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2nd January 2020

Jelson Homes Limited,
370 Loughborough Road
Leicester,
LE4 5PR

For the attention of Alan Food

Dear Alan,

Residential Development at Littleworth Drove, Deeping St Nicholas – Localised Elevated PAH.

In response to the notification from South Holland District Council Environmental Protection Officer (Jade Clarke in an e-mail dated 28th November 2019) that planning condition 11 of H03-0331-16 could still not be discharged until a remediation method statement had been drafted.

Background

Following the initial intrusive ground investigation works undertaken at the site in July 2019 and submission by Jelson Homes Limited of ground investigation report no. G19102-IR (dated August 2019) to South Holland District Council a response confirmed general agreement with the reports findings but declined to remove a planning condition relating to localised elevated levels of PAH's. In order to provide additional information relating to the south western corner of the site additional trial pitting and subsequent laboratory testing was undertaken. Our further findings and recommendations were provided in a letter dated 15th November 2019. The area of the site covered in topsoil mixed with ash and locally building waste containing elevated levels of PAH'S was confirmed to cover a localised area of approximately 20m x 20m.

Remediation Method Statement for Treatment of Elevated PAH's 'Hotspot'

The area of the site containing topsoil contaminated with elevated PAH's (identified within trial pits TP5, TP17B, TP18 and TP24) should be set out and clearly identified (In practice this will not be too difficult as the ash considered to represent the source of the contamination is clearly visible). A copy of the exploratory hole location plan identifying the trial pit locations is attached.

In order to protect the site from groundwater flooding it is understood that the developer proposes to increase the ground level across the entire site area by approximately 1m. Utilising either inert imported soils or, in terms of proposed access roads, approved carriageway construction materials.

Given that the soils within the delineated 'hotspot' containing elevated levels of PAH (ranging in depth from 0.30m to 0.60m) are predominantly topsoil based and contain organic matter it is recommended that they should be stripped (and not buried) to reveal the underlying typically orangish brown predominantly granular and locally cohesive natural soils prior to covering with imported inert cohesive soils (proposed to a depth of 1m).

Of note, apart from the sample recovered at a depth of 0.20m within trial pit TP17B, all of the remaining test results which exceed the '*residential with plant uptake*' trigger levels comply with the '*public open space residenti*al' trigger levels. A copy of the relevant test results is attached.

It is understood that the developer would like to redistribute the contaminated soils on site rather than remove to landfill. It is considered that the soils removed from the 'hotspot' could be utilised in areas of proposed public open space but at a depth below 0.60m and capped with imported inert soils.

Ground Gases

Boreholes WS1-WS4 inclusive including gas/groundwater monitoring pipes were formed at the site to depths ranging from 5.00m to 6.00m utilising windowless sample drilling techniques on 2nd September 2019 (the locations are shown on the attached exploratory hole location plan).

Four gas/groundwater monitoring visits have subsequently been carried out over a period of approximately 10 weeks (the results are attached). Unfortunately, the gas monitoring installation within borehole WS4 was destroyed towards the end of October during construction of a new access road and the installation within borehole WS3 became inaccessible at a similar time as that area of the site became and has since remained flooded.

During the completed period of gas monitoring a maximum level of methane of 3.1% has been recorded within borehole WS3 and a maximum level of 5.6% carbon dioxide within borehole WS2. No positive gas flows have been recorded.

Reference to BS 8485:2015 document suggests the site should therefore be classified as a Characteristic Situation 1' based on the data obtained. This identifies the site as being at very low risk from underlying ground gases. However given the marginally elevated levels of methane (3.1%) and carbon dioxide (5.6%) gas concentrations recorded (exceeding 1.0% & 5.0% v/v respectively) it is recommended that in accordance with BS 8485:2015 that the classification should be increased to 'Characteristic Situation 2'.

Based on the above taking into account the proposed end use of the site (residential) and the presence of naturally occurring peat bands underlying the site it is recommended that gas protection measures in accordance with BS 8485:2015 be installed into the new building foundations at the site.

Arrangements have been made to install a further 3 gas monitoring installations at a level coincident with the increased ground levels at the site to allow monitoring to continue for an extended period of time.

We trust the contents of this letter are satisfactory and if so should be forwarded to the South Holland District Council Environmental Protection Officer for further review. Please do not hesitate to contact the writer should you wish to discuss the findings or require any further information.

Yours faithfully,



N. Birchenough
Geotechnical Engineer
NICHOLLS COLTON GROUP

Ref: G19102-LR2
Enc.
Trial Pit Logs
Windowless sample borehole logs
Exploratory Hole Location Plan
Laboratory Test Results

TRIAL PIT LOG - TP5

Site:
Land off Littleworth Drive, Deeping St Nicholas, Lincolnshire.

Client:	Method of Excavation:	Dimensions:	Project No.:
Jelson Homes Limited.	Mechanical Excavator	3.50m x 0.60m	G19102

Logged by: NB	Ground Level:	Date: 02/07/2019	Location: -	Scale: 1:25

Samples and In situ Tests			Water	Level (mAOD)	Depth (m)	Strata Description	Legend	Backfill
Ref:	Depth (m)	Result						
E1	0.10					MADE GROUND - brown TOPSOIL with many brick fragments and occasional slate, ceramics and plastic.		
E2	0.50				0.50			
D3	0.60					Pale brown locally orangish brown very silty fine SAND.		
					1.10			
HSV	1.20	28 KPa				Soft pale brown and orangish brown CLAY.		
			▼		1.90			
D4	2.00	14 KPa				Very soft grey locally orangsih brown CLAY with many dark brown peat fibres.		
HSV	2.00							
D5	2.30							
HSV	2.40	12 KPa						
					2.50			

Remarks and Water Observations

Sheet 1 of 1

1. Groundwater seepages were encountered at 1.90m.
2. No collapse of the trial pit walls occurred.
3. The trial pit was backfilled with the accumulated spoil compacted with the excavator bucket.

TRIAL PIT LOG - TP17B

Site:
Residential Development on Land Off Littleworth Drove, Deeping St Nicholas.

Client:	Method of Excavation:	Dimensions:	Project No.:
Jelson Homes Limited.	Mechanical Excavator	1.50m x 0.60m	G19102

Logged by: NB	Ground Level:	Date: 25/10/2019	Location: -	Scale: 1:25

Samples and In situ Tests			Water	Level (mAOD)	Depth (m)	Strata Description	Legend	Backfill
Ref:	Depth (m)	Result						
					0.10	MADE GROUND - brown TOPSOIL.		
E1	0.20					MADE GROUND - brown and pale reddish brown whole/half bricks and fragments in a mixed topsoil and sand matrix.		
					0.40	Orangish brown silty fine SAND.		
					0.60			

Remarks and Water Observations

Sheet 1 of 1

1. No groundwater seepages were encountered during excavation of the trial pit.
2. No collapse of the trial pit walls occurred.
3. The trial pit was backfilled with the accumulated arisings.

