GROUND ENGINEERING LIMITED

Newark Road
Peterborough
PE1 5UA
Tel: 01733 566566
e: admin@groundengineering.co.uk

VERIFICATION REPORT

PEAR TREE FARM
ST. JAMES ROAD
LONG SUTTON
LINCOLNSHIRE

Report Reference C15075B

On behalf of:-

Nene Transport (Lincs) Limited
Greenworld Park
Sutton Bridge
Spalding
Lincolnshire
PE12 9RN

August 2022

GROUND ENGINEERING LIMITED
Newark Road Peterborough PE1 5UA
t: 01733 566566
e: admin@groundengineering.co.uk
Company Registration Number 6929574

Nene Transport (Lincs) Limited
Greenworld Park
Sutton Bridge
Spalding
Lincolnshire
PE12 9RN

Our Ref: SW/C15075B
17th August 2022

Verification Report - Remediation Works at Pear Tree Farm, St. James Road, Long Sutton, Lincolnshire

Introduction

Ground Engineering Limited was instructed by the client, Nene Transport (Lincs) Limited, to inspect a previously identified total petroleum hydrocarbon (TPH) hotspot area to identify if it had been remediated by excavation works during the construction of foundations. If hydrocarbon impacted soils were identified they were to be removed and replaced with soils suitable for use in the new residential development, a proposal that was discussed and agreed in principal with the Environmental Protection Officer at South Holland District Council. It was also agreed with the Council that previously undertaken gas monitoring should be reviewed to BS8485:2015 standards. Remediation and validation requirements were set out in a Remedial Method Statement by Ground Engineering Limited, report reference C15075A dated September 2020, for the client Nene Transport (Lincs) Limited.

Validation was to comprise site inspection and testing in the former hotspot area to confirm that the soils were suitable for retention in the residential development, which relates to Condition 9 of planning reference H11-0245-18, to demonstrate that the site has been remediated to a standard suitable for the approved use.

Remediation Work carried out by the Client

It was understood that the client Nene Transport (Lincs) Limited undertook the clearance of the site, which included removal of above ground fuel tanks, and selection of clean crushed concrete for placement beneath proposed hardstanding areas of the site, which was principally completed by July 2022. No unexpected contamination was reported during the works by the client's site work contractor. The investigation area (TP1, TP2 and TP3), and location of a former above ground fuel tank associated with the hotspot of TPH, are shown on a site plan to the rear of the report text.

The former hotspot area was inspected by an engineer from Ground Engineering Limited on 28th June 2022, following completion of the foundations and prior to placement of the ground floor slab. Photographs of the completed excavated area, and investigation areas, are presented following the plans at the rear of this report.

Source of Clean Crushed Concrete

Following demolition of the former building and breaking out of the former hardstanding, selected clean site derived crushed concrete would be suitable for use in the proposed residential development.

Validation Works by Ground Engineering Limited

A site visit to record the remediation works and undertake hand auger boreholes in the area of the former TPH hotspot was undertaken by an engineer from Ground Engineering Limited on 28th June 2022. The holes were excavated using hand tools to between 0.50m and 1.90m depth at locations TP1, TP2 and TP3, to inspect the soils present following the construction of the foundations. The exposed strata were sampled and recorded by a Geoenvironmental Engineer. Representative small disturbed samples of the soils present were taken from each of the holes. Samples were tested to determine the TPH concentrations in the soils, and whether the remaining soils were suitable for use within a residential setting. The investigation locations and the approximate overlain positions of the former above ground fuel tank and structures are shown on the exploratory hole location plan following this report text.

Following the findings of the 28th June 2022 investigation, it was agreed with the client that the hydrocarbon impacted soils at the location of TP2 should be removed from beneath the building footprint. No elevated hydrocarbons were identified in the adjacent TP1 and TP3 locations, and an excavation outside of the building footprint adjacent TP2 found that crushed hardcore had replaced the original soils in this proposed hardstanding area, with no evidence of hydrocarbon contamination.

A site visit to record the remediation excavation at the TP2 location was undertaken by an engineer from Ground Engineering Limited on 28th July 2022. The excavation, denoted TP2A, was approximately 3.50m by 3.40m in extent, and 1.25m deep. The exposed strata in the pit sides were inspected and sampled by a Geoenvironmental Engineer, and samples were tested to determine the TPH concentrations in the soils.

