



# Geotechnical report

## Faversham Public Footpath ZF5

### Ramp

CO04300288/001 Rev02

October 2015



## Document Control Sheet

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## Executive Summary

Amey has been commissioned by Kent County Council to undertake a geotechnical investigation for the completion of footpath ZF5 at Faversham Reach, Kent. The route of the footpath is currently obstructed by quayside developments. Two ramps will be required along the new route overcoming an existing height difference of 1-2m either end of the footpath.

The ground conditions comprise made ground overlying alluvium and head brickearth, which rest upon Thanet Sand (Thanet Formation). Groundwater level is influenced by the river and fluctuates with the tidal cycle. It can be assumed the full thickness of ground is saturated.

No illustrative design is available yet but the works are expected to include piles and a retaining wall. The findings of this report will be fed into the feasibility design.

The underlying geology will be capable of supporting new piled structures through end-bearing and shaft resistance, with piles terminating in the Thanet Sand (minimum depth of 7mbgl).

Preliminary contamination testing shows that any soil excavated may remain on site or be re-used within the scheme. Any surplus arisings will not need to be disposed of as hazardous waste, but additional testing is recommended should disposal be necessary.

## Contents

<b>1</b>	<b>Introduction</b> .....	<b>1</b>
1.1	Scope and objective.....	1
1.2	Description of the project.....	1
1.3	Geotechnical category.....	4
1.4	Other relevant information .....	4
<b>2</b>	<b>Existing Information</b> .....	<b>5</b>
2.1	Topography and geomorphology .....	5
2.2	Geological maps and memoirs .....	5
2.3	Hydrogeology.....	7
2.4	Hydrology.....	7
2.5	Aerial photography .....	7
2.6	Records of mines and mineral deposits.....	7
2.7	Land use.....	8
2.8	Archaeological and historical investigations.....	8
2.9	Existing ground investigations .....	8
2.10	Consultation with statutory bodies .....	8
2.11	Potentially contaminated land.....	9
<b>3</b>	<b>Ground investigation</b> .....	<b>10</b>
3.1	Exploratory holes.....	10
3.2	Laboratory investigations .....	10
<b>4</b>	<b>Ground summary</b> .....	<b>11</b>
<b>5</b>	<b>Ground conditions and material properties</b> .....	<b>12</b>
5.1	General .....	12
5.2	Topsoil .....	12
5.3	Made ground.....	12
5.4	Alluvium .....	13
5.5	Underlying strata.....	14
5.6	Groundwater.....	14
5.7	Waste classification and materials re-use.....	14

<b>6</b>	<b>Engineering assessment.....</b>	<b>17</b>
<b>7</b>	<b>Geotechnical risk register .....</b>	<b>18</b>
<b>8</b>	<b>References .....</b>	<b>21</b>

<b>Appendix A</b>	<b>Exploratory hole location plan</b>
<b>Appendix B</b>	<b>Exploratory hole logs</b>
<b>Appendix C</b>	<b>Laboratory testing</b>
<b>Appendix D</b>	<b>Waste classification</b>

## Figures

Figure 1.1: Location of footpath ZF5 in Faversham (not to scale).....	1
Figure 1.2: Plan showing footpath and investigation points C and L .....	2
Figure 2.1: Extract from the 1:50,000 geological map sheet 273 .....	6
Figure 5.1: Casagrande A-Line graph of Alluvium .....	13

