
This was one of three bombs dropped on 12th June 1941.**

Extracts from publications and records for Great Yarmouth in 1941 include:

- Monday, March 31st

Another 26 aircraft (including two seeking alternative targets to Hull) attacked dock installations at Great Yarmouth with 29 tonnes of HE (14 SC 1000, 20 SC 500, 20 SD 500 and four LMB mines) and 7,956 incendiaries between 2017 and 2300 hours. Visual bombing was attempted, in the light of 40 LC 50 flares, and was seemingly successful. Crews reported explosions and fires in the target area, with one extraordinary large fire on the west bank of the River Yare. A ship was also seen to be on fire.

- Monday, April 21st

On the other side of the country 13 aircraft of Luftflotte 2 carried out an attack on Great Yarmouth, delivering 15 tonnes of HE (9 SC 1000, 5 SC 500 and 74 SD 50) and 6,336 incendiaries between 2135 and 2250 hours.

- 6th/7th July 1941 to 18th Feb 1942

Total HE bombs dropped - 159 of which 15 were UXBs.

During 1942, although there were fewer air raids, the destruction continued. On 25th June incendiary bombs destroyed the Parish Church, only the shell remaining at daybreak.



St Nicholas Church



Aerial photograph of Great Yarmouth taken by the Luftwaffe 12th April 1942

Low flying aircraft became a problem in 1943 and Barrage Balloons appeared over the town. During a raid on 11th May on the north end of town 49 people were killed and 41 injured.

By 1944 air raids were considerably reduced and evacuees returned to the town. Repairs to damaged property began and the council bought land at Gorleston for new housing (the Magdalen College Estate). The long task of clearing the beach of its mines did not commence until after hostilities in Europe had come to an end on 8th May 1945.

4.4 AIR RAIDS

Classified records relating to local air raids have been examined. It should be noted that air records in no way constitute a full account of air raids that may have occurred during the war period.

Annex B details the cross referenced information by location, date, type and quantity of **ordnance dropped** during attacks within the area concerned. The resulting bomb plots are mapped in Annex C.

Annex D details additional bomb plots from a separate map. It has not been possible to verify these bomb plots by date, type and quantity, against written reports. They do however; replicate a number of known bomb plots detailed in Annex C.

At Annex E, the bomb plots from both maps have been transferred onto a current OS map for overall appreciation.

A record of overall quantity of **air dropped weapons** is listed as 938. What percentage of these were UXBs is unknown. It should be noted that this total does not include the large quantity of incendiary bombs dropped on Great Yarmouth, for which very few records were available.

4.5 MACC INTERNATIONAL LIMITED RECORDS

MACC International Limited records indicate that a variety of bombs were delivered ranging from 50kg through to 500kg in addition to **PM's and incendiary bombs**. Details of the known range of ordnance used by the Germans can be seen at Annex F to this report.

4.6 SITE DESCRIPTION

The site during the WW II was a mixture of civilian housing, military accommodation and installations, light industrial buildings, the Norfolk and Suffolk Joint Railway to the west, and the River Yare transecting the site north to south with its docks and wharfs situated along its length.

4.7 SUMMARY OF BOMB DAMAGE

Bomb damage to the area is not fully apparent in the Aerial Photograph circa 1942 to 1954 shown in Annex G.

5 **UXO AND HAZARD INFORMATION**

5.1 **GENERAL**

Great Yarmouth suffered heavy bombing during the period of WW II, with bombs dropped on or within the vicinity of the site, of which at least 3 were UXBs. An unknown quantity of incendiary bombs were also dropped but cannot be accounted for.

Explosive Ordnance is inherently dangerous, further information on Explosive Ordnance and Safety is detailed in Annex F.

6 **ENVIRONMENTAL**

This site may have other environmental considerations. These have not been taken into consideration as they are outside the bailiwick of this report.

7 **CONCLUSIONS**

7.1 **GENERAL**

When drawing conclusions the reader is reminded that the WW II bomb census did not commence fully until November 1941. Great Yarmouth and the site at the time of WW II was primarily a naval shore base.

Where evidence of bombing runs exist the quantity, exact location and type of ordnance dropped cannot be verified so doubt remains as to what was actually delivered and failed to detonate.

7.2 **HISTORICAL USE**

The site was a naval shore base intermingled with light industry and civilian buildings with the River Yare transecting the site north to south. At the height of the war 220 officers and over 2,200 ratings were based at the port.

7.3 **BOMB CENSUS**

The bomb census indicates heavy bomb activity around and on the site. It is estimated that Great Yarmouth was subjected to over ninety air raids with an estimated 938 bombs being dropped. The total number of UXBs and incendiary bombs is unknown.

7.4 **FUTURE USE**

The proposed scheme is to either build a bridge or a submerged tube tunnel spanning the River Yare (the 3rd river crossing).

7.5 **OTHER NOTES OF INTEREST IN THE AREA**

- On the 10th February 1986 an unexploded 50 kg bomb was found in Blackwall Reach Road.
- There are several references to bombs, both exploded and unexploded, landing in the River Yare.

7.6 **RISK SUMMARY**

The risk factor to site personnel carrying out intrusive works:

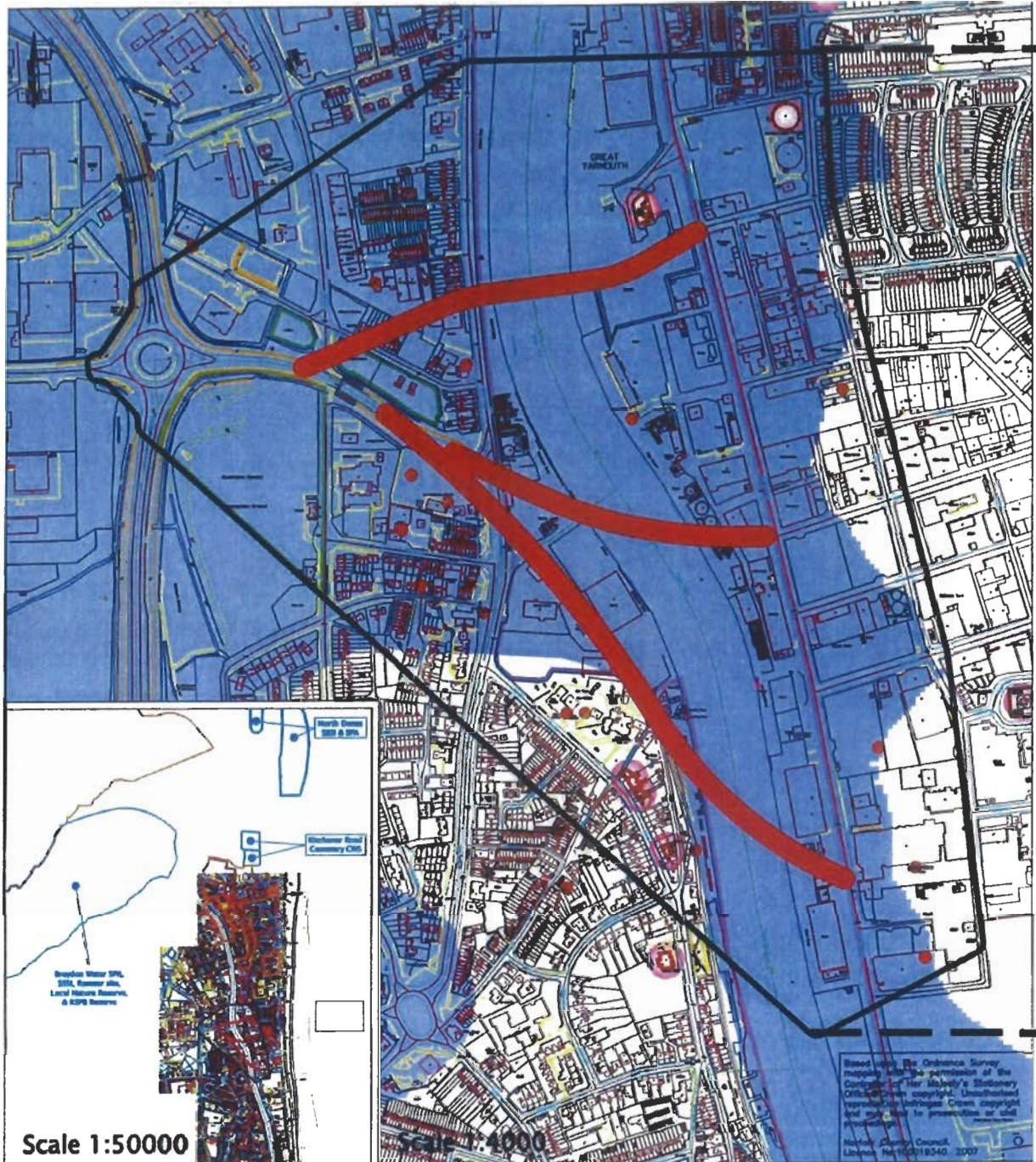
- The potential for the discovery of UXBs on the proposed site of the 3rd River Crossing is HIGH.
- Records indicate that the total number of bombs dropped on Great Yarmouth was 938, not including incendiary bombs. An accepted failure rate for any type of EO, not to function as designed, is 10%.
- Despite having a Naval Bomb Disposal team based on Southgates Road during WW II, not all UXBs were accounted for; a 50 kg UXB was discovered in 1986.

8 **RECOMMENDATIONS**

8.1 **GENERAL**

- Prior to excavation being carried out ALL ground workers are given an EO Safety and Awareness Briefing (Toolbox) as part of their Site Safety Induction.
- An EO Supervisor from a reputable EOD company supervises all excavation work below original ground level.
- The riverbed is surveyed, along the line of the proposed tunnel, for the presence of any remaining EO.

BOUNDARY OF SITE LOCATION (Centred on TG5256305773)



RECORDED EVIDENCE OF BOMB ACTIVITY IN AND AROUND THE PROPOSED SITE

Bomb No	Date	Type of Weapon	QTY	Location	Remarks
1	30/31 Oct 41	HE 250 kg	1	Admiralty Road - WG985242	Exploded bomb No 3 of 7
2	21/22 Oct 42	Fire Pot	4	North corner of T junction of Boundary Rd & Southtown Rd	Exploded bomb Nos 1, 2, 3 & 4 of 6
3	21/22 Oct 42	Fire Pot	1	Corner of Boundary Rd & Harfrey's RD	Exploded bomb No 5 of 6
4	21/22 Oct 42	Fire Pot	1	South West of Harfrey's Roundabout	Exploded bomb No 6 of 6
5	21/22 Jan 42	HE 500 kg	2	Between Alpha Rd & Common Rd - WG980234	Exploded bomb Nos 1 & 2 of 2
6	18/19 Mar 43	PM 'C' type	1	Between Malthouse Lane & Beccles Rd - WG982233	Exploded PM No 1 of 2
7	18/19 Mar 43	PM 'C' type	1	Fish Wharf - WG983235	Exploded PM No 2 of 2
8	30/31 Oct 41	HE 250 kg	1	Micawber Rd - WG987238	Exploded bomb No 4 of 7
9	15/16 Oct 41	HE 250 kg	1	Corner of South Denes Rd & Suffling Rd - WG985233	Exploded bomb No 1 of 7
10	15/16 Oct 41	HE 250 kg	1	South Denes Rd - WG986233	Exploded bomb No 2 of 7
11	15/16 Oct 41	HE 250 kg	2	Fell in open space - WG 986232	Exploded bomb Nos 3 & 4 of 7
12	30/31 Oct 41	HE 250 kg	1	South of Beevor Rd & Fenner Rd - WG987229	Exploded bomb No 5 of 7
13	15/16 Oct 41	HE 250 kg	1	South of Beevor Rd & Fenner Rd - WG987229	Exploded bomb No 5 of 7
14	29/30 May 42	HE 1200 kg	1	Pleasure Beach - WG977248	Unexploded bomb No 7 of 8

Note: Bomb numbers refer to locations in Annexes C, D and E.

BOMB PLOT MAP 2



EXPLOSIVE ORDNANCE SAFETY AND INFORMATION

1 UNEXPLODED ORDNANCE

Since the end of WWII, there have been a limited number of recorded incidents in the UK where bombs have detonated during engineering works, though a significant number of bombs have been discovered. Intrusive works (piling operations) on a site in Berlin in September 1994 resulted in a bomb being struck. This initiation and subsequent detonation resulted in 3 workmen being killed and considerable damage to property.

The threat to any proposed investigation or development on the site may arise from the effects of a partial or full detonation of a bomb or ordnance item. The major effects usually being shock, blast, heat and shrapnel damage. It should be noted that the detonation of a 50kg buried bomb could damage brick/concrete structures up to 16m away and unprotected personnel on the surface up to 70m away from the blast. Larger ordnance is obviously more destructive. Table 2 denotes recommended safe distance for UXO.