Photographs of the investigation area, and following excavation of TP2A, as well as a proposed crushed hardcore/subsoil stockpile for use in the backfill of the excavation, are presented following the plans.

The exploratory hole records, presented following the photographs, give the descriptions and depths of the various strata encountered, details of all samples taken, and the groundwater conditions observed during and on completion of excavation.

Laboratory Work

The samples were inspected in the laboratory and assessments of the soil characteristics have been taken into account during preparation of the exploratory hole records. The soil descriptions have been made in accordance with BS5930:2015+A1:2020. The chemical test results are presented following the exploratory hole records.

Chemical analysis of soil samples recovered from the exploratory holes was undertaken, by an independent laboratory, primarily for characterisation purposes. The samples were tested for total

petroleum hydrocarbons (TPH), and two samples with the highest concentrations of TPH were tested to determine the speciated fractions of TPH.

Strata Encountered

From surface, the expected Tidal Flat Deposits generally comprised firm, locally stiff, dark brown, brown and grey, slightly sandy, silty clay, varying to slightly clayey, silty sand. The sand fraction was fine grained. The clay became soft and very soft below approximately 1.00m depth.

A hydrocarbon odour was noted in TP2 at 0.30m to 0.80m depth, which became a slight hydrocarbon odour below 0.80m depth. A remnant slight hydrocarbon odour was also noted in soils on the western side of the TP2A excavation to 1.00m depth adjacent the foundation. No hydrocarbon odours were noted in the TP1 and TP3 exploratory holes, or in the replacement crushed hardcore outside of the building footprint.

The site derived stockpiled crushed hardcore and subsoil observed during this investigation was not noted to have olfactory or visual evidence of hydrocarbon contamination.

Comments on the Chemical Test Results

The results of the laboratory chemical testing on soil samples have been compared to soil screening values (SSVs) produced by Land Quality Management Limited (LQM) and the Chartered Institute for Environmental Health (CIEH) presented in their document 'The LQM/CIEH S4ULs for Human Health Risk Assessment: 2015 (Publication Number S4UL3608)'. The LQM/CIEH S4ULs are intended for use in assessing the potential risks posed to human health by contaminants in soil and are transparently derived and cautious 'trigger values' above which further assessment of the risks or remedial action may be needed. The S4ULs (Suitable for Use Levels) have been derived, in accordance with UK legislation and Environment Agency policy, using a modified version of the Environment Agency CLEA 1.06 software.

For each contaminant the adopted soil screening criteria have been calculated for the following land uses:

- Residential use with home grown produce
- Residential use without home grown produce
- Commercial and industrial usage

The intended purpose of the SSVs are as "intervention values" in the regulatory framework for assessment of human health risks in relation to land use. These values are not binding standards, but are intended to inform judgements about the need for action to ensure that a new use of land does not pose any unacceptable risks to the health of the intended users.

Table 1 presented to the rear of this report text compares the test results for the soils with the SSVs in relation to the specified uses, and Table 2 compares the test results of the remaining soils (TP2A) following remediation excavation.

Discussion of Results of Soil Analysis

The results of the laboratory analysis indicate that the tested soils from TP2 at 0.50m depth contained a marginally elevated concentration of Aliphatic TPH (>C10-C12), which exceeded the soil screening values for a residential with home grown produce end use and for a residential without home grown produce end use, but not for a commercial or industrial usage. The other results from the 28th June investigation were within the soil screening values for a residential with home grown produce end use; for a residential without home grown produce end use; and for a commercial or industrial usage.

Following remediation excavation in the TP2 area, total petroleum hydrocarbons concentrations from the west side of TP2A were below the soil screening values for a residential with home grown produce end use; for a residential without home grown produce end use; and for a commercial or industrial usage, and therefore are not considered significant.

Soil Gas Monitoring

The monitoring of soil gasses (methane, carbon dioxide and oxygen) within the standpipes installed within boreholes DS101 and DS103 as part of a previous investigation by Delta-Simons was undertaken between 20th July and 30th July 2017. The results of the monitoring are summarised in Table 3 below.

