



Soiltec Laboratories Limited
Soiltec House, Langley Park
Sutton Road, Langley,
Maidstone, Kent ME17 3NQ

Telephone: 01622 862138
(Two Lines) 01622 862904
E-mail: info@soiltec.net
Web: www.soiltec.net

REMEDIATION and VALIDATION REPORT

Date : 14th August 2015

Report No : 06629/21

Your Ref: Nigel Ings

Client : Mr N Ings
Cullipool House
Cullipool
Isle of Luing
Near OBAN
Scotland PA34 4TX

FAO: Nigel Ings

Site: 27 Bridge Street, Wye, near Ashford, Kent TN25 5ED.

Following the previous site investigations carried out on the 3rd June and 16th 2015, which identified that there were elevated contaminants within the made ground that was encountered on the site, it was proposed by Soiltec that the made ground should be removed to a depth of at least 0.5m from across the rear garden area. The removed soils should be replaced with a clean sub soil and topsoil that are suitable for use in residential gardens. The environmental health officer at Ashford Borough Council has agreed that the scope of this remedial works will reduce the risk of exposure to the contaminated soil on the site to an acceptable level.

The excavation works was carried out by John Reeve Plant Hire and commenced on the 30th July 2015.

The site was attended by Soiltec on the 31st July to assess the progress of the excavation works. Site photographs from this site visit are attached (photographs 1 to 3). At the time of this visit most of the excavation works and removal of soils had been carried out. A large concrete slab was encountered in the southeast area of the garden and was being broken out to be removed. Also exposed was a small section of metal pipework at the base of the excavation in the northeast area at a depth of approximately 0.8m. The excavations were to depths ranging from 0.75m to 0.85m across the garden area.

The extent of the remediated/excavated area, the location of the metal pipework and concrete slab are shown on the attached site plan.

Following the removal of the concrete slab and completion of the excavations a geotextile membrane was placed across the excavated area before the backfilling with subsoil and topsoil. A photograph of the site on completion of the excavations with the membrane in place is attached (photograph 4).

The site was attended by Soiltec on the 4th August to assess the progress of the backfilling works and sample the imported subsoil and topsoil for chemical analysis. Photographs of the site with the subsoil, some of the topsoil and some of the new turfs in place are also attached (photographs 5 to 7).

The assessment of the chemical analysis results have been based on the criteria used for the first site investigation visit on the 3rd June 2015.



i.e. The assessment of the chemical analysis results have been based on the contaminated land exposure assessment (CLEA v1.06) soil guideline values (SGV's) where published. Where there are no published SGV's the CLEA model has been used to calculate the SGV's. The calculated values are based a residential site with homegrown produce, a semi detached house, using all the default values for exposure frequencies, age class, occupancy periods, building and soil data, and a silty clay loam soil with a soil organic content of 4.03%.

The soils were as follows:

Subsoil (sample ID WS1) – soft yellowish brown slightly sandy silty clay with occasional stones.

Topsoil (sample ID WT1) – soft brown loamy silty clay with occasional chalk pellets, small stones and fine roots.

Both the subsoil and topsoil were supplied by John Reeve Plant Hire.

The chemical analysis results show that all the determinands analysed are significantly below the published or calculated SGV's in both the imported subsoil and the imported topsoil and are suitable for use in residential gardens.

The backfilling and turfing works were completed on the 4th/5th of August 2015. Photographs of the site with the new turfs laid are attached (photographs 8 and 9).

The contaminated soils and concrete slab were removed from the site by John Reeve Plant Hire between the 30th July and 3rd August 2015. A total of 7 loads were taken from the site to the Corey Environmental landfill site at Oak Lane, Kingswinford, West Midlands DY6 7JS.

All the waste transfer information is attached.




The remediation has been carried out as proposed with the soils excavated to a slightly deeper depth and with the addition of a geotextile membrane before the subsoil and topsoil were imported. The imported subsoil and topsoil are suitable for use on this residential site and therefore the potential risk to exposure to the contaminated soils has been reduced to an acceptable level.