Table 2 Safety Distances for Personnel

UXO (Kg)	Safety Distances (m)			
	Surface UXO		Buried UXO	
	Protected	Unprotected	Protected	Unprotected
2	20	200	10	20
10	50	400	20	50
50	70	900	40	70
250	185	1100	120	185
500	200	1250	140	200
1000	275	1375	185	275
3000	450	1750	300	450
5000	575	1850	400	575

Explosives rarely become inert or lose effectiveness with age. Over time, fuzing mechanisms can become more sensitive and therefore more prone to detonation.

This applies equally to items that have been submersed in water or embedded in silt, clay, peat or similar materials.

Once initiated, the effects of the detonation of the explosive ordnance such as shells or bombs are usually extremely fast, often catastrophic and invariably traumatic to the personnel involved.

The degradation of a shell or bomb may also offer a source of explosive contamination into the underlying soils. Although this contamination may still present an explosion hazard, it is not generally recognised that explosives offer a significant toxicological risk at concentrations well below that at which a detonation risk exists.

2 SUMMARY OF PENETRATION DEPTHS

The maximum penetration depth at the site of bombs between 50kg and 1000kg has been calculated based on the site geology.

The above information assumes:

- A high level release with an impact velocity of 260m/s (>5,000 ft altitude).
- A strike angle of 10 - 15° to the vertical.
- That the bomb is stable in flight and on penetration.
- That no retarder units are fitted to the bomb.

A typical high altitude release bomb will enter the ground at between 10 and 15° (to the vertical) and will travel on this trajectory until momentum is nearly lost. The bomb will then turn abruptly to the horizontal before coming to rest. The distance between the centre of the entry hole and the centre of the bomb at rest is known as the "offset". A marked lateral movement from the original line of entry is not uncommon.

The average offset is approximately one third of the penetration depth, i.e. an offset of 2.0m may be expected for a 50kg bomb in clay soils. Hard standing on the site can result in an offset increasing by some four times. It should be noted that bombs striking buildings might be deflected to give a wider variation in the impact angle.

The expected average bomb depths in normal ground and crater sizes are:

Table 1: Average Bomb Depths and Crater Size.

Serial	UXB ¹ Weight (Kg)	Average Depth ² (m)	Average Crater Size ³ (m)	
			Buried	Surface
1	50	3.7	6.1 x 1.8	2.75 x 1.8
2	250	7.6	10 x 3	4.6 x 1.5
3	500	9.1	13.7 x 3.7	5.5 x 1.8
4	1000	10.7	17 x 4.9	7.9 x 2.4
5	1800	12.2	22 x 6	10 x 3

Notes:

1. UXB is for a General Purpose iron bomb.

2. Specialised UXB's will differ in depth, e.g. a Deep Penetration bomb is designed to penetrate to a greater depth than a General Purpose bomb.
3. Average craters dimensions relate to clay and should be multiplied by 0.6 for chalk, sand or gravel.
4. Bombs may have settled over the past 55 - 60 years and with the geology and water table on this site a high likelihood of movement can be expected.

3 TYPES OF ORDNANCE

3.1 HE Bombs

There are three types of HE bomb classification:

- HE Bombs:- GP (General Purpose) Thin Steel Cased 50kg, 250kg, 500kg, 1000kg and 1800kg.
- Semi Armour Piercing (SAP) Thick Steel Cased 50kg, 250kg, 500kg, 1000kg and 1400kg.
- Large Light Alloy Cased Bombs 1800kg or 2500kg.

3.2 Incendiary Bombs

Different types of incendiary can be classed as:

- 1kg Incendiary Bomb.
- Oil Bombs – Flam c 250 and Flam c 500.
- 4lb Cylindrical Anti-Personnel Bomb.
- Mines, 'C' and 'D' types with parachute and the 'G' type without.

4 German Aircraft used to Deliver Bombs over England and their Bomb Loads

The principle bombers, which operated over this country during the war was:

- 4.1 **Dornier 17.** This was a light bomber of the Blenheim type. A typical bomb load would consist of 2 x 250kg, 16 x 50kg or approximately 550 x 1kg incendiary bombs. A combination of all three types was sometimes used. The average total load carried by this aircraft during operations varied between 600kg and 1000kg.
- 4.2 **Heinkel 111 Bomber.** This aircraft could carry either 2 x 500kg, 8 x 250kg, 32 x 50kg or approximately 1100 x 1kg incendiary bombs. It could carry a combination of any of these four types. The typical average load for this aircraft was 1500kg.

4.3 Junkers 88. This aircraft could carry either 4 x 500kg, 4 x 250kg, 28 x 50kg or 1100 x 1kg incendiary bombs or any combination of these types. The typical average load for this aircraft was 1500kg.

The He 111 and the Ju88 were retro fitted with external bomb racks carrying 2 x 1000kg bombs, 2 x 'C', 'D' or 'G' type mines or 1 x 1,800kg bomb. Both aircraft could carry three of the large type Incendiary containers, which held either 700 or 360 1kg incendiary bombs.

Reports indicated that the He111 could carry 3 x 'G' type mines; however, this was considered exceptional.

Any of these aircraft could carry the Flam C 250 Oil bomb as an alternative to the relevant number of 250kg HE bombs also the Flam C 500 could be carried by the He 111 and the Ju 88 as an alternative to the 500kg bombs.

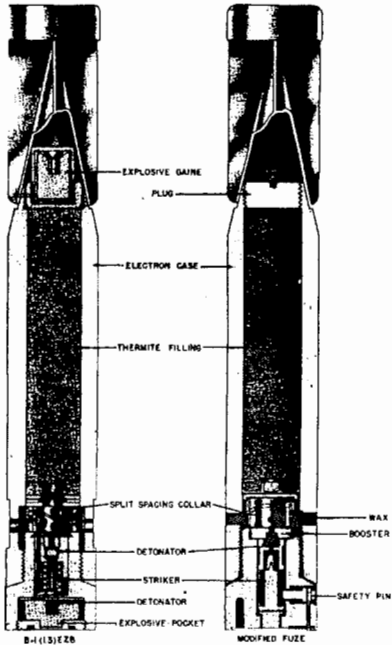
5 METHODS OF BOMB RELEASE

All bombs in the loads referred to above could be released singly, in salvoes or in sticks.