Table 3: Summary of Gas Monitoring Data

Hole Location	No. Visits	Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow (l/hr)	Water Level (mbgl)	Atmospheric Pressure (mb)
DS101	3	<0.1	2.2-3.4	17.5-18.7	<0.1	2.31-2.42	1008-1011
DS103	3	<0.1-3.0	1.7-5.4	5.7-10.7	<0.1	1.92-1.95	1008-1013

The results of the soil gas monitoring of the installations indicated a maximum 3.0% by volume methane and a maximum 5.4% by volume carbon dioxide, recorded during the monitoring visits. The in-situ measurements recorded gas emission rates of less than 0.1l/hr. The highest values of methane and carbon dioxide were both recorded in the standpipe DS103, a location coincident with the hotspot of TPH contamination adjacent a former above ground fuel tank. The former standpipe from DS103 was noted within the excavated arisings from the TP2A excavation.

Using a flow rate of 0.1l/hr, the detection limit of the equipment used, these in-situ measurements indicate a gas screening value (GSV) of 0.0030l/hr for methane and 0.0054l/hr for carbon dioxide. These results fall into Characteristic Situation CS2 as defined by BS8485:2015 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'. These results indicate a low hazard potential, and that a 'Type A building' (private ownership with some small rooms present), would require a minimum gas protection score of 3.5 points, and that gas protection measures are necessary. The gas protection score of 3.5 could be achieved by a combination of floor slab construction, a passive sub-floor dispersal layer and a gas resistant membrane, which should be incorporated within the construction, with further details provided in BS8485:2015.

Conclusions

The remediated excavation area at location TP2A which was 1.25m deep, at a previously identified hotspot area, has removed obviously TPH impacted soils. The excavation which is beneath a small part of the building footprint, is to be backfilled with site derived clean crushed hardcore/subsoil, which is considered suitable for use within a residential setting, and beneath an area of hardstanding.

Gas protection measures should be incorporated into the structure, which should be installed in compliance with YALPAG Technical Guidance.

If there are any queries regarding the contents of this letter do not hesitate to contact the undersigned.

For and On Behalf of Ground Engineering Limited

Yours faithfully,

S. Weatherley

S. WEATHERLEY

B.Eng.(Hons.), C.Geol., F.G.S.

Associate

C.M.J. EBELING

M.Sc.(Eng.), M.A.E.G., C.Geol., F.G.S.

Director

Table 1: Comparison of Total Petroleum Hydrocarbon Test Results for Near Surface Soils with Soil Screening Values (SSVs)

Determinand	Measured Values (mg/kg)									Soil Screening Values SSVs 1% SOM		
	TP1 ES1 0.10m	TP1 ES2 0.50m	TP2 ES1 0.20m	TP2 ES2 0.50m	TP2 ES3 0.85m	TP2 ES4 1.40m	TP2 ES5 1.90m	TP3 ES1 0.20m	TP3 ES2 0.60m	Residential with home grown produce (mg/kg)	Residential without home grown produce (mg/kg)	Commercial/ Industrial (mg/kg)
TPH Aliphatic >C5-C6				<1.0	<1.0					42	42	3200
TPH Aliphatic >C6-C8				<1.0	<1.0					100	100	7800
TPH Aliphatic >C8-C10				25	<1.0					27	27	2000
TPH Aliphatic >C10-C12				170	9.1					130	130	9700
TPH Aliphatic >C12-C16				910	92					1100	1100	59,000
TPH Aliphatic >C16-C21				910	130					65,000	65,000	1,600,000
TPH Aliphatic >C21-C35				350	24							
TPH Aliphatic >C35-C44				<1.0	<1.0					65,000	65,000	1,600,000
TPH Aliphatic >C5-C44				**2400**	**260**					-	-	-
TPH Aromatic >C5-C7				<1.0	<1.0					70	370	26,000
TPH Aromatic >C7-C8				<1.0	<1.0					130	860	56,000
TPH Aromatic >C8-C10				<1.0	<1.0					34	47	3500
TPH Aromatic >C10-C12				58	<1.0					74	250	16,000
TPH Aromatic >C12-C16				120	<1.0					140	1800	36,000
TPH Aromatic >C16-C21				87	<1.0					260	1900	28,000
TPH Aromatic >C21-C35				15	<1.0					1100	1900	28,000
TPH Aromatic >C35-C44				<1.0	<1.0					1100	1900	28,000
TPH Aromatic >C5-C44				**280**	**<5.0**					-	-	-
Total TPH >C6-C40	**<10**	**<10**	**<10**	**2600**	**260**	**<10**	**<10**	**<10**	**<10**			

LQM/CIEH S4ULs 'Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3608. All rights reserved'.
S4ULs for Petroleum Hydrocarbons will vary according to SOM for all land uses.