TRIAL PIT LOG - TP18

Site:
Residential Development on Land Off Littleworth Drove, Deeping St Nicholas.

Client:	Method of Excavation:	Dimensions:	Project No.:
Jelson Homes Limited.	Mechanical Excavator	1.50m x 0.60m	G19102

Logged by: NB	Ground Level:	Date: 25/10/2019	Location: -	Scale: 1:25

Samples and In situ Tests			Water	Level (mAOD)	Depth (m)	Strata Description	Legend	Backfill
Ref:	Depth (m)	Result						
E1	0.30				0.60	MADE GROUND - brown TOPSOIL with many whole and half bricks.		
D2	0.70				0.80	Firm orangish brown and pale grey slightly sandy, silty CLAY.		

Remarks and Water Observations

Sheet 1 of 1

1. No groundwater seepages were encountered during excavation of the trial pit.
2. The trial pit walls remained stable.
3. The trial pit was backfilled with the accumulated spoil arisings.

TRIAL PIT LOG - TP24

Site:
Residential Development on Land Off Littleworth Drove, Deeping St Nicholas.

Client:	Method of Excavation:	Dimensions:	Project No.:
Jelson Homes Limited.	Mechanical Excavator	1.50m x 0.60m	G19102

Logged by: NB	Ground Level:	Date: 25/10/2019	Location: -	Scale: 1:25

Samples and In situ Tests			Water	Level (mAOD)	Depth (m)	Strata Description	Legend	Backfill
Ref:	Depth (m)	Result						
E1	0.15				0.30	MADE GROUND - brown TOPSOIL with many brick fragments.		
					0.60	Firm orangish and pale brown slightly sandy CLAY/SILT.		

Remarks and Water Observations

Sheet 1 of 1

1. No groundwater seepages were encountered during excavation of the trial pit.
2. The trial pit walls remained stable.
3. The trial pit was backfilled with the accumulated spoil arisings.

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Analytical Test Report:	**G19102-A/001**		
Your Project Reference:	**Land Off Littleworth Drive, Deeping St Nicholas, Lincs**	Samples Received on:	09/07/2019
Your Order Number:	G19102-A	Testing Instruction Received:	09/07/2019
Report Issue Number:	1	Sample Tested:	09/07 to 19/07/2019
Samples Analysed:	20 soil samples	Report issued:	19/07/2019

Signed



Peter Swanston
Environmental Laboratories Manager
Nicholls Colton Group

Notes:

General

Please refer to Methodologies tab for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report with the exception of the asbestos test portion which is held for 6 months unless otherwise requested.

Moisture Content was determined in accordance with NC method statement MS - CL - Sample Prep, oven dried at <30˚C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with NC method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

With the exception of Sulphate, Sulphur and LoI which are crushed over the 2mm test sieve, concentrations are reported as a percentage mass of the dry soil passing the 10mm BS test sieve. As received samples have been corrected for moisture content but not stone content.

Samples were supplied by customer, results are representative of the material provided

Asbestos

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

Deviating Samples

Samples were received in suitable containers	**Yes**
A date and time of sampling was provided	**Yes**
Sample holding times were exceeded prior to analysis of determinants	**Yes**

Where samples do not meet one or more of the above criteria they will be classed as deviating, this means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue 24.01.2017
Owned by Emily Blissett - Customer Services Supervisor
Authorised by James Gane - Commercial Manager
J:\Public\Projects\2019\LE3 - Geotechnical\G19\G19102-A\[G19102-A-001.xlsx]Cover Sheet

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G19102-A/001

Project Reference - Land Off Littleworth Drive, Deeping St Nicholas, Lincs

Analytical Test Results - NCG Soil Suite

NC Reference			43978	43981	43982	43984	43987	43989	43992
Client Sample Reference			TP1	TP4	TP5	TP6	TP9	TP10	TP14
Client Sample Location			E1	E1	E1	E1	E1	E1	E1
Depth - Top (m)			0.10	0.30	0.10	0.20	0.10	0.10	0.20
Depth - Bottom (m)			0.10	0.30	0.10	0.20	0.10	0.10	0.20
Date of Sampling			02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019	03/07/2019
Time of Sampling			AM	AM	AM	AM	PM	PM	AM
Sample Matrix			Clay	Clay	Sand	Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**							
Arsenic	(mg/kg)	MCERTS	12	15	17	11	11	11	11
Cadmium	(mg/kg)	MCERTS	0.7	0.4	0.8	1.0	0.9	0.6	0.6
Chromium (Total)	(mg/kg)	UKAS	21	11	14	18	20	18	20
Copper	(mg/kg)	MCERTS	36	37	46	160	24	28	24
Lead	(mg/kg)	MCERTS	46	120	190	110	46	38	30
Mercury	(mg/kg)	UKAS	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Nickel	(mg/kg)	MCERTS	26	18	27	25	23	20	24
Zinc	(mg/kg)	MCERTS	110	84	230	320	130	78	71
Phenols (Total)	(mg/kg)	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
pH	pH Units	MCERTS	7.6	8.0	8.2	7.6	7.4	6.6	6.8
Acenaphthene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.20	0.03	< 0.02	< 0.02	< 0.02
Acenaphthylene	(mg/kg)	UKAS	< 0.02	0.04	0.35	0.05	< 0.02	0.02	< 0.02
Anthracene	(mg/kg)	UKAS	< 0.02	0.09	0.57	0.18	< 0.02	0.04	< 0.02
Benzo (a) anthracene	(mg/kg)	MCERTS	0.10	0.39	2.3	0.66	0.08	0.20	0.05
Benzo (a) pyrene	(mg/kg)	MCERTS	0.10	0.41	2.8	0.65	0.08	0.23	0.06
Benzo (b) fluoranthene	(mg/kg)	MCERTS	0.16	0.59	3.8	0.92	0.12	0.34	0.09
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	0.08	0.28	2.2	0.43	0.06	0.18	0.05
Benzo (k) fluoranthene	(mg/kg)	MCERTS	0.05	0.21	1.4	0.33	0.05	0.12	0.03
Chrysene	(mg/kg)	MCERTS	0.12	0.42	2.5	0.71	0.10	0.24	0.07
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	< 0.02	0.07	0.53	0.10	< 0.02	0.04	< 0.02
Fluoranthene	(mg/kg)	MCERTS	0.17	0.69	4.0	1.5	0.16	0.37	0.11
Fluorene	(mg/kg)	MCERTS	< 0.02	0.03	< 0.20	0.04	< 0.02	< 0.02	< 0.02
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	0.07	0.27	2.1	0.39	0.05	0.16	0.04
Naphthalene	(mg/kg)	MCERTS	< 0.02	0.06	< 0.20	0.06	< 0.02	< 0.02	< 0.02
Phenanthrene	(mg/kg)	MCERTS	0.06	0.35	1.5	0.57	0.07	0.13	0.05
Pyrene	(mg/kg)	MCERTS	0.15	0.61	3.7	1.3	0.14	0.33	0.09
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	1.2	4.5	28	7.9	1.1	2.5	0.80
SOM (via TOC)	(%)	UKAS	8.3	-	-	-	-	-	-
Asbestos	-	UKAS	-	-	No asbestos detected	-	-	No asbestos detected	-
Pesticide Screen	(mg/kg)	u	Detected <1mg/kg DDD	-	-	-	Detected <1mg/kg DDD	-	Detected <1mg/kg DDD