It must be remembered that a stick of bombs would vary in length and or shape according to the altitude and speed variation of the aircraft. A straight stick at regular intervals could only be achieved by straight and level flying during the bombing run.

WWII GERMAN INCENDIARIES

1Kg and 1.3kg INCENDIARIES

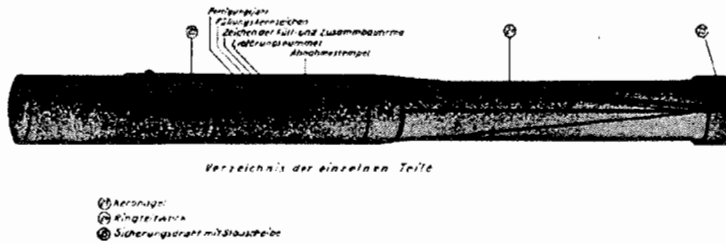


These are air dropped incendiary bomblets. The bomb is unpainted magnesium; the tail is dark green. The B1EZA and the B1.3EZA may have a red A stenciled on the nose and probably will have a Z stamped on the body near the tail. The B1EZB and the B1.3EZB may have a red B stenciled on the nose and a Z stamped on the body near the tail. The body is a cylindrical alloy casting, threaded internally at the nose to receive the fuze holder and fuze. The after body is tapered to receive the sheet metal, three-finned drum-shrouded tail assembly. The 1.3-kg and 1-kg bombs are identical except that the nose of the former is made of steel, while that of the latter is of light alloy.

Dimensions:

Diameter: 50.8mm
Length: 248mm

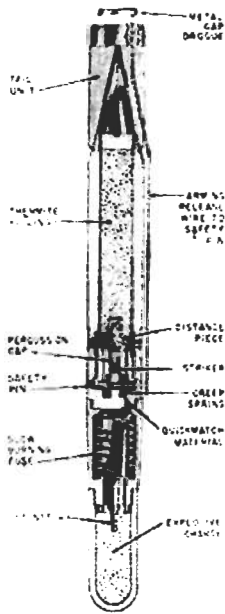
2Kg



This is a small incendiary bomb that has a High Explosive burster. The incendiary body is painted olive green, the tail dark green, and the H.E. container black, unpainted, or dark red. A Z is stamped on the body near the tail, and a red Z is stenciled on the nose. This bomb

consists of three main components: a tail unit, an incendiary body, and an H.E. attachment. The incendiary body is tapered at the after end to fit into the long tail cone and is reduced in diameter at the forward end to fit into the steel H.E. container. A steel plug is fitted into the after end of the incendiary body, while at the forward end are located an igniter pellet, a distance piece, a relay pellet and a black powder separating charge and housing. The H.E. container accommodates the penthrite charge and the fuze. The fuze is armed by a long arming rod which passes through the tail section and locks a spring-out safety pin. A metal wind cap, or drogue, is attached to the after end of the rod. The main body is steel. Dimensions: Diameter: 50.8mm Length: 527mm.

2.2Kg



These are small incendiary bombs dropped from bomb containers. The incendiary bomb proper is painted green over-all, the tail unit is painted dark green; the sleeve is unpainted and the H.E. container is painted bright red. The letter Z is stamped on the incendiary body near the tail. This bomb is similar to the 1-kg incendiary bomb, with modifications to the fuze container. These alterations are: external threading on the nose to receive a sleeve; an additional hole to receive a spring-out safety pin; the addition of a train of burning composition leading to the sleeve. The sleeve contains a length of safety fuse wound on a metal spool. The H.E. container is threaded to the base of the sleeve and contains a detonator to which the safety fuse leads.

These bombs are carried in several different sizes and types of containers.

Dimensions:

Diameter: 50.8mm
Length: 527mm

PARACHUTE MINE

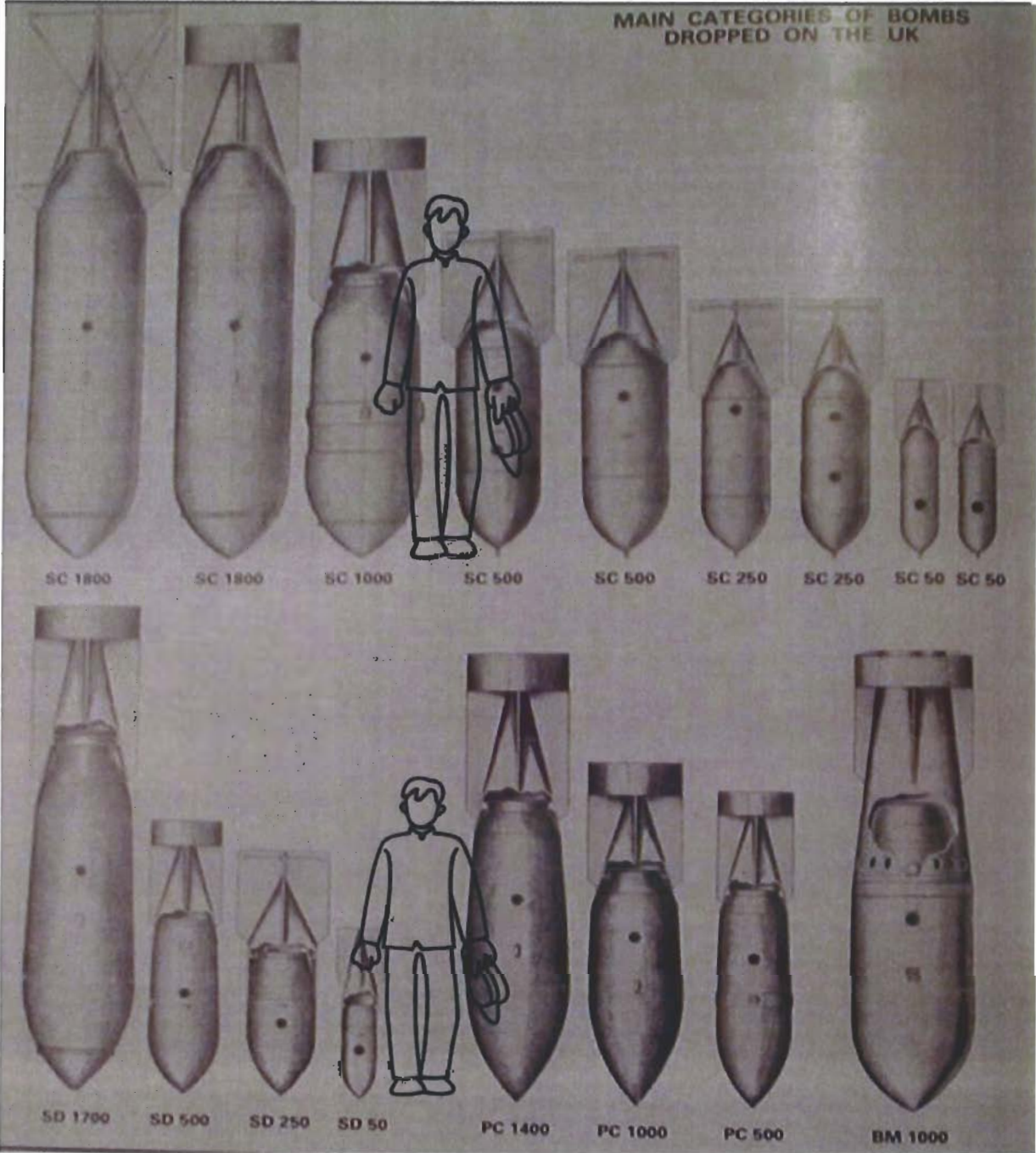


Type 'C' – 8ft 8in long weighing 1000kg with parachute.

Type 'D' – 5ft 8in long weighing 500kg with parachute.



Type 'G' – 6ft 6in long weighing 1000kg with bakelite tail unit.

The first intentional use of these mines against land targets commenced on the night of September 16, 1940, when numbers of both Type C and Type D mines were dropped in night raids. The mines, with their high charge ratio of 60 to 70 per cent explosive, created considerable blast damage in built-up areas.



Great Yarmouth Circa 1942 - 1954



Annex G to Desk Study Dated 6 th July 2007
Job No: 3154
Client: Norfolk Partnership Laboratory
Contractor:  MACC International Ltd Camilla Court Necton Ipswich IP10 0EU
 MOODY INTERNATIONAL U.S.A. INCORPORATED 1953
Project Title: Proposed 3 rd River Crossing, Great Yarmouth
Key:

Appendix I

LOCATION AND RISK MAP



BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154 20
Location:	BOREHOLE 102	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH102	11.09.07	MAGNETOMETER CHECK AT 1.2M
	0930	CLEARED TO 3M
BH102	11.09.07	MAGNETOMETER CHECK AT 3M
	1000	CLEARED TO 7M
BH102	11.09.07	MAGNETOMETER CHECK AT 7M
	1210	CLEARED TO 11M
BH102	11.09.07	STP AT 11M, 50-REFUSAL
	1445	DENSE MATERIAL, CLEARED
		TO PROCEED BEYOND
		EXPLOSIVE ORDNANCE
		PENETRATION DEPTH.


Name:	T FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154/22
Location:	BOREHOLE 104	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH104	14.09.07	MAGNETOMETER CHECK AT 1-2M
	1450	CLEARED TO 5M
BH104	17.09.07	MAGNETOMETER CHECK AT 5M
	1100	CLEARED TO 9M
BH104	17.09.07	MAGNETOMETER CHECK AT 9M
	1330	CLEARED TO 15M +
		CONSIDERED TO BE BEYOND
		MAXIMUM PENETRATION DEPTH
		OF LARGE EXPLOSIVE ORDNANCE

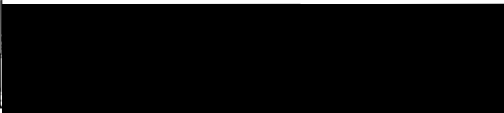
Name:	T. FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	13
Location:	GT YARMOUTH	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH106	30/8/07	CHECKED AT 9m END DENSITY AVERAGE 220


Name:	AE CANDLER
Company Position:	SENIOR TECHNICAL ADVISER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154	15
Location:	BOREHOLE 107.	Grid Reference:		

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH107	05.09.07 0910	MAGNETOMETER CHECK AT 1.6M CLEARED TO 6M.
BH107	05.09.07 1330	MAGNETOMETER CHECK AT 6M CLEARED TO 10M.
BH107	06.09.07 0845	MAGNETOMETER CHECK AT 10M CLEARED TO 16M, CONSIDERED TO BE MAXIMUM PENETRATION DEPTH OF EXPLOSIVE ORDNANCE

Name:	T. FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3134	Certificate No:	3134 23
Location:	BOREHOLE 110	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH110	14.09.07	MAGNETOMETER CHECK AT 1.2M
	1500	CLEARED TO 5M
BH110	17.09.07	MAGNETOMETER CHECK AT 5M
	1200	CLEARED TO 9M
BH110	17.09.07	MAGNETOMETER CHECK AT 9M
	1400	CLEARED TO 15M+
		CONSIDERED TO BE BEYOND
		MAXIMUM PENETRATION DEPTH
		OF LARGE EXPLOSIVE ORDNANCE
/		


Name:	T. FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154 21
Location:	BOREHOLE 112	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH112	11.09.07 0845	MAGNETOMETER CHECK AT 1.6M CLEARED TO 3M.
BH112	11.09.07 1050	MAGNETOMETER CHECK AT 3M CLEARED TO 7M.
BH112	11.09.07 1255	MAGNETOMETER CHECK AT 7M CLEARED TO 11M
BH112	12.09.07 1030	MAGNETOMETER CHECK AT 11M CLEARED TO 17M +.

Name:	T. FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No: 3154	Certificate No: 3154/25
Location: BOREHOLE 113	Grid Reference:

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH113	20.09.07	MAGNETOMETER CHECK AT 1.2M
	1000	CLEARED TO 2.5M
BH113	20.09.07	MAGNETOMETER CHECK AT 2.5M
	1130	CLEARED TO 6.5M
BH113	20.09.07	MAGNETOMETER CHECK AT 6.2M
	1400	CLEARED TO 10.2M
BH113	20.09.07	MAGNETOMETER CHECK AT 9M
	1545	CLEARED TO 15M+
		CONSIDERED TO BE BEYOND
		MAXIMUM PENETRATION DEPTH
		OF EXPLOSIVE ORDNANCE
		LARGE (500KG)

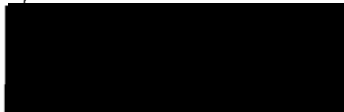
Name:	T. FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154/26
Location:	BOREHOLE 114	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH114	05.09.07 1150	MAGNETOMETER CHECK AT 1.2M HIGH READING - RELOCATE.
BH114a	05.09.07 1300	MAGNETOMETER CHECK AT 1.2M HIGH READING - RELOCATE.
BH114b	05.09.07 1345	MAGNETOMETER CHECK AT 1.2M HIGHEST READING YET. REVERT TO BH114.
BH114	05.09.07 1415	MAGNETOMETER CHECK AT 1.6M HIGH READING BUT DECREASING.
BH114	05.09.07	MAGNETOMETER CHECK AT 2.5M CLEARED TO 4M.
BH114	06.09.07 1015	MAGNETOMETER CHECK AT 4.2M HIGH READING.
BH114	1045 06.09.07	ABANDONED.