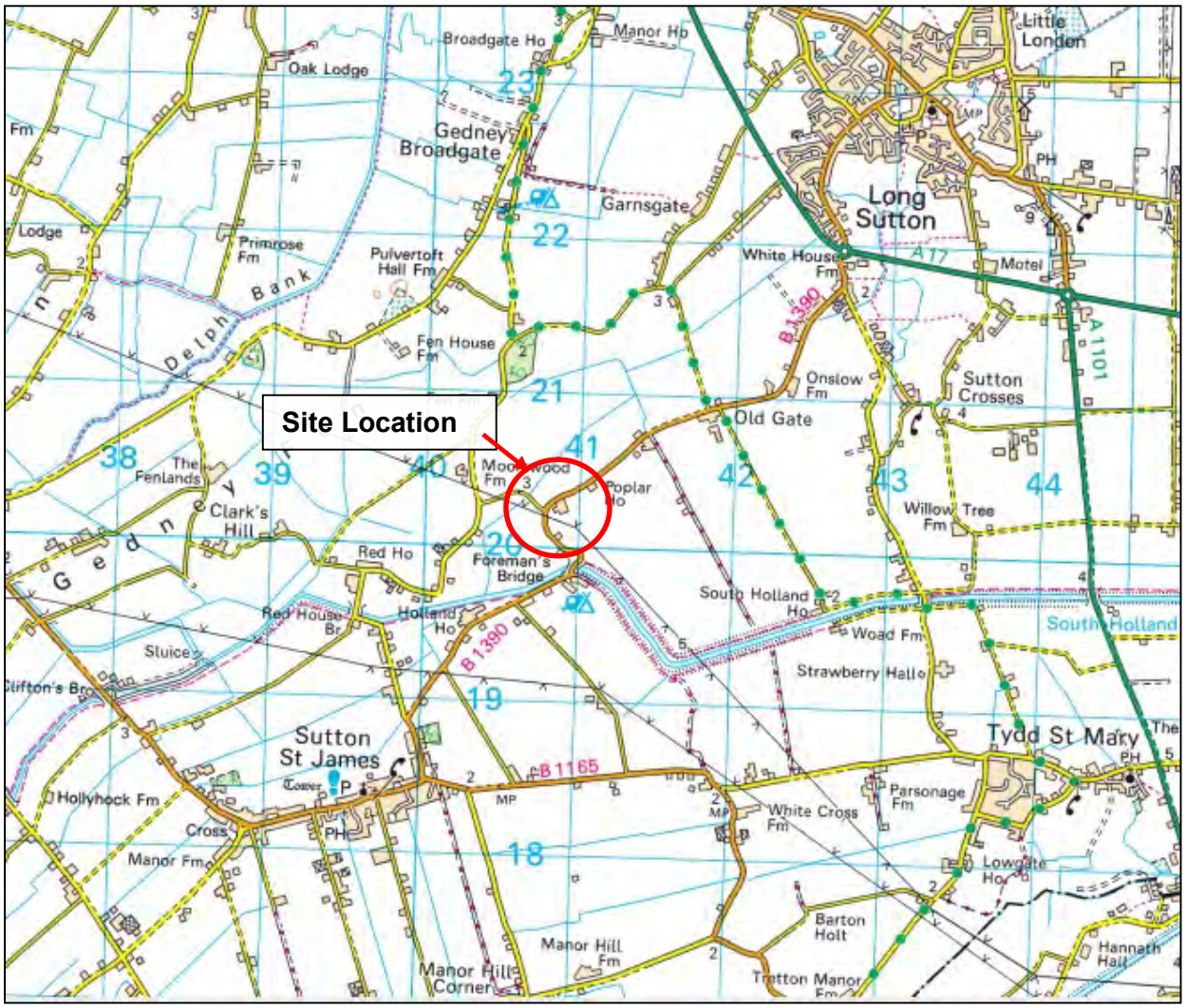
Table 2: Comparison of Total Petroleum Hydrocarbon Test Results for Near Surface Soils with Soil Screening Values (SSVs) Following Excavation Works (28 July 2022)