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G19102-A/001

Project Reference - Land Off Littleworth Drive, I

Analytical Test Results - NCG Soil Suite

NC Reference			43994	43995	43996
Client Sample Reference			TP15	TP15	TP16
Client Sample Location			E2	D4	E1
Depth - Top (m)			0.70	2.50	0.20
Depth - Bottom (m)			0.70	2.50	0.20
Date of Sampling			03/07/2019	03/07/2019	03/07/2019
Time of Sampling			AM	AM	AM
Sample Matrix			Clay	Clay	Clay
Determinant	**Units**	**Accreditation**			
Arsenic	(mg/kg)	MCERTS	13	27	< 10
Cadmium	(mg/kg)	MCERTS	0.5	0.6	0.5
Chromium (Total)	(mg/kg)	UKAS	20	24	15
Copper	(mg/kg)	MCERTS	20	13	18
Lead	(mg/kg)	MCERTS	27	22	25
Mercury	(mg/kg)	UKAS	< 2.5	< 2.5	< 2.5
Nickel	(mg/kg)	MCERTS	25	33	18
Zinc	(mg/kg)	MCERTS	72	69	53
Phenols (Total)	(mg/kg)	MCERTS	< 1.0	< 1.0	< 1.0
pH	pH Units	MCERTS	7.5	6.9	7.1
Acenaphthene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Acenaphthylene	(mg/kg)	UKAS	< 0.02	< 0.02	< 0.02
Anthracene	(mg/kg)	UKAS	< 0.02	< 0.02	0.04
Benzo (a) anthracene	(mg/kg)	MCERTS	0.06	< 0.02	0.14
Benzo (a) pyrene	(mg/kg)	MCERTS	0.05	< 0.02	0.16
Benzo (b) fluoranthene	(mg/kg)	MCERTS	0.09	< 0.02	0.24
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	0.05	< 0.02	0.13
Benzo (k) fluoranthene	(mg/kg)	MCERTS	0.03	< 0.02	0.09
Chrysene	(mg/kg)	MCERTS	0.07	< 0.02	0.17
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	< 0.02	< 0.02	0.03
Fluoranthene	(mg/kg)	MCERTS	0.11	< 0.02	0.26
Fluorene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	0.03	< 0.02	0.11
Naphthalene	(mg/kg)	MCERTS	< 0.02	< 0.02	< 0.02
Phenanthrene	(mg/kg)	MCERTS	0.07	< 0.02	0.10
Pyrene	(mg/kg)	MCERTS	0.09	< 0.02	0.24
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	0.79	< 0.32	1.8
SOM (via TOC)	(%)	UKAS	-	2.7	-
Asbestos	-	UKAS	-	-	-
Pesticide Screen	(mg/kg)	u	-	-	Detected <1mg/kg DDD

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Leicester
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G19102-A/001

Project Reference - Land Off Littleworth Drive, Deeping St Nicholas, Lincs

Analytical Test Results - BRE Suite

NC Reference			43979	43980	43983	43985	43988	43990	43991
Client Sample Reference			TP1	TP2	TP5	TP8	TP9	TP10	TP13
Client Sample Location			D5	D3	E2	D3	D3	D3	E1
Depth - Top (m)			2.50	1.30	0.50	1.30	1.60	1.30	0.50
Depth - Bottom (m)			2.50	1.30	0.50	1.30	1.60	1.30	0.50
Date of Sampling			02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019	02/07/2019	03/07/2019
Time of Sampling			AM	AM	AM	PM	PM	PM	AM
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**							
Water soluble sulphate	(mg/l)	u	630	29	56	2400	2300	160	24
Acid Soluble Sulphate	(%)	u	0.21	0.03	0.03	1.84	-	-	-
Total Sulphur	(%)	u	0.09	0.02	0.02	0.65	-	-	-
pH Value	pH Units	MCERTS	7.5	8.1	8.1	6.8	5.2	7.5	7.1

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G19102-A/001

Project Reference - Land Off Littleworth Drive

Analytical Test Results - BRE Suite

NC Reference			43993	43994	43995	43997
Client Sample Reference			TP14	TP15	TP15	TP16
Client Sample Location			D2	E2	D4	D3
Depth - Top (m)			0.70	0.70	2.50	1.20
Depth - Bottom (m)			0.70	0.70	2.50	1.20
Date of Sampling			03/07/2019	03/07/2019	03/07/2019	03/07/2019
Time of Sampling			AM	AM	AM	AM
Sample Matrix			Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**				
Water soluble sulphate	(mg/l)	u	290	180	1400	110
Acid Soluble Sulphate	(%)	u	0.11	-	-	-
Total Sulphur	(%)	u	0.05	-	-	-
pH Value	pH Units	MCERTS	7.3	7.5	6.9	7.6

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G19102-A/001

Project Reference - Land Off Littleworth Drive, Deeping St Nicholas, Lincs

Sample Descriptions

NC Reference	Client Sample Reference	Sample Location	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
43978	TP1	E1	Dark brown slightly silty clay with occasional rootlets	29	0.8	-
43979	TP1	D5	Greyish brown slightly sandy silty clay	-	-	58
43980	TP2	D3	Greyish brown slightly sandy silty clay	-	-	98
43981	TP4	E1	Dark brown slightly sandy slightly gravelly silty clay with rare organic matter	18	42	-
43982	TP5	E1	Brown gravelly silty sand with rare organic matter	12	36	-
43983	TP5	E2	Light brown slightly gravelly sandy clay	-	-	100
43984	TP6	E1	Dark brown slightly silty sandy clay with occasional organic matter	27	1.5	-
43985	TP8	D3	Greyish brown slightly sandy silty clay with occasional organic matter	-	-	71
43986	TP8	D4	Grey silty clay	53	2.0	-
43987	TP9	E1	Brown slightly silty clay with occasional organic matter	25	1.8	-
43988	TP9	D3	Grey slightly sandy silty clay with rare rootlets	83	0.0	93
43989	TP10	E1	Dark brown slightly gravelly slightly sandy silty clay with rare rootlets	22	4.5	-
43990	TP10	D3	Mottled grey brown slightly sandy silty clay with rare organic matter	-	-	77
43991	TP13	E1	Dark brown slightly sandy silty clay	-	-	82
43992	TP14	E1	Dark brown slightly silty clay with occasional organic matter	32	1.2	-
43993	TP14	D2	Brown silty clay	-	-	90
43994	TP15	E2	Brown slightly sandy silty clay with rare organic matter	29	2.1	99
43995	TP15	D4	Grey silty clay with rare organic matter	52	2.3	92
43996	TP16	E1	Brown slightly silty clay with occasional organic matter	20	1.5	-
43997	TP16	D3	Mottled brown grey silty clay with rare organic matter	-	-	60