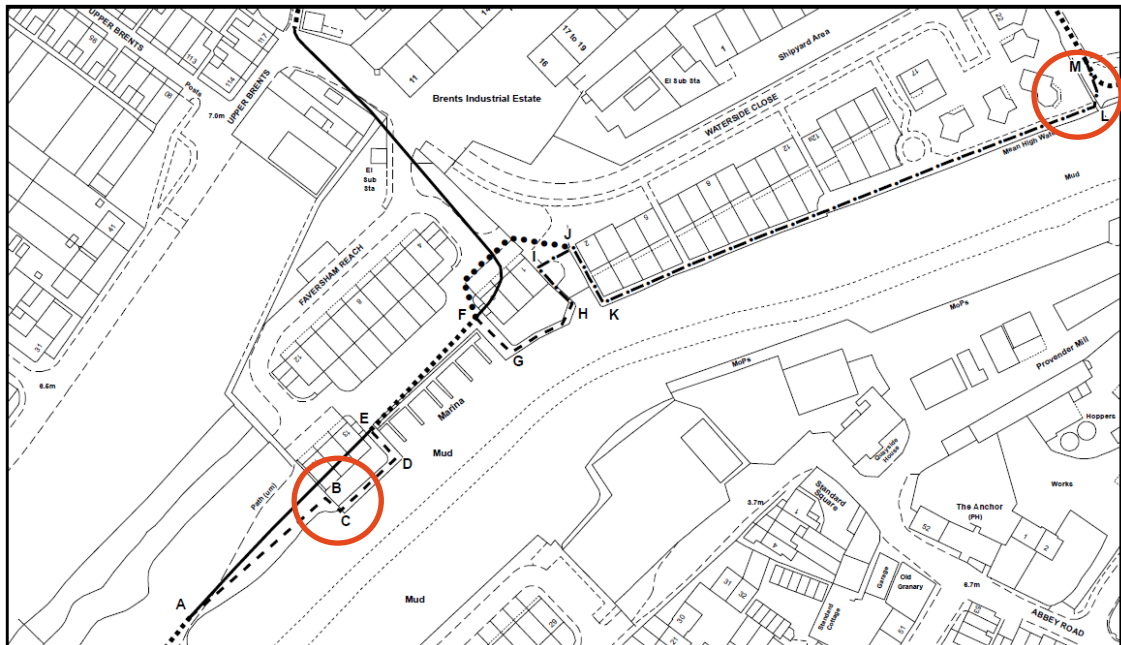
## Tables

Table 2-1: Strata anticipated (Source: BGS Lexicon, 2015).....	6
Table 5-1: Characteristic material properties for the strata encountered.....	16
Table 7-1 Geotechnical risk assessment.....	19



The proposed works are part of a larger scheme to potentially divert the Faversham Creek footpath onto a new creek-side alignment connecting footpath ZF5 to footpath ZF32. The purpose is to create easier access along the creek-side without diverting around the recently developed housing (Waterside Close), and the Brents Industrial Estate, and to overcome the longstanding obstruction to Public Footpath ZF5 at Faversham Reach.

Ramps are proposed at point C and point L as shown on the map in Figure 1.2 (KCC, 2014). These will overcome an existing height difference of up to 2m, allowing the path to follow the existing creek retaining wall. Reference locations C and L will be used throughout this report.



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**Figure 1.2: Plan showing footpath and investigation points C and L**

The two locations C and L are shown in photographs 1.1 and 1.2



**Photograph 1.1** – Location C, the ramp increases in height to match the existing wall



**Photograph 1.2** – Location L, again the ramp rises to match the existing wall.

At present, there is no preferred option or illustrative structural design, and various materials and design options are being considered. It is expected that the materials used will be steel and concrete and/or plastic.



### **1.3 Geotechnical category**

Based on the available information, site inspections and the findings of the ground investigation, the proposed scheme is considered to fall within geotechnical category 2 as defined in Eurocode 7 (BSI, 2009).

### **1.4 Other relevant information**

A preliminary design for the footpath ZF5 was undertaken by East Kent Engineering Partnership in December 2014, commissioned by Swale Borough Council. This included a visual assessment of the existing footpath and piled quay.

## **2 Existing Information**

The following section summarises the details of a brief geotechnical desk study undertaken prior to the intrusive ground investigation.

### **2.1 Topography and geomorphology**

The areas of interest lie on the edge of Faversham Creek, approximately 1m above the bed of the creek. From the creek the land rises at a shallow angle before rising up a vertical bank at 0.5m high at location L and 0.75m at location C. Point C lies on a shallow slope increasing in height inland, where a small inlet of marshland is found. This becomes part of what is known as Faversham Village Green. Location point L lies on a flat area of agricultural land, before rising up a small flood bank onto the main area of grassed farmland owned by the Ham Estate. The area has an approximate elevation of 4mAOD.