Determinand	Measured Values (mg/kg)			Soil Screening Values SSVs 1% SOM		
	TP2A ES1 0.50m	TP2A ES2 0.85m	TP2A ES3 1.20m	Residential with home grown produce (mg/kg)	Residential without home grown produce (mg/kg)	Commercial/ Industrial (mg/kg)
TPH Aliphatic >C5-C6	<1.0	<1.0		42	42	3200
TPH Aliphatic >C6-C8	<1.0	<1.0		100	100	7800
TPH Aliphatic >C8-C10	2.3	<1.0		27	27	2000
TPH Aliphatic >C10-C12	30	2.8		130	130	9700
TPH Aliphatic >C12-C16	160	44		1100	1100	59,000
TPH Aliphatic >C16-C21	230	67		65,000	65,000	1,600,000
TPH Aliphatic >C21-C35	140	51				
TPH Aliphatic >C35-C44	2.0	<1.0		65,000	65,000	1,600,000
TPH Aliphatic >C5-C44	**560**	**170**		-	-	-
TPH Aromatic >C5-C7	<1.0	<1.0		70	370	26,000
TPH Aromatic >C7-C8	<1.0	<1.0		130	860	56,000
TPH Aromatic >C8-C10	1.6	<1.0		34	47	3500
TPH Aromatic >C10-C12	23	<1.0		74	250	16,000
TPH Aromatic >C12-C16	140	17		140	1800	36,000
TPH Aromatic >C16-C21	100	<1.0		260	1900	28,000
TPH Aromatic >C21-C35	33	8.2		1100	1900	28,000
TPH Aromatic >C35-C44	<1.0	<1.0		1100	1900	28,000
TPH Aromatic >C5-C44	**300**	**25**		-	-	-
Total TPH >C6-C40	**860**	**190**	**160**			

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S4ULs for Petroleum Hydrocarbons will vary according to SOM for all land uses.

Site Location Plan

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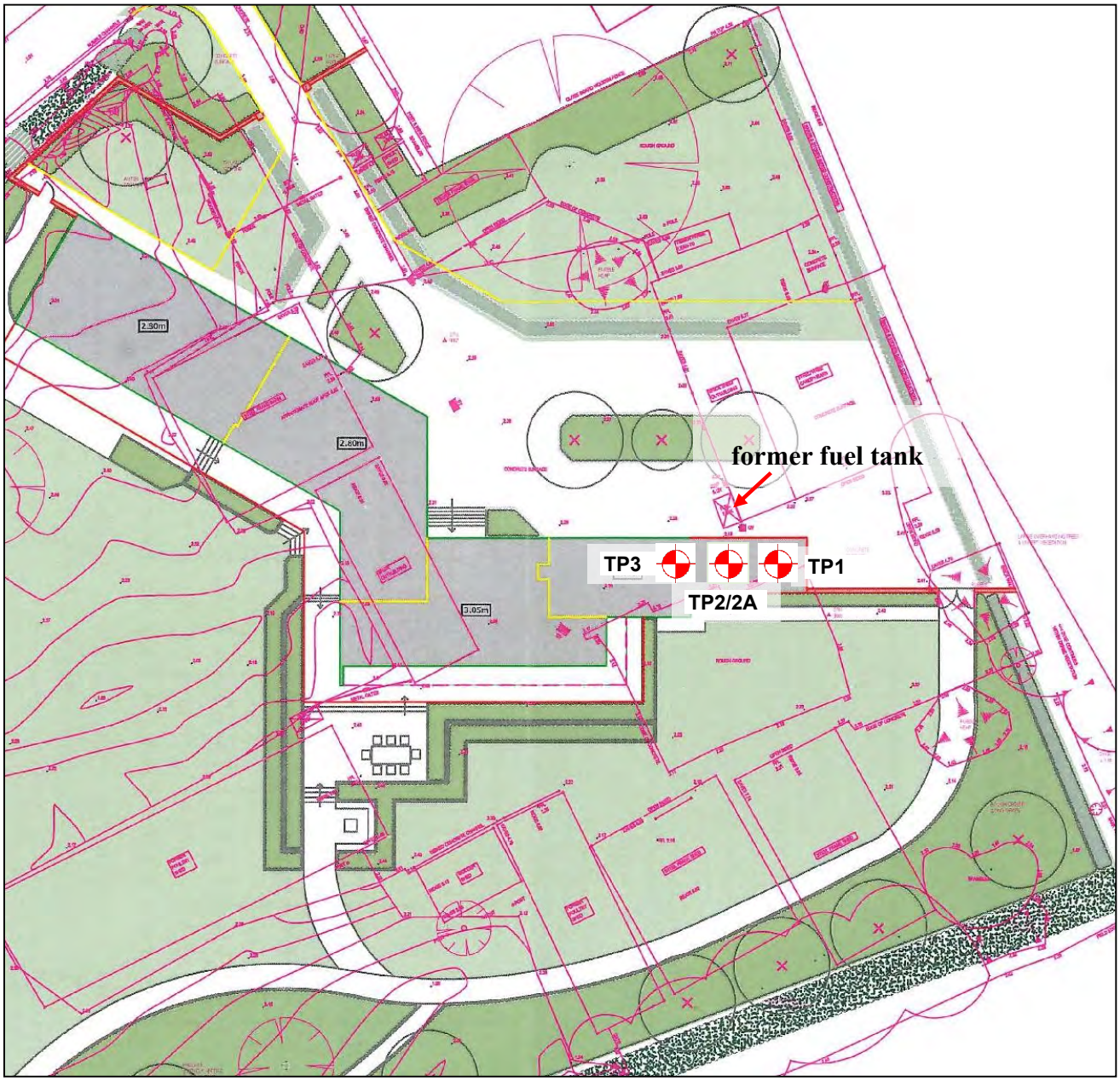