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G19102-A/001

Project Reference - Land Off Littleworth Drive, Deeping St Nicholas, Lincs

Analysis Methodologies

Matrix	Determinant	Sample condition for analysis	Test Method used
Soil	Metals	Air Dried	In house method statement - MS - CL - ICP metals
Soil	PAH	As Received	In house method statement - MS - CL - PAH (As received)
Soil	Phenols	As Received	In house method statement - MS - CL - Phenols by Skalar
Soil	pH	As Received	In house method statement - MS - CL - pH in soils (using a 1:3 soil to water extraction)
Soil	SOM	Air Dried	In house method statement - MS - CL - TOC Eltra
Soil	Sulphate (w/s)	Oven Dried	In house method statement - MS - CL - Anions by Aquakem
Soil	Acid Sulphate	Oven Dried	In house method statement - MS - CL - Acid Soluble Sulphate
Soil	Total Sulphur	Oven Dried	In house method statement - MS - CL - Total Sulphur by ICP
Soil	Asbestos	-	Fibre identification is in accordance with in house documented methods which are based on the procedure documented in the HSE Document HSG 248 "Asbestos: The analysts guide for sampling, analysis and clearance procedures"

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Analytical Test Report: G19102-C/001 - Amendment A

Your Project Reference:	**Deeping St Nicholas**	Samples Received on:	25/10/2019
Your Order Number:	G19102-C	Testing Instruction Received:	25/10/2019
Report Issue Number:	2	Sample Tested:	25/10 to 08/11/2019
Samples Analysed:	26 soil samples	Report issued:	02/01/2020

Signed

Peter Swanston
Environmental Laboratories Manager
Nicholls Colton Group

Notes:

General

Please refer to Methodologies tab for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report with the exception of the asbestos test portion which is held for 6 months unless otherwise requested.

Moisture Content was determined in accordance with NC method statement MS - CL - Sample Prep, oven dried at <30˚C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with NC method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

With the exception of Sulphate and Sulphur which are crushed over the 2mm test sieve, concentrations are reported as a percentage mass of the dry soil passing the 10mm BS test sieve. As received samples have been corrected for moisture content but not stone content.

Samples were supplied by customer, results are representative of the material provided

Asbestos

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

Deviating Samples

Samples were received in suitable containers	**Yes**
A date and time of sampling was provided	**Yes**
Sample holding times were exceeded prior to analysis of determinants	**No**

Where samples do not meet one or more of the above criteria they will be classed as deviating, this means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue 24.01.2017
Owned by Emily Blissett - Customer Services Supervisor
Authorised by James Gane - Commercial Manager
J:\Public\Projects\2019\LE3 - Geotechnical\G19\G19102-C\[G19102-C-001A.xlsx]Cover Sheet

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7 - 11 Harding Street
Leicester
LE1 4DH

G19102-C/001 - Amendment A

Project Reference - Deeping St Nicholas

Analytical Test Results - NCG Soil Suite

NC Reference			59296	59297	59299	59300	59301	59303	59304
Client Sample ID			-	-	-	-	-	-	-
Client Sample Location			TP17B	TP18	TP19	TP19	TP20	TP21	TP22
Client Sample Type			E	E	E	E	E	E	E
Client Sample Number			1	1	1	2	1	1	1
Depth - Top (m)			0.20	0.30	0.20	0.50	0.20	0.30	0.20
Depth - Bottom (m)			0.20	0.30	0.20	0.50	0.20	0.30	0.20
Date of Sampling			25/10/2019	25/10/2019	25/10/2019	25/10/2019	25/10/2019	25/10/2019	25/10/2019
Time of Sampling			am	am	am	am	am	am	am
Sample Matrix			Clay	Clay	Clay	Clay	Sand	Clay	Clay
Determinant	**Units**	**Accreditation**							
Arsenic	(mg/kg)	MCERTS	12	13	-	18	17	-	-
Cadmium	(mg/kg)	MCERTS	0.5	0.6	-	0.4	0.7	-	-
Chromium (Total)	(mg/kg)	UKAS	18	17	-	20	19	-	-
Copper	(mg/kg)	MCERTS	20	24	-	21	140	-	-
Lead	(mg/kg)	MCERTS	27	72	-	35	180	-	-
Mercury	(mg/kg)	UKAS	< 2.5	< 2.5	-	< 2.5	< 2.5	-	-
Nickel	(mg/kg)	MCERTS	20	19	-	23	26	-	-
Zinc	(mg/kg)	MCERTS	200	94	-	64	77	-	-
Phenols (Total)	(mg/kg)	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0	-	-
pH	pH Units	MCERTS	8.1	8.0	-	7.8	7.9	-	-
Acenaphthene	(mg/kg)	MCERTS	7.7	< 0.20	0.04	< 0.02	< 0.20	0.08	0.06
Acenaphthylene	(mg/kg)	UKAS	< 2.00	< 0.20	0.06	0.07	< 0.20	0.08	< 0.02
Anthracene	(mg/kg)	UKAS	19	0.48	0.28	0.23	< 0.20	0.31	0.18
Benzo (a) anthracene	(mg/kg)	MCERTS	33	2.3	0.89	0.87	0.59	1.2	0.46
Benzo (a) pyrene	(mg/kg)	MCERTS	24	3.1	0.88	0.72	0.93	1.0	0.41
Benzo (b) fluoranthene	(mg/kg)	MCERTS	33	3.9	1.2	0.96	1.2	1.5	0.57
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	12	2.2	0.56	0.39	0.95	0.61	0.25
Benzo (k) fluoranthene	(mg/kg)	MCERTS	12	1.5	0.45	0.40	0.41	0.55	0.21
Chrysene	(mg/kg)	MCERTS	31	2.6	0.95	0.80	0.68	1.3	0.50
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	3.1	0.44	0.13	0.11	< 0.20	0.15	0.06
Fluoranthene	(mg/kg)	MCERTS	110	4.1	1.8	1.5	1.1	2.6	1.0
Fluorene	(mg/kg)	MCERTS	7.2	< 0.20	0.06	0.04	< 0.20	0.11	0.07
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	15	2.2	0.61	0.42	0.85	0.65	0.24
Naphthalene	(mg/kg)	MCERTS	< 2.00	< 0.20	< 0.02	< 0.02	< 0.20	0.04	< 0.02
Phenanthrene	(mg/kg)	MCERTS	84	1.6	0.74	0.48	0.59	1.5	0.80
Pyrene	(mg/kg)	MCERTS	86	4.0	1.6	1.4	1.0	2.1	0.86
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	480	29	10	8.4	9.7	14	5.7
Asbestos	-	UKAS	-	No asbestos detected	-	-	No asbestos detected	-	-