### **2.2 Geological maps and memoirs**

The geology at the site has been determined from the records of the British Geological Survey including the 1:50,000 Faversham sheet 273 and the associated BGS memoir *Geology of the country around Faversham*. An extract of the published geological map is shown in in Figure 2.2.

The anticipated superficial deposits and solid formations are summarised in Table 2.1.

Figure 2.1: Extract from the 1:50,000 geological map sheet 273



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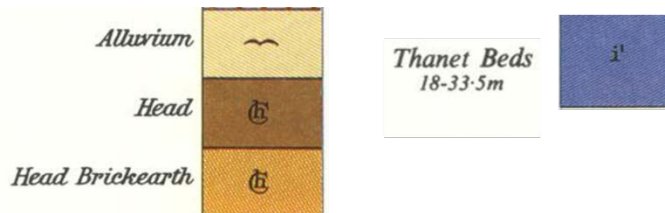


Table 2-1: Strata anticipated (Source: BGS Lexicon, 2015)

Superficial deposits	
Alluvium (Quaternary)	Soft to firm compressible silty clay, can contain layers of silt, sand, peat and gravel.
Head, brickearth (Quaternary)	Poorly-sorted and poorly-stratified deposits of slightly gravelly silts and clays.
Bedrock Formation	
Thanet Sand Formation (Paleogene)	Fine-grained sand that can be clayey and glauconitic, up to 30 thick.

The geological mapping does not indicate the presence of made ground on the site. However, a variable thickness of made ground can be expected everywhere due to previous cycles of development.

### **2.3 Hydrogeology**

The Environment Agency define the underlying alluvium is classified as a secondary A aquifer (EA, 2015). The Thanet Sand Formation is designated as a secondary A bedrock aquifer. A secondary A aquifer indicates that the strata may be capable of supporting water supplies on a local level and may form an important source of base flow to rivers.

The site does not lie within a groundwater source protection zone (SPZ) and no wells used for public drinking supply are located near the site. The groundwater level is high and fluctuates constantly with the tides.

### **2.4 Hydrology**

The closest water body to the site is the Faversham Creek, a tributary of The Swale separating the mainland from the Isle of Sheppey. At low tide, the water recedes about 10m from locations C and L. The groundwater table is expected to be coincident with the creek water level, so the unsaturated zone is very thin.

Within Faversham Creek, the tidal ranges are typically 2.5m to 5.5m during neap and spring tides respectively. Locations C and L are regularly inundated during higher tide cycles.

The area adjacent to and including both sites has a high risk of flooding and is located within a flood zone 3, indicating a 1% chance of flooding each year.

As indicated by the EA website (EA, 2015), the area directly to the southeast of point C has been granted indicative funding for a local flood protection capital scheme for 2015/2016.

### **2.5 Aerial photography**

No aerial photographs have been obtained but fairly detailed images can be viewed on on-line map sites such as Google Maps and Bing Maps,

### **2.6 Records of mines and mineral deposits**

The BGS Geoindex shows no history of mining or mineral deposits on or near the site.

## **2.7 Land use**

The land at either end of the proposed footpath is currently undeveloped. At location C, the ground forms part of a Site of Nature Conservation Interest (SNCI), making up Faversham Village Green. There is an existing footway, and the ground is overgrown with vegetation.

The land surrounding location L is currently used as farmland for crops and grazing. Closest to the creek, where the ramp will be situated, the ground dips onto a small flooded area down a small flood embankment.

## **2.8 Archaeological and historical investigations**

The Historic England website identified a series of Grade II listed buildings on the south eastern (opposite) side of the creek. Additionally Brents Tavern, located on the corner of Broomfield Road and Upper Brents is listed as Grade II. No additional assessment has been made in relation to the geotechnical investigation.