Not To Scale

Project : Pear Tree Farm, St. James Road, Long Sutton, Lincolnshire **Client : Nene Transport (Lincs) Limited**	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15075B**

Exploratory Hole Location Plan

Based on former layout overlain by proposed development plan provided by the client.



Not To Scale

Project : Pear Tree Farm, St. James Road, Long Sutton, Lincolnshire **Client :** Nene Transport (Lincs) Limited	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No. C15075B**

Site Photographs

Client provided photograph 7th April 2022 following site clearance and during construction and Ground Engineering Limited site visit 28th June 2022







TP1



TP2



TP3

Project : Pear Tree Farm, St. James Road, Long Sutton, Lincolnshire **Client :** Nene Transport (Lincs) Limited	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No. C15075B**

Site Photographs

Ground Engineering Limited site visit 28th July 2022 following excavation of hotspot area.



TP2A





Proposed backfill

Project : Pear Tree Farm, St. James Road, Long Sutton, Lincolnshire **Client :** Nene Transport (Lincs) Limited	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No. C15075B**

GROUND ENGINEERING LIMITED

Tel: 01733-566566
www.groundengineering.co.uk

Site: PEAR TREE FARM, ST. JAMES ROAD, LONG SUTTON

HAND AUGER
TP1

Date: 28/06/22

Hole Size: 75mm dia to 0.50m

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
0.10 0.10	D1 ES1			Brown and orange brown, slightly clayey, silty SAND. Sand is fine grained. (TIDAL FLAT DEPOSIT)		0.30	
0.50 0.50	D2 ES2			Firm, brown, slightly sandy, silty CLAY. Sand is fine grained. (TIDAL FLAT DEPOSIT)		0.50	
				Hole completed at 0.50m depth			

REMARKS 1. No roots observed
2. Hole sides stable

Project No 15075B

Scale 1:25

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KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed Sample
W - Water Sample
R - Root Sample
▽ Water Strike
▼c Level on completion
MP - Mackintosh Probe
V - Vane Shear Test Cohesion ( ) kPa
ES - Environmental Sample
▼ Water Rise
▼s Standpipe Level

Groundwater Strikes						Groundwater Observations			
	Depth m						Depth m		
No	Struck	Rose to	Rate	Cased	Sealed	Date	Hole	Casing	Water
						28/06/22	0.50		dry

GROUND ENGINEERING LIMITED

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Site: PEAR TREE FARM, ST. JAMES ROAD, LONG SUTTON