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Project Reference - Deeping St Nicholas

Analytical Test Results - NCG Soil Suite

NC Reference			59305	59307
Client Sample ID			-	-
Client Sample Location			TP23	TP24
Client Sample Type			E	E
Client Sample Number			1	1
Depth - Top (m)			0.30	0.15
Depth - Bottom (m)			0.30	0.15
Date of Sampling			25/10/2019	25/10/2019
Time of Sampling			am	am
Sample Matrix			Sand	Clay
Determinant	**Units**	**Accreditation**		
Arsenic	(mg/kg)	MCERTS	18	-
Cadmium	(mg/kg)	MCERTS	0.6	-
Chromium (Total)	(mg/kg)	UKAS	17	-
Copper	(mg/kg)	MCERTS	19	-
Lead	(mg/kg)	MCERTS	48	-
Mercury	(mg/kg)	UKAS	< 2.5	-
Nickel	(mg/kg)	MCERTS	18	-
Zinc	(mg/kg)	MCERTS	81	-
Phenols (Total)	(mg/kg)	MCERTS	< 1.0	-
pH	pH Units	MCERTS	9.0	-
Acenaphthene	(mg/kg)	MCERTS	0.03	1.3
Acenaphthylene	(mg/kg)	UKAS	0.15	< 0.20
Anthracene	(mg/kg)	UKAS	0.25	3.4
Benzo (a) anthracene	(mg/kg)	MCERTS	1.0	5.7
Benzo (a) pyrene	(mg/kg)	MCERTS	1.2	4.3
Benzo (b) fluoranthene	(mg/kg)	MCERTS	1.9	5.8
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	0.87	2.2
Benzo (k) fluoranthene	(mg/kg)	MCERTS	0.64	2.3
Chrysene	(mg/kg)	MCERTS	1.5	6.2
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	0.16	0.53
Fluoranthene	(mg/kg)	MCERTS	3.0	14
Fluorene	(mg/kg)	MCERTS	0.04	1.4
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	0.87	2.1
Naphthalene	(mg/kg)	MCERTS	0.03	< 0.20
Phenanthrene	(mg/kg)	MCERTS	1.1	13
Pyrene	(mg/kg)	MCERTS	2.8	12
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	16	76
Asbestos	-	UKAS	No asbestos detected	No asbestos detected

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Project Reference - Deeping St Nicholas

Analytical Test Results - BRE Suite

NC Reference			59298	59302	59306	59308	59309	59310	59311
Client Sample ID			-	-	-	-	-	-	-
Client Sample Location			TP18	TP20	TP23	TP25	TP26	TP26	TP27
Client Sample Type			D	D	D	D	D	D	D
Client Sample Number			2	2	2	1	1	2	1
Depth - Top (m)			0.70	0.80	0.50	0.80	0.30	0.60	0.70
Depth - Bottom (m)			0.70	0.80	0.50	0.80	0.30	0.60	0.70
Date of Sampling			25/10/2019	25/10/2019	25/10/2019	25/10/2019	25/10/2019	25/10/2019	25/10/2019
Time of Sampling			am	am	am	am	am	am	am
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**							
Water soluble sulphate	(mg/l)	u	170	30	180	42	< 10	73	63
Acid Soluble Sulphate	(%)	u	0.06	0.03	0.05	0.03	-	0.05	0.05
Total Sulphur	(%)	u	0.03	0.02	0.02	0.02	-	0.02	0.02
pH Value	pH Units	MCERTS	8.2	8.1	8.5	8.3	7.4	8.0	8.1

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Project Reference - Deeping St Nicholas

Analytical Test Results - BRE Suite

NC Reference			59312	59313	59314	59315	59316	59317	59318
Client Sample ID			-	-	-	-	-	-	-
Client Sample Location			TP28	TP28	TP29	TP30	TP31	SP32	SP33
Client Sample Type			D	D	D	D	D	D	D
Client Sample Number			1	2	1	1	1	1	1
Depth - Top (m)			0.60	0.90	0.60	0.90	0.50	-	-
Depth - Bottom (m)			0.60	0.90	0.60	0.90	0.50	-	-
Date of Sampling			25/10/2019	25/10/2019	25/10/2019	25/10/2019	25/10/2019	25/10/2019	25/10/2019
Time of Sampling			am	am	am	am	am	am	am
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**							
Water soluble sulphate	(mg/l)	u	400	530	140	610	51	130	53
Acid Soluble Sulphate	(%)	u	-	0.15	0.09	0.38	0.07	0.10	-
Total Sulphur	(%)	u	-	0.07	0.05	0.14	0.05	0.10	-
pH Value	pH Units	MCERTS	7.5	7.6	7.9	8.0	7.9	8.1	8.1

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Project Reference - Deeping St Nicholas

Analytical Test Results - BRE Suite

NC Reference			59319	59320	59321
Client Sample ID			-	-	-
Client Sample Location			SP34	SP35	SP36
Client Sample Type			D	D	D
Client Sample Number			1	1	1
Depth - Top (m)			-	-	-
Depth - Bottom (m)			-	-	-
Date of Sampling			25/10/2019	25/10/2019	25/10/2019
Time of Sampling			am	am	am
Sample Matrix			Clay	Clay	Clay
Determinant	**Units**	**Accreditation**			
Water soluble sulphate	(mg/l)	u	68	180	340
Acid Soluble Sulphate	(%)	u	0.09	-	0.17
Total Sulphur	(%)	u	0.06	-	0.18
pH Value	pH Units	MCERTS	8.1	8.2	8.1

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Project Reference - Deeping St Nicholas