Keith Huxley CSci CChem MRSC MEnvSc

Enc: Site Plan (1 page), site photographs (3 pages), chemical analysis results and certificates (10 pages) and waste transfer information (8 pages)

Key:

-  Existing Buildings
-  Former Gasworks Buildings 1873 to 1933
-  Remediated Area



Exposed Metal Pipe at 0.8m

Shed

Exposed Concrete Slob (removed)

Conservatory

Patio

Utility Room

Garage

BRIDGE STREET

Scale: NTS

Drawn : KDH

Report: 06629/21

Fig. No.: 1

Location : 27 Bridge St, Wye TN25 5ED

Title : Site Plan

PHOTOGRAPH 1

Rear of garden
northeast
boundary
excavation
depth 0.85m



PHOTOGRAPH 2

Metal pipe at
0.8m below
ground level



PHOTOGRAPH 3

Concrete slab



PHOTOGRAPH 4



Geotextile
Membrane

PHOTOGRAPH 5



Subsoil

PHOTOGRAPH 6



Topsoil

Subsoil

PHOTOGRAPH 7



PHOTOGRAPH 8



PHOTOGRAPH 9



SOILTEC LABORATORIES LTD

CLIENT: Mr N Ings
SITE: 27 Bridge Street, Wye, Kent
DATE SAMPLED: 04/08/15
SAMPLE REF: 06629/21
SAMPLED BY: Soiltec
TESTED BY: QTS (UKAS/MCERTS 4480)

REPORT No: 06632/21
REPORT DATE: 12/08/15
SPEC: CLEA

Results expressed as mg/kg dry mass unless stated.

DETERMINAND	Sample ID		WT1 Topsoil GL-0.3	Notes
	WS1 Subsoil 0.3-0.85	Depth (m)		
TOTAL ARSENIC as As	6	9		CLEA v1.06 published
TOTAL CADMIUM as Cd	0.8	0.3		C4SL 2014
TOTAL CHROMIUM as Cr	10	37		CLEA v1.06 calculated
HEXAVALENT CHROMIUM as Cr	<2	<2		C4SL 2014
TOTAL LEAD as Pb	11	75		C4SL 2014
TOTAL MERCURY as Hg	<1	<1		CLEA v1.06 calculated
TOTAL SELENIUM as Se	<3	<3		CLEA v1.06 calculated
TOTAL COPPER as Cu	6	28		BS3882:2007 pH >7 (phytotoxic)
TOTAL NICKEL as Ni	13	20		CLEA v1.06 calculated
TOTAL ZINC as Zn	29	78		BS3882:2007 pH >7 (phytotoxic)
WATER SOLUBLE BORON as B	<1	1.1		UK average UKSHS report No7 (EA 2007)
TOTAL SULPHATE as SO4 (%)	0.12	0.24		
ELEMENTAL SULPHUR as S	<10	<10		
SULPHIDE as S	5	<5		
TOTAL CYANIDE as CN	<2	<2		
FREE CYANIDE as CN	<2	<2		353 SNIFFER calc based on Complex CN of 294
THIOCYANATE as SCN	<3	4.8		59 SNIFFER Calculated
PHENOLS	<2	<2		
TOTAL POLYAROMATIC HYDROCARBONS	Speciated	Speciated		
pH (2.5:1 Water Extract)	7.9	7.7		
TOTAL PETROLEUM HYDROCARBONS	Speciated	Speciated		

* = Worse Case Value

SOC = Soil Organic Content

SNIFFER = Scotland & Northern Ireland Forum For Environmental Research

Soiltec House
 Langley Park
 Sutton Road
 MAIDSTONE
 ME17 3NQ

SOILTEC LABORATORIES LTD

Speciated Polyaromatic Hydrocarbons

CLIENT: Mr N Ings
SITE: 27 Bridge Street, Wye, Kent
DATE SAMPLED: 04/08/15
SAMPLE REF: 06629/21
SAMPLED BY: Soiltec
TESTED BY: QTS (UKAS/MCERTS 4480)

REPORT No: 06629/21
REPORT DATE: 12/08/15
SPEC: CLEA
SAMPLE: Soil
Results expressed as mg/kg
dry mass unless stated.