Name:	T. FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154/18
Location:	BOREHOLE 115	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH 115	05.09.07 0845	MAGNETOMETER CHECK AT 1.4M CLEARED TO 2M.
BH 115	05.09.07 1600	MAGNETOMETER CHECK AT 2M CLEARED TO 6M.
BH 115	06.09.07 1455	MAGNETOMETER CHECK AT 5M CLEARED TO 9M
BH 115	07.09.07 1520	MAGNETOMETER CHECK AT 8.8M CLEARED TO 14.8M, CONSIDERED TO BE MAXIMUM PENETRATION DEPTH OF EXPLOSIVE ORDNANCE.


Name:	T. FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	14
Location:	ST YARMOUTH	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH116	30/08/07	CHECKED AT 9m AVERAGE DENSITY 720

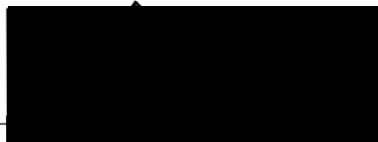
Name:	AE CANDLER
Company Position:	SENIOR TECHNICAL ADVISER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154 19
Location:	BOREHOLE 117	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
BH 117	07.09.07	MAGNETOMETER CHECK AT 1.2M
	1245	CLEARED TO 5M.
BH 117	10.09.07	MAGNETOMETER CHECK AT 5M
	1045	CLEARED TO 9M.
BH 117	10.09.07	MAGNETOMETER CHECK AT 9M
	1425	CLEARED TO 15M, CONSIDERED TO BE MAXIMUM PENETRATION DEPTH OF EXPLOSIVE ORDNANCE.

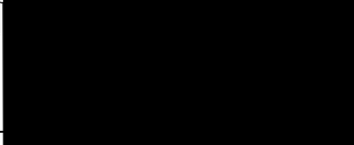
Name:	T. FITENI
Company Position:	MACC-ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154/16
Location:	WINDOW SAMPLE 104	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
WS 104	06.09.07 0940	MAGNETOMETER CHECK AT 1.2M CLEARED TO 2M
WS 104	06.09.07 1150	MAGNETOMETER CHECK AT 2M CLEARED TO 5M (MAX' DEPTH OF WS)

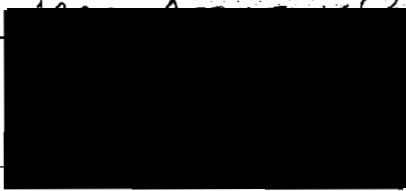
Name:	T FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154/17
Location:	WINDOW SAMPLE 107	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
WS107	07.09.07	MAGNETOMETER CHECK AT 1.2 M
	1120	CLEARED TO 5M

Name:	T. FITENI
Company Position:	PROJECTS MANAGER
Signature:	

BOREHOLE CLEARANCE CERTIFICATE

This is to certify as far as reasonably practicable MACC International Limited personnel have checked the following borehole and window sample positions for ferromagnetic anomalies.

Project No:	3154	Certificate No:	3154/24
Location:	TRIAL PITS	Grid Reference:	

BOREHOLE/WINDOW SAMPLE DESIGNATION	DATE	REMARKS
TP109	20.09.07 0925	CEASED AT 3M - CLEAR OF EXPLOSIVE ORDNANCE TO THIS DEPTH.
TP101	20.09.07 1110	CEASED AT 1.7M - CLEAR OF EXPLOSIVE ORDNANCE TO THIS DEPTH.
TP104	20.09.07 1345	CEASED AT 3.3M - CLEAR OF EXPLOSIVE ORDNANCE TO THIS DEPTH.

Name:	T. FITENI
Company Position:	MACC - ASSISTANT PROJECTS MANAGER
Signature:	


APPENDIX J

Contract : Great Yarmouth Pipeline		Borehole No. ADD3	
Client : East Anglia Pipeline Ltd			
Dates : 17.1.97-28.1.97	Job Number: 7809	Ground Level 2.55 mAOD.	
Location : Great Yarmouth	Engineer : J. P. Kenny	Coordinates: 52660.00 E 5320.00 N	

Samples & Tests				STRATA				
Depth	Type No	Test Result, N. (Blow Counts)	Depth (Thickness)	DESCRIPTION	Red. Level G.L.	Legend	Water	Install/Backfill
0.15-0.40	B1		0.15	Concrete (drillers description)	2.40			
0.40-0.80	B2		0.40	MADE GROUND: Brown/ grey silty very sandy fine to coarse subangular to subrounded gravel of concrete and brick fragments and gravel of lithologies, with occasional small subangular cobbles.	2.15			
1.20-1.65	SPT3	8 (1,0,2,2,2,2)	1.20	MADE GROUND: Brown slightly clayey silty sand, with much fine to coarse subangular to subrounded gravel (predominantly coarse) of mixed lithologies. Soft to firm brown/ black silty sandy CLAY, with some to much plant material present.	1.35			
2.00-2.45	SPT4	7 (1,1,2,2,1,2)	(1.80)	Below 2m depth, with occasional subrounded fine gravel, no plant material present.				
3.00-3.45	SPT5	17 (3,2,4,4,5,4)	3.00	Medium dense grey/ brown silty very sandy clayey fine subangular to subrounded GRAVEL of mixed lithologies.	-0.45			
4.00-4.45	B6	12 (2,1,3,2,4,3)	4.00	Medium dense brown very clayey silty fine to medium SAND, with some fine subangular to subrounded gravel of mixed lithologies.	-1.45			
4.80-5.10	B7		4.80	Medium dense brown very sandy fine to coarse subrounded to subangular GRAVEL of mixed lithologies, with occasional small subrounded to subangular cobbles. Medium dense to dense yellow brown fine to coarse predominantly fine to medium SAND with fine to much subangular to subrounded flint gravel.	-2.25			
5.10-5.50	B8		5.10		-2.55			
5.80-6.40	B9							
7.50-8.00	B10	55 (6,6,12,14,14,15)		Below 7.5m depth, becoming dense, with occasional small subangular to subrounded flint cobbles.				