Sample Descriptions

NC Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
59296	-	TP17B	E	1	Made Ground- brown slightly sandy slightly gravelly silty clay with rare brick fragments organic matter	30	3.7	-
59297	-	TP18	E	1	Made Ground- brown slightly sandy slightly gravelly silty clay with rare brick fragments organic matter	19	35	-
59298	-	TP18	D	2	Brown slightly sandy slightly gravelly silty clay	-	-	97
59299	-	TP19	E	1	Dark brown slightly sandy gravelly silty clay with rare rootlets	22	35	-
59300	-	TP19	E	2	Dark brown slightly sandy slightly gravelly silty clay	64	4.5	-
59301	-	TP20	E	1	Made Ground- dark grey gravelly sand with rare organic matter	17	30	-
59302	-	TP20	D	2	Brown slightly sandy slightly gravelly silty clay	-	-	98
59303	-	TP21	E	1	Dark brown slightly sandy slightly gravelly silty clay with rare rootlets	36	2.2	-
59304	-	TP22	E	1	Made Ground- dark brown slightly sandy slightly gravelly silty clay with rare brick fragments	35	3.8	-
59305	-	TP23	E	1	Made Ground- brown clayey gravelly silty sand with frequent brick fragments with rare organic matter	33	11	-
59306	-	TP23	D	2	Orangish brown slightly sandy silty clay	-	-	100
59307	-	TP24	E	1	Made Ground- dark brown slightly sandy slightly gravelly silty clay with occasional brick fragments organic matter	29	27	-
59308	-	TP25	D	1	Brown slightly sandy silty clay	-	-	100
59309	-	TP26	D	1	Brown slightly sandy silty clay with rare organic matter	-	-	99
59310	-	TP26	D	2	Orangish brown slightly sandy silty clay with rare rootlets	-	-	81
59311	-	TP27	D	1	Orangish brown slightly sandy silty clay	-	-	71
59312	-	TP28	D	1	Grey brown slightly sandy silty clay	-	-	53
59313	-	TP28	D	2	Mottled brownish grey slightly sandy silty clay	-	-	65
59314	-	TP29	D	1	Mottled grey brown slightly sandy silty clay	-	-	68
59315	-	TP30	D	1	Mottled brownish grey slightly sandy silty clay	-	-	60
59316	-	TP31	D	1	Mottled brownish grey slightly sandy silty clay with rare rootlets	-	-	80
59317	-	SP32	D	1	Mottled grey brown slightly sandy silty clay	-	-	74
59318	-	SP33	D	1	Mottled grey brown slightly sandy silty clay	-	-	55
59319	-	SP34	D	1	Mottled grey brown slightly sandy silty clay	-	-	83
59320	-	SP35	D	1	Mottled brown grey slightly sandy slightly gravelly silty clay	-	-	59
59321	-	SP36	D	1	Mottled brown grey	-	-	67

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Project Reference - Deeping St Nicholas

Analysis Methodologies

Matrix	Determinant	Sample condition for analysis	Test Method used
Soil	Metals	Air Dried	In house method statement - MS - CL - ICP metals
Soil	PAH	As Received	In house method statement - MS - CL - PAH (As received)
Soil	Phenols	As Received	In house method statement - MS - CL - Phenols by Skalar
Soil	pH	As Received	In house method statement - MS - CL - pH in soils (using a 1:3 soil to water extraction)
Soil	Sulphate (w/s)	Oven Dried	In house method statement - MS - CL - Anions by Aquakem
Soil	Acid Sulphate	Oven Dried	In house method statement - MS - CL - Acid Soluble Sulphate
Soil	Total Sulphur	Oven Dried	In house method statement - MS - CL - Total Sulphur by ICP
Soil	Asbestos	-	Fibre identification is in accordance with in house documented methods which are based on the procedure documented in the HSE Document HSG 248 "Asbestos: The analysts guide for sampling, analysis and clearance procedures"

BOREHOLE RECORD - WS1

Window Sampler

Site:
Land off Littleworth Drove, Deeping St Nicholas, Lincolnshire.

Client:	Boring Diameter:	Casing Diameter:	Project No.:
Jelson Homes Limited.	150mm to 6.00m	150mm to 5.00m	G19102

Logged by: NB	Ground Level:	Date: 02/09/19	Location: -	Scale: 1:50

Samples and In situ Tests			Water	Level (mAOD)	Depth (m)	Strata Description	Legend	Backfill
Ref:	Depth (m)	SPT N						
						Dark brown TOPSOIL with many roots.		
					0.40	Firm orangish brown and grey mottled CLAY with occasional roots. *... becoming soft from 0.80m.* *... including decayed roots from 1.30m.*		
					1.90	Very soft grey locally brown CLAY with many small (less than 25mm) pockets of peat.		
					2.50	Very soft brownish grey CLAY with many decaying ancient roots and a slight organic odour.		
			▼		3.30	Very soft grey silty CLAY with a slight organic odour.		
					5.60	Orangish brown fine to coarse SAND and fine to medium sub-angular to sub-rounded quartz GRAVEL.		
					6.00			

Remarks and Water Observations

Sheet 1 of 1

1. Groundwater seepages were encountered at 3.30m during window sampling operations.
2. Gas/groundwater monitoring pipe (slotted from 1.00m) installed to base of borehole at 6.00m.

BOREHOLE RECORD - WS2

Window Sampler

Site:
Land off Littleworth Drove, Deeping St Nicholas, Lincolnshire.

Client:	Boring Diameter:	Casing Diameter:	Project No.:
Jelson Homes Limited.	150mm to 5.00m	150mm to 5.00m	G19102

Logged by: NB	Ground Level:	Date: 02/09/19	Location: -	Scale: 1:50

Samples and In situ Tests			Water	Level (mAOD)	Depth (m)	Strata Description	Legend	Backfill
Ref:	Depth (m)	SPT N						
						MADE GROUND - brown TOPSOIL with occasional brick fragments and roots.		
					0.50	Firm orangish brown and grey mottled slightly silty CLAY.		
					0.70	Firm orangish brown and grey mottled silty, slightly sandy CLAY.		
					1.00	Soft orangish brown and grey CLAY with occasional roots.		
					1.70	Very soft grey and brown CLAY with many small (less than 25mm) pockets of peat and rotting ancient vegetation and a slight organic odour. *... becoming grey from 2.20m.*		
					4.30	Soft grey and brown peaty CLAY.		
					4.50	Dark brown predominantly amorphous plastic PEAT with occassional decaying wood fibres.		
					4.70	Very soft grey and brown peaty CLAY.		
					5.00			

Remarks and Water Observations

Sheet 1 of 1

1. No definitive groundwater seepages were encountered during window sampling operations.
2. Gas/groundwater monitoring pipe (slotted from 1.00m) installed to base of borehole at 5.00m.

BOREHOLE RECORD - WS3

Window Sampler

Site:
Land off Littleworth Drove, Deeping St Nicholas, Lincolnshire.