HAND AUGER
TP2

Date: 28/06/22

Hole Size: 75mm dia to 1.90m

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
0.20	D1			Firm, dark brown, slightly sandy, silty CLAY. Sand is fine grained. (TIDAL FLAT DEPOSIT)			
0.20	ES1					0.30	
0.50	D2			Firm, brown, sandy, silty CLAY. Sand is fine grained. Hydrocarbon odour. (TIDAL FLAT DEPOSIT)			
0.50	ES2					0.80	
0.85	D3			Firm, brown and green-grey, slightly sandy, silty CLAY. Sand is fine grained. Slight hydrocarbon odour. (TIDAL FLAT DEPOSIT)			
0.85	ES3					1.20	
1.40	D4			Soft, brown and grey, sandy, silty CLAY. Sand is fine grained. (TIDAL FLAT DEPOSIT)			
1.40	ES4		1 ▽			1.70	
1.90	D5			Soft, grey and brown, sandy, silty CLAY. Sand is fine grained. (TIDAL FLAT DEPOSIT)		1.90	
1.90	ES5			Hole completed at 1.90m depth			

REMARKS 1. No roots observed
2. Hole sides stable

Project No 15075B

Scale 1:25

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▽ Water Strike
▼c Level on completion
MP - Mackintosh Probe
V - Vane Shear Test Cohesion ( ) kPa
ES - Environmental Sample
▼ Water Rise
▼s Standpipe Level

Groundwater Strikes

No	Depth m Struck	Rose to	Rate	Cased	Sealed
1	1.70		seepage		

Groundwater Observations

Date	Depth m Hole	Casing	Water
28/06/22	1.90		dry

GROUND ENGINEERING LIMITED

Tel: 01733-566566
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Site: PEAR TREE FARM, ST. JAMES ROAD, LONG SUTTON

TRIAL PIT
TP2A

Date: 28/07/22

Pit Size: 3.50m L x 3.40m W x 1.25m D.

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
0.50	ES1			Firm, becoming stiff, brown and grey, slightly sandy, silty CLAY with dead roots. Slight hydrocarbon odour. Sand is fine grained.			
0.85	ES2			(TIDAL FLAT DEPOSIT)		1.00	
1.20	ES3			Soft, locally very soft, light grey and light brown, slightly sandy, silty CLAY. Sand is fine grained. (TIDAL FLAT DEPOSIT)		1.25	
				Pit completed at 1.25m depth			

KEY
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- U - Undisturbed Sample
- R - Root Sample
- W - Water Sample
- ES - Environmental Sample
- ▽ Water Strike
- ▼ Water Rise
- ▼c Level on completion
- MP - Mackintosh Probe
- P( ) - Hand Penetrometer Cohesion ( ) kPa
- V - Vane Shear Test Cohesion ( ) kPa

REMARKS
1. Roots observed to 0.85m depth
2. Pit dry
3. Pit sides stable
4. Samples taken from west face of pit

Project No 15075B

Scale 1:25

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GROUND ENGINEERING LIMITED

Tel: 01733-566566
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Site: PEAR TREE FARM, ST. JAMES ROAD, LONG SUTTON

HAND AUGER
TP3

Date: 28/06/22

Hole Size: 75mm dia to 0.60m

Ground Level:

Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result					
0.20	D1			Firm, brown and grey, slightly sandy, silty CLAY. Sand is fine grained.			
0.20	ES1			(TIDAL FLAT DEPOSIT)		0.30	
				Firm, brown and grey, sandy, silty CLAY. Sand is fine grained. (TIDAL FLAT DEPOSIT)			
0.60	D2					0.60	
0.60	ES2			Hole completed at 0.60m depth			

REMARKS 1. No roots observed
2. Hole sides stable

Project No 15075B

Scale 1:25

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KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed Sample
W - Water Sample
R - Root Sample
▽ Water Strike
▼c Level on completion
MP - Mackintosh Probe
V - Vane Shear Test Cohesion ( ) kPa
ES - Environmental Sample
▼ Water Rise
▼s Standpipe Level

Groundwater Strikes						Groundwater Observations			
Depth m							Depth m		
No	Struck	Rose to	Rate	Cased	Sealed	Date	Hole	Casing	Water
						28/06/22	0.60		dry