Boring Progress and Water Observations						Groundwater			Chiselling		
Date	Time	Depth	Casing	Cas Dia	Water	Struck	Behaviour	Sealed	From	To	Hours
20.1.97	0900	4.40m	6.00m	200mm	2.10m	2.10m	Standing at 2.10 m				
20.1.97	1200	9.20m	9.20m	200mm	3.30m						
20.1.97	1730	15.00m	15.00m	200mm	6.20m						
21.1.97	0900	10.80m	15.00m	200mm	2.60m						
21.1.97	1600	15.20m	17.00m	200mm	2.70m						
24.1.97	0900	13.50m	18.00m	200mm	2.00m						
24.1.97	1230	25.30m	25.30m	150mm	6.40m						
24.1.97	1715	30.50m	30.50m	150mm	4.30m						
25.1.97	0900	30.50m	27.70m	150mm	2.00m						

Remarks: Equipment: Dando 175 percussion drilling rig, using 200mm and 150mm casing and tools.

 THYSSEN GEOTECHNICAL	Avonmouth, Bristol. Tel: 0117 9380100 Fax: 0117 9380200	Operator: I Brown	Sheet No. 1 Of 5	Scale: 1:50

Contract : Great Yarmouth Pipeline		Borehole No. ADD3	
Client : East Anglia Pipeline Ltd			
Dates : 17.1.97-28.1.97	Job Number: 7809	Ground Level	2.55 mAOD.
Location : Great Yarmouth	Engineer : J. P. Kenny	Coordinates:	52660.00 E 5320.00 N

Samples & Tests			STRATA					Water	Install/ Backfill
Depth	Type No	Test Result, N. (Blow Counts)	Depth (Thick- ness)	DESCRIPTION	Red. Level	Legend			
9	9.00-9.50	B11	44 (5,6,10,11,11,12)						
	9.60-9.70	D12							
10	10.00-10.45	SPT13	70 (8,8,18,18,17,17)						
	11.00-11.30	SPT14	59 (9,7,16,12,19,12)						
	11.30-11.40	D15							
12	12.00-12.45	SPT16	47 (3,3,11,11,13,12)						
	13.00-13.10	D17	43 (4,3,11,10,10,12)						
14	14.00-14.10	D18	38 (4,5,9,8,10,11)						
	15.00-15.10	D19	40 (3,3,12,9,9,10)						

Boring Progress and Water Observations						Groundwater			Chiselling		
Date	Time	Depth	Casing	Cas Dia	Water	Struck	Behaviour	Sealed	From	To	Hours
20.1.97	0900	4.40m	6.00m	200mm	2.10m	2.10m	Standing at 2.10 m				
20.1.97	1200	9.20m	9.20m	200mm	3.30m						
20.1.97	1730	15.00m	15.00m	200mm	6.20m						
21.1.97	0900	10.80m	15.00m	200mm	2.60m						
21.1.97	1600	15.20m	17.00m	200mm	2.70m						
24.1.97	0900	13.50m	18.00m	200mm	2.00m						
24.1.97	1230	25.30m	25.30m	150mm	6.40m						
24.1.97	1715	30.50m	30.50m	150mm	4.30m						
25.1.97	0900	30.50m	27.70m	150mm	2.00m						

Remarks: Equipment: Dando 175 percussion drilling rig, using 200mm and 150mm casing and tools.



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Contract : Great Yarmouth Pipeline		Borehole No. ADD3	
Client : East Anglia Pipeline Ltd			
Dates : 17.1.97-28.1.97	Job Number: 7809	Ground Level 2.55 mAOD.	
Location : Great Yarmouth	Engineer : J. P. Kenny	Coordinates: 52660.00 E 5320.00 N	

Samples & Tests			STRATA					Water	Install/ Backfill
Depth	Type No	Test Result, N. (Blow Counts)	Depth (Thick- ness)	DESCRIPTION	Red. Level	Legend			
17	16.50-16.60	D20	15 (1,1,2,4,5,4)	(25.05)	Below 16.5m depth, becoming medium dense.				
18	18.00-18.10	D22							
19	18.50-19.40	D22							
20									
21	20.50-20.60	SPT23	19 (2,2,5,4,5,5)						
22	22.00-22.10	SPT24	18 (1,2,4,4,5,5)						
23	23.00-23.10	SPT25	16 (1,1,5,3,4,4)						

Boring Progress and Water Observations						Groundwater			Chiselling		
Date	Time	Depth	Casing	Cas Dia	Water	Struck	Behaviour	Sealed	From	To	Hours
20.1.97	0900	4.40m	6.00m	200mm	2.10m	2.10m	Standing at 2.10 m				
20.1.97	1200	9.20m	9.20m	200mm	3.30m						
20.1.97	1730	15.00m	15.00m	200mm	6.20m						
21.1.97	0900	10.80m	15.00m	200mm	2.60m						
21.1.97	1600	15.20m	17.00m	200mm	2.70m						
24.1.97	0900	13.50m	18.00m	200mm	2.00m						
24.1.97	1230	25.30m	25.30m	150mm	6.40m						
24.1.97	1715	30.50m	30.50m	150mm	4.30m						
25.1.970	0900	30.50m	27.70m	150mm	2.00m						

Remarks: Equipment: Dando 175 percussion drilling rig, using 200mm and 150mm casing and tools.