Client:	Boring Diameter:	Casing Diameter:	Project No.:
Jelson Homes Limited.	150mm to 5.00m	150mm to 4.00m	G19102

Logged by: NB	Ground Level:	Date: 02/09/19	Location: -	Scale: 1:50

Samples and In situ Tests			Water	Level (mAOD)	Depth (m)	Strata Description	Legend	Backfill
Ref:	Depth (m)	SPT N						
						Brown TOPSOIL with many root hairs.		
					0.50	Firm orangish brown and grey mottled CLAY.		
					0.80	Soft grey brown and dark brown mottled CLAY with many small (less than 25mm) pockets of peat.		
					2.20	Very soft grey CLAY with occasional rotting ancient roots and a slight organic odour.		
					3.40	Soft greyish brown CLAY with many fine gravel sized shells.		
					3.60	Very soft grey CLAY.		
					3.70	Brown predominantly amorphous plastic PEAT with occassional decaying wood fibres.		
					3.90	Very soft grey peaty CLAY.		
					4.40	Firm brown clayey fibrous PEAT with much decaying ancient wood.		
					4.55	Very soft grey and brown peaty CLAY.		
					4.70	Moist grey and brown silty fine to coarse SAND.		
					5.00			

Remarks and Water Observations

Sheet 1 of 1

1. No definitive groundwater seepages were encountered during window sampling operations.
2. Gas/groundwater monitoring pipe (slotted from 1.00m) installed to base of borehole at 5.00m.

BOREHOLE RECORD - WS4

Window Sampler

Site:
Land off Littleworth Drove, Deeping St Nicholas, Lincolnshire.

Client:	Boring Diameter:	Casing Diameter:	Project No.:
Jelson Homes Limited.	150mm to 6.00m	150mm to 5.00m	G19102

Logged by: NB	Ground Level:	Date: 02/09/19	Location: -	Scale: 1:50

Samples and In situ Tests			Water	Level (mAOD)	Depth (m)	Strata Description	Legend	Backfill
Ref:	Depth (m)	SPT N						
						Brown TOPSOIL with many roots.		
					0.40	Orangish brown very silty fine SAND.		
					0.90	Soft orangish brown and grey mottled slightly silty very sandy CLAY.		
					1.70	Soft orangish brown and grey mottled CLAY with many rotting ancient roots.		
			▼		2.40	Very soft grey and brown CLAY with many small (less than 25mm) pockets of peat.		
					3.50	Very soft grey CLAY.		
					4.00	Soft grey CLAY with many decaying ancient roots.		
					4.40	Brown predominantly amorphous plastic PEAT with occassional decaying wood fibres.		
					4.55	Very soft grey CLAY with much rotting ancient vegetation and occasional small (less than 50mm) pockets of peat.		
					5.40	Firm brown clayey fibrous PEAT with much decaying ancient wood.		
					5.60	Very soft grey CLAY with many small (less than 25mm) pockets of peat.		
					5.90	Grey silty fine to coarse SAND.		
					6.00			

Remarks and Water Observations

Sheet 1 of 1

1. Slight groundwater seepages were encountered at 2.30m during window sampling operations.
2. Gas/groundwater monitoring pipe (slotted from 1.00m) installed to base of borehole at 6.00m.

MONITORING REPORT

SITE: Deeping St Nicholas.

GAS AND GROUNDWATER MONITORING RESULTS

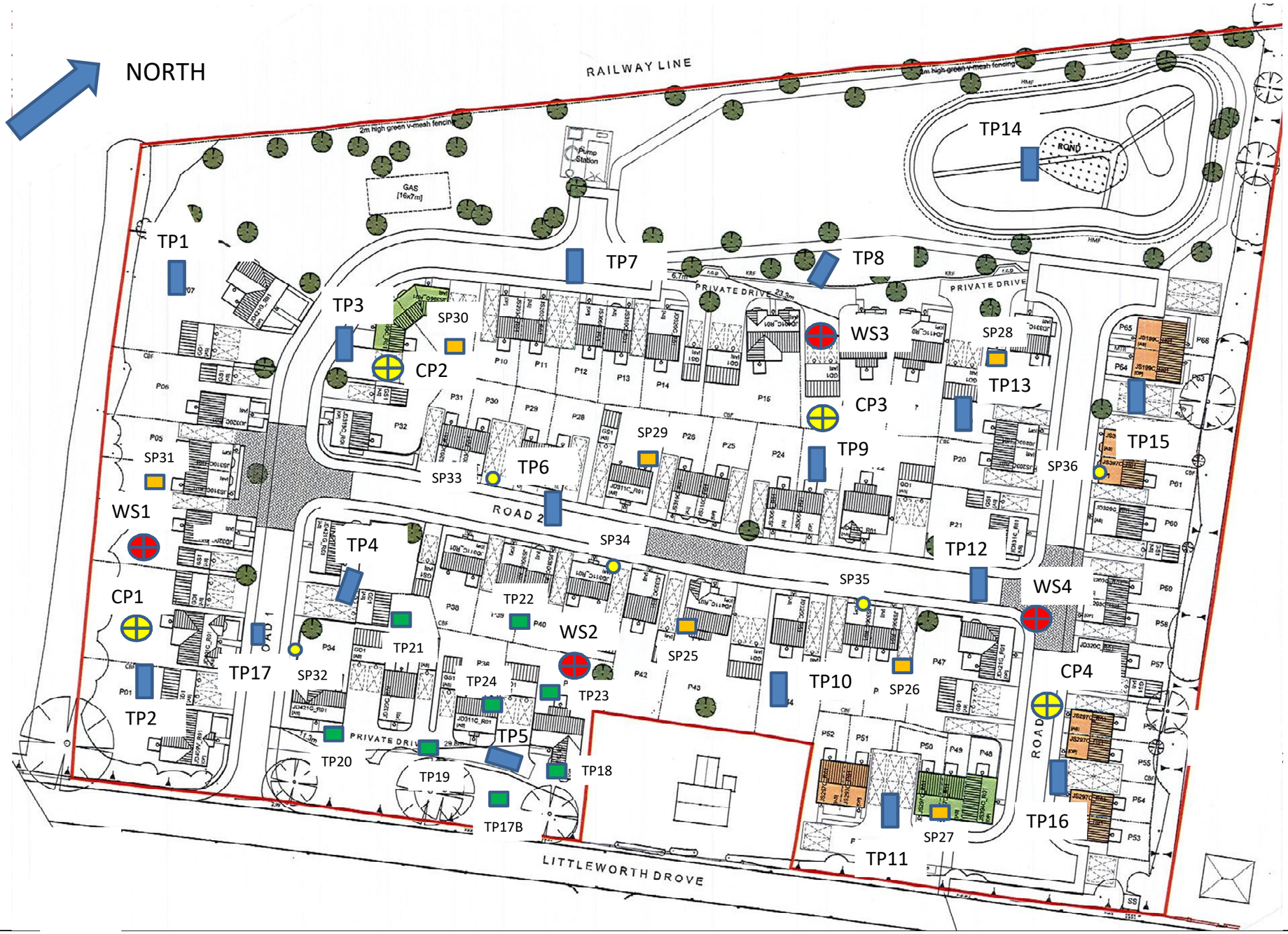
Date			11/09/19	10/10/19	30/10/19	12/11/19		
Monitored By			AW	WI	TC	DW		
Time Start			11.20	14.35	10.30	8.50		
Gas Monitoring Unit			GA5000	GA5000	GA5000	GA5000		
Unit Serial Number			G501285	G501285	G501285	G501285		
Dipmeter			7	7	5	5		
Weather			Overcast	Showers	Sunny	Overcast		
Pressure Trend			Rising	Falling	Rising	Falling		
WS1	Time		11.29	14.53	10.45	8.50		
	Barometric Pressure (mb)		1014	1007	1025	991		
	Relative Pressure (mb)		0.05	0.01	0.10	0.01		
	Flow (l/hr)	Peak	0.0	0.0	0.0	0.0		
		Steady	0.0	0.0	0.0	0.0		
	Methane	Peak	0.0	0.0	0.0	0.0		
	(% v/v)	Steady	0.0	0.0	0.0	0.0		
	Methane	Peak	0.0	0.0	0.0	0.0		
	(% LEL)	Steady	0.0	0.0	0.0	0.0		
	Carbon	Peak	0.5	0.7	0.1	0.1		
	Dioxide (% v/v)	Steady	0.5	0.4	0.1	0.1		
	Oxygen	Min	20.2	20.0	20.9	20.0		
	(% v/v)	Steady	20.2	20.0	20.9	20.0		
	Hydrogen	Peak	9	0	0	0		
	Sulphide (ppm)	Steady	0	0	0	0		
	Carbon	Peak	1	0	0	0		
	Monoxide (ppm)	Steady	0	0	0	0		
	Groundwater Level (m bgl)		1.15	1.00	0.45	0.33		
	Pipe depth (m bgl)		5.59	6.00	5.80	5.80		
WS2	Time		11.37	14.59	10.30	8.36		
	Barometric Pressure (mb)		1014	1007	1024	992		
	Relative Pressure (mb)		-0.07	0.01	0.51	-0.33		
	Flow (l/hr)	Peak	0.0	0.0	0.0	0.0		
		Steady	0.0	0.0	0.0	0.0		
	Methane	Peak	0.2	0.0	0.0	0.1		
	(% v/v)	Steady	0.2	0.0	0.0	0.1		
	Methane	Peak	4.0	0.0	0.0	2.0		
	(% LEL)	Steady	4.0	0.0	0.0	2.0		
	Carbon	Peak	5.6	2.0	0.7	2.4		
	Dioxide (% v/v)	Steady	5.6	2.0	0.7	2.4		
	Oxygen	Min	11.9	10.1	19.8	19.1		
	(% v/v)	Steady	11.9	10.1	19.8	19.1		
	Hydrogen	Peak	0	0	0	1		
	Sulphide (ppm)	Steady	0	0	0	0		
	Carbon	Peak	1	0	0	0		
	Monoxide (ppm)	Steady	1	0	0	0		
	Groundwater Level (m bgl)		3.12	4.25	0.43	0.15		
	Pipe depth (m bgl)		5.20	5.50	5.25	5.25		