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING 2183

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Final Report

Report No.:	22-24504-1
Initial Date of Issue:	04-Jul-2022
Client	Ground Engineering Limited
Client Address:	Newark Road Peterborough Cambridgeshire PE1 5UA
Contact(s):	Simon Weatherley
Project	SW/C15075B Pear Tree Farm, Long Sutton
Quotation No.:	
Order No.:	SW/C15075B
No. of Samples:	9
Turnaround (Wkdays):	5
Date Approved:	04-Jul-2022

Date Received:	30-Jun-2022
Date Instructed:	30-Jun-2022
Results Due:	06-Jul-2022

Approved By:



Details: Stuart Henderson, Technical Manager

Results - Soil

Project: SW/C15075B Pear Tree Farm, Long Sutton

Client: Ground Engineering Limited				Chemtest Job No.:	22-24504	22-24504	22-24504	22-24504	22-24504	22-24504	22-24504	22-24504	22-24504
Quotation No.:				Chemtest Sample ID.:	1458329	1458330	1458331	1458332	1458333	1458334	1458335	1458336	1458337
Order No.: SW/C15075B				Client Sample Ref.:	ES1	ES2	ES1	ES2	ES3	ES4	ES5	ES1	ES2
				Sample Location:	TP1	TP1	TP2	TP2	TP2	TP2	TP2	TP3	TP3
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.10	0.50	0.20	0.50	0.85	1.40	1.90	0.20	0.60
				Date Sampled:	28-Jun-2022	28-Jun-2022	28-Jun-2022	28-Jun-2022	28-Jun-2022	28-Jun-2022	28-Jun-2022	28-Jun-2022	28-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Moisture	N	2030	%	0.020	12	21	16	21	41	29	40	23	29
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	None	Stones	Stones	None	None	None	Stones	Stones
Soil Texture	N	2040		N/A	Clay	Clay	Loam	Clay	Clay	Clay	Clay	Clay	Loam
Total TPH >C6-C40	M	2670	mg/kg	10	< 10	< 10	< 10			< 10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0				< 1.0	< 1.0				
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0				< 1.0	< 1.0				
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0				25	< 1.0				
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0				170	9.1				
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0				910	92				
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0				910	130				
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0				350	24				
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0	< 1.0				
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0				2400	260				
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0				< 1.0	< 1.0				
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0				< 1.0	< 1.0				
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0				< 1.0	< 1.0				
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0				58	< 1.0				
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0				120	< 1.0				
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0				87	< 1.0				
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0				15	< 1.0				
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0	< 1.0				
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0				280	< 5.0				
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0				2600	260				

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection

Report Information

Key

U	UKAS accredited
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N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
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Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING 2183

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Amended Report

Report No.:	22-28946-2		
Initial Date of Issue:	03-Aug-2022	**Date of Re-Issue:**	05-Aug-2022
Client	Ground Engineering Limited		
Client Address:	Newark Road Peterborough Cambridgeshire PE1 5UA		
Contact(s):	Simon Weatherley		
Project	SW/C15075B Pear Tree Farm, Long Sutton		
Quotation No.:		**Date Received:**	01-Aug-2022
Order No.:	SW/C15075B	**Date Instructed:**	01-Aug-2022
No. of Samples:	3		
Turnaround (Wkdays):	5	**Results Due:**	05-Aug-2022
Date Approved:	05-Aug-2022		
Approved By:			
Details:	Stuart Henderson, Technical Manager		

Results - Soil

Project: SW/C15075B Pear Tree Farm, Long Sutton

Client: Ground Engineering Limited			**Chemtest Job No.:**		22-28946	22-28946	22-28946
Quotation No.:			**Chemtest Sample ID.:**		1478554	1478555	1478556
Order No.: SW/C15075B			Client Sample Ref.:		ES1	ES2	ES3
			Sample Location:		TP2A	TP2A	TP2A
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0.50	0.85	1.20
			Date Sampled:		28-Jul-2022	28-Jul-2022	28-Jul-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Moisture	N	2030	%	0.020	19	24	28
Soil Colour	N	2040		N/A	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Clay	Clay	Clay
Total TPH >C6-C40	M	2670	mg/kg	10	1300	660	160
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	2.3	< 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	30	2.8	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	160	44	
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	230	67	
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	140	51	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	2.0	< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	560	170	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	1.6	< 1.0	
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	23	< 1.0	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	140	17	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	100	< 1.0	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	33	8.2	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	300	25	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	860	190	

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2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection

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