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Contract : Great Yarmouth Pipeline		Borehole No. ADD3	
Client : East Anglia Pipeline Ltd			
Dates : 17.1.97-28.1.97	Job Number: 7809	Ground Level	2.55 mAOD.
Location : Great Yarmouth	Engineer : J. P. Kenny	Coordinates:	52660.00 E 5320.00 N

Samples & Tests				STRATA				Water	Install/ Backfill
Depth	Type No	Test Result, N. (Blow Counts)	Depth (Thick- ness)	DESCRIPTION	Red. Level	Legend			
24.00-25.50	D26								
25									
25.50-25.80	D27	21 (2,2,5,5,6,5)							
26									
27									
27.50-27.60	SPT28	30 (1,3,6,6,8,8)							
28									
28.50-28.80	SPT29	29 (3,4,7,7,8,7)							
29									
29.50-29.60	SPT30	26							
30									
30.20-30.30	D31	(2,2,6,6,6)	30.15	Soft to firm blueish grey silty slightly sandy (fine) CLAY.	-27.60				
31									
31.20-31.30	D32								
31.50-31.95	U33	Failed							

Boring Progress and Water Observations						Groundwater			Chiselling		
Date	Time	Depth	Casing	Cas Dia	Water	Struck	Behaviour	Sealed	From	To	Hours
20.1.97	0900	4.40m	6.00m	200mm	2.10m	2.10m	Standing at 2.10 m				
20.1.97	1200	9.20m	9.20m	200mm	3.30m						
20.1.97	1730	15.00m	15.00m	200mm	6.20m						
21.1.97	0900	10.80m	15.00m	200mm	2.60m						
21.1.97	1800	15.20m	17.00m	200mm	2.70m						
24.1.97	0900	13.50m	18.00m	200mm	2.00m						
24.1.97	1230	25.30m	25.30m	150mm	6.40m						
24.1.97	1715	30.50m	30.50m	150mm	4.30m						
25.1.970	0900	30.50m	27.70m	150mm	2.00m						

Remarks: Equipment: Dando 175 percussion drilling rig, using 200mm and 150mm casing and tools.



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Contract : Great Yarmouth Pipeline		Borehole No. ADD3	
Client : East Anglia Pipeline Ltd			
Dates : 17.1.97-28.1.97	Job Number: 7809	Ground Level	2.55 mAOD.
Location : Great Yarmouth	Engineer : J. P. Kenny	Coordinates:	52660.00 E 5320.00 N

Samples & Tests				STRATA				Water	Install/ Backfill
Depth	Type No	Test Result, N. (Blow Counts)	Depth (Thick- ness)	DESCRIPTION	Red. Level	Legend			
32.95-33.10	B34		(4.85)			X	///		
33						X	///		
33.10-33.40	D36					X	///		
33.40-33.85	U37	(57)				X	///		
34						X	///		
33.85-34.00	D38					X	///		
34.00-35.00	B39					X	///		
35			35.00	End of borehole at 35m	-32.45	X	///		

Boring Progress and Water Observations						Groundwater			Chiselling		
Date	Time	Depth	Casing	Cas Dia	Water	Struck	Behaviour	Sealed	From	To	Hours
20.1.97	0900	4.40m	6.00m	200mm	2.10m	2.10m	Standing at 2.10 m				
20.1.97	1200	9.20m	9.20m	200mm	3.30m						
20.1.97	1730	15.00m	15.00m	200mm	6.20m						
21.1.97	0900	10.80m	15.00m	200mm	2.60m						
21.1.97	1600	15.20m	17.00m	200mm	2.70m						
24.1.97	0900	13.50m	18.00m	200mm	2.00m						
24.1.97	1230	25.30m	25.30m	150mm	6.40m						
24.1.97	1715	30.50m	30.50m	150mm	4.30m						
25.1.970	0900	30.50m	27.70m	150mm	2.00m						

Remarks: Equipment: Dando 175 percussion drilling rig, using 200mm and 150mm casing and tools.



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Appendix K

number	landowner	occupier	surface	comments
BH 101	Regaland Ltd	Sprunt engineering	hardcore	suffolk road enterprise park, owner = Mr Low (02088061234), occupier Mark Maroini (01493 650 833)
BH 102	Port and Haven	GY Port Company	concrete	on quay, GYPC - John Saddington (01493 852480) - needs plan of locations
BH 103	ncc	GYBC	hardcore	see 112
BH 104	Venture Forth 2000	central tyres	concrete	see tp109 Mike Futter (01493 331112) has plans, call Friday 27th july
BH 105	ncc	GYBC	tarmac	Andy Dyson (01493 846479) haras fence
BH 106	ncc	east coast diesel	rough concrete	Andy Dyson (01493 846479) haras fence, East Coast Diesel (01493 332334)
BH 107	ncc	community centre	grass	Andy Dyson (01493 846479) haras fence, remove fencing community centre 07733034397
BH 108	ncc	GYBC	grass	Andy Dyson (01493 846479)
BH 109	ncc	GYBC	tarmac	Andy Dyson (01493 846479) haras fence
BH 110	ASCO	ASCO	prob asphalt	asco barbera aldous (01493 848058) NOT ON THURSDAYS
BH 111	Venture Forth 2000	gybc planning offices	soil	reinstatement = 0.5 m type 1 - use this area to site compound? See 112 as well
BH 112	Venture Forth 2000	4 < than	soil	see tp109 Mike Futter (01493 331112) has plans, call Friday 27th july
BH 113	Venture Forth 2000	DSL	soil	Mike Futter (01493 331112) has plans, call Friday 27th july
BH 114	ncc	port authority?	tarmac on quay	Andy Dyson (01493 846479) haras fence
BH 115	Venture Forth 2000	swire	asphalt on concrete	see 112 and swire manager Paul Edwards (01493 330307)
BH 116	GY warehouse Company	GY warehouse Company	tarmac	steven thorpe (01493 852411)
BH 117	ASCO	ASCO	concrete on quay	asco barbera aldous (01493 848058)
WS 103	ncc	GYBC	asphalt	Andy Dyson (01493 846479)
WS 104	ncc	car park	asphalt and cobbles	Andy Dyson (01493 846479) fencing
WS 105	ncc	GYBC	asphalt	Andy Dyson (01493 846479)
WS 106	ncc	GYBC	asphalt	Andy Dyson (01493 846479) fencing
WS 107	ncc	GYBC	rough concrete	Andy Dyson (01493 846479) easier to WS
WS 108	ncc	GYBC	Broken concrete	Andy Dyson (01493 846479) easier to WS on track used as parking
WS 110	ncc	GYBC	asphalt	Andy Dyson (01493 846479) chapter 8 needed, better to WS
WS 111	ncc	GYBC	grass	street light cables better for WS, Andy Dyson (01493 846479)
TP 101	Venture Forth 2000	central tyres	concrete	see tp109 Mike Futter (01493 331112) has plans, call Friday 27th july
TP 104	ncc	GYBC	grass	on verge, need board and ch8 fence Andy Dyson (01493 846479)
TP 109	Venture Forth 2000	4 < than	hardcore / chippings	and bh112 see bh 112 and call glen / tony from Freight Storage on 01493 663445 reinstate with 0.5 type 1