Note: on 12/11/2019 Borehole installation WS1 was venting as bung had been dislodged.

SITE: Deeping St Nicholas.

GAS AND GROUNDWATER MONITORING RESULTS

Date			11/09/19	10/10/19	30/10/19	12/11/19		
Monitored By			AW	WI	TC	DW		
Time Start			11.20	14.35	10.30	8.50		
Gas Monitoring Unit			GA5000	GA5000	GA5000	GA5000		
Unit Serial Number			G501285	G501285	G501285	G501285		
Dipmeter			7	7	5	5		
Weather			Overcast	Showers	Sunny	Overcast		
Pressure Trend			Rising	Falling	Rising	Falling		
WS3	Time		13:40	09:36				
	Barometric Pressure (mb)		1015	1010				
	Relative Pressure (mb)		-8.69	-0.89				
	Flow (l/hr)	Peak	-1.2	-0.8				
		Steady	0.0	-0.8				
	Methane	Peak	3.1	2.5				
	(% v/v)	Steady	3.1	2.5	W	W		
	Methane	Peak	62.0	50.0	A	A		
	(% LEL)	Steady	62.0	50.0	T	T		
	Carbon	Peak	1.3	1.5	E	E		
	Dioxide (% v/v)	Steady	1.3	1.5	R	R		
	Oxygen	Min	18.7	19.5	L	L		
	(% v/v)	Steady	18.7	19.5	O	O		
	Hydrogen	Peak	0	0	G	G		
	Sulphide (ppm)	Steady	4	0	G	G		
	Carbon	Peak	1	1	E	E		
	Monoxide (ppm)	Steady	1	1	D	D		
	Groundwater Level (m bgl)		2.00	1.21				
	Pipe depth (m bgl)		4.70	5.00				
WS4	Time		11.47	14.45				
	Barometric Pressure (mb)		1015	1010				
	Relative Pressure (mb)		-0.03	-0.04				
	Flow (l/hr)	Peak	0.0	0.0				
		Steady	0.0	0.0				
	Methane	Peak	0.0	0.0	D	D		
	(% v/v)	Steady	0.0	0.0	E	E		
	Methane	Peak	0.0	0.0	S	S		
	(% LEL)	Steady	0.0	0.0	T	T		
	Carbon	Peak	1.1	1.4	R	R		
	Dioxide (% v/v)	Steady	1.1	1.4	O	O		
	Oxygen	Min	19.4	20.0	Y	Y		
	(% v/v)	Steady	19.4	20.0	E	E		
	Hydrogen	Peak	0	0	D	D		
	Sulphide (ppm)	Steady	0	0				
	Carbon	Peak	1	1				
	Monoxide (ppm)	Steady	1	1				
	Groundwater Level (m bgl)		1.21	1.41				
	Pipe depth (m bgl)		4.85	4.90				



Key:

- Window Sample borehole with gas monitoring installation
- Cable Percussion borehole
- Trial Pit Location
- EHO planning condition trial pit Location
- Sulphate Investigation trial pit location
- Sample Location for imported fill Sulphate test

NICHOLLS COLTON GROUP

Client:
Jelson Homes Limited

Project:
Land off Littleworth Drove, Deeping St Nicholas, Lincolnshire.

Title:
Exploratory Hole Location Plan.

Date:	Drawing No.
October 2019	G19102-IR/02B