RESULTS

Sample ID	WS1	WT1	SGV/GAC
Sample Type	Subsoil	Topsoil	SOC
Sample Depth (m)	0.3-0.85	GL-0.3	4.03%
Naphthalene	<0.1	<0.1	66
Acenaphthylene	<0.1	<0.1	152
Acenaphthene	<0.1	<0.1	101
Fluorene	<0.1	<0.1	1140
Phenanthrene	<0.1	0.2	376
Anthracene	<0.1	<0.1	13000
Fluoranthene	<0.1	0.6	668
Pyrene	<0.1	0.5	642
Benzo(a)anthracene	<0.1	0.3	9.9
Chrysene	<0.1	0.3	9.6
Benzo(b)fluoranthene	<0.1	0.4	10.3
Benzo(k)fluoranthene	<0.1	0.2	10.5
Benzo(a)pyrene	<0.1	0.3	3.0
Indeno(1,2,3-cd)pyrene	<0.1	0.2	10.1
Dibenzo(ah)anthracene	<0.1	<0.1	1.1
Benzo(ghi)perylene	<0.1	0.2	10.9
Total PAH's	0.0	3.2	

COMMENTS

See main report text
SOC = Soil Organic Content
Values in **RED** indicated that the respective SGV has been exceeded

SOILTEC LABORATORIES LTD

Total Petroleum Hydrocarbons (aliphatic/aromatic split) & BTEX

CLIENT: Mr N Ings	REPORT No: 06629/21
SITE: 27 Bridge Street, Wye, Kent	REPORT DATE: 12/08/15
DATE SAMPLED: 04/08/15	
SAMPLE REF: 06629/21	SPEC: CLEA
SAMPLED BY: Soiltec	Results expressed as mg/kg
TESTED BY: QTS (UKAS/MCERTS 4480)	dry mass

RESULTS

Sample ID	WS1	WT1	SGV/GAC
Sample Type	Subsoil	Topsoil	SOC
Sample Depth (m)	0.3-0.85	GL-0.3	4.03%
Aromatic			
C ₅ -C ₇	<0.01	<0.01	130*
C ₇ -C ₈	<0.05	<0.05	270*
C ₈ -C ₁₀	<2	<2	106
C ₁₀ -C ₁₂	<2	<2	331
C ₁₂ -C ₁₆	<2	<2	731
C ₁₆ -C ₂₁	<3	<3	1650
C ₂₁ -C ₃₅	<10	<10	1960
Total Aromatic TPH	0	0	
Aliphatic			
C ₅ -C ₆	<0.01	<0.01	55*
C ₆ -C ₈	<0.05	<0.05	160*
C ₈ -C ₁₀	<2	<2	48
C ₁₀ -C ₁₂	<2	<2	497
C ₁₂ -C ₁₆	<3	<3	1970
C ₁₆ -C ₂₁	<3	<3	156000
C ₂₁ -C ₃₅	<10	<10	156000
Total Aliphatic TPH	0	0	
TOTAL TPH	0	0	
Benzene	<0.002	<0.002	0.3
Toluene	<0.005	<0.005	510
Ethylbenzene	<0.002	<0.002	355
Xylene (m&p)	<0.002	<0.002	425 (p)
Xylene (o)	<0.002	<0.002	435
MTBE	<0.005	<0.005	288

COMMENTS

* = Based LQM/CIEH 2009 (2.5% SOM)
MTBE = Methyl Tertiary Butyl Ether

Keith Huxley CSci CChem MRSC MIEEnvSc
Date: 12/08/15

Page 3 of 3

Soiltec House-Langley Park-Sutton Road-Langley-Maidstone-Kent ME17 3NQ