The history of the site was identified using historical maps provided by old-maps.co.uk (2015). At point C there was no development of the site until the late 1990s when the houses of Waterside Close and associated retaining structures were built adjacent to the proposed ramp.

Historically the ground at location L has been used for a warehouse and infrastructure associated with the shipbuilding history of Faversham. This appears to have been demolished prior to the 1980s. A railway siding or tramway connecting with the creek edge used to run near the site.

## **2.9 Existing ground investigations**

No previous ground investigation has been undertaken for this scheme. However intrusive ground investigations were undertaken for the nearby Brent Swing Bridge, 200m to the south west, and these results have been consulted (Amey, 2014). The investigation comprised three cable percussion boreholes to a depth between 5.6m and 20.45m below ground level.

## **2.10 Consultation with statutory bodies**

No consultations have been carried out in connection with this scheme.

## **2.11 Potentially contaminated land**

The Environment Agency website (EA, 2015) indicates that there are a number of historic and authorised landfill sites nearby. Ham Farm, the estate where point L is located, is designated an authorised landfill, however this stops approximately 50m away from point L. The nearest historic landfill is located 500m to the northwest.

The industrial history of the Faversham Creek area, and the historic land-use associated with the creek suggests potential sources of contamination. Principally this is concerned with made ground from industrial usage and possible contaminants would be heavy metals, PAH and TPH. Due to the nature of the scheme, contamination is considered to be a low to medium risk. However, a full review of the contamination potential has not been included in this report. An initial appraisal of contaminants that might be found during construction is included in section 5.

### **3 Ground investigation**

#### **3.1 Exploratory holes**

A ground investigation was undertaken by Amey on the 29th and 30th July 2015, using the services of Aylesford Drilling. The ground investigation comprised:

- two dynamic probes at each of locations C and L,
- two window samples at each of locations C and L.

The location of the fieldwork is shown on the appended exploratory hole location plan (Appendix A).

#### **3.2 Laboratory investigations**

The following laboratory tests were undertaken on samples retrieved during the investigation:

- seven natural moisture content tests
- two Atterberg limit tests (liquid and plastic limits)
- two BRE sulphate tests
- two general contamination suite tests.

## 4 Ground summary

There are four principal soil types identified by the investigation, which in order of increasing age are:

- Topsoil
- Made ground
- Alluvium
- Head brickearth / weathered Thanet Sand Formation (not differentiated)

Topsoil was encountered at point C only, whilst the surface at point L comprises alluvial clay reworked by the creek and farming activity.

Made ground was recorded to comprise predominantly very gravelly silty sandy clay for the top 0.8m at both C and L. The gravel consisted of flint and sandstone, and fragments of brick, glass and wood. At site L, there was an additional 1m of made ground comprising clayey sandy gravel, making a total of 1.8m of made ground. This was inter-layered with clay and also contained materials such as glass, brick and pottery.

Beneath the made ground, all the window samples encountered alluvium to at least 5m depth. This was described as very soft, grey to dark grey clay with rare plant matter. Towards the top, the clay was described as slightly silty. The base of the unit was not encountered in the window samples, but can be estimated from the dynamic probing results as lying at between 4.5m and 5.5m

The dynamic probes suggest that there is 1m to 2m of low strength material below the very soft alluvium between 5m and 7m depth. This might be the head brickearth or weathered Thanet Sand.

The dynamic probe results show a clear change in consistency at approximately 7m, at which depth we believe it is definitely Thanet Sand.



## **5 Ground conditions and material properties**

### **5.1 General**

The following section summarises the ground conditions and material properties based on all relevant investigations undertaken.

Geological logs of each exploratory hole can be found in Appendix B, and results of laboratory testing in Appendix C.

### **5.2 Topsoil**

The ground surface at site C comprises vegetated topsoil to a maximum depth of 0.1m. Topsoil was brown clayey silt with occasional roots. At point L no topsoil is present and the surface is a disturbed soft clay which is left exposed by the receding tide and becomes desiccated. The constant wetting results in the clay being very soft to soft.

### **5.3 Made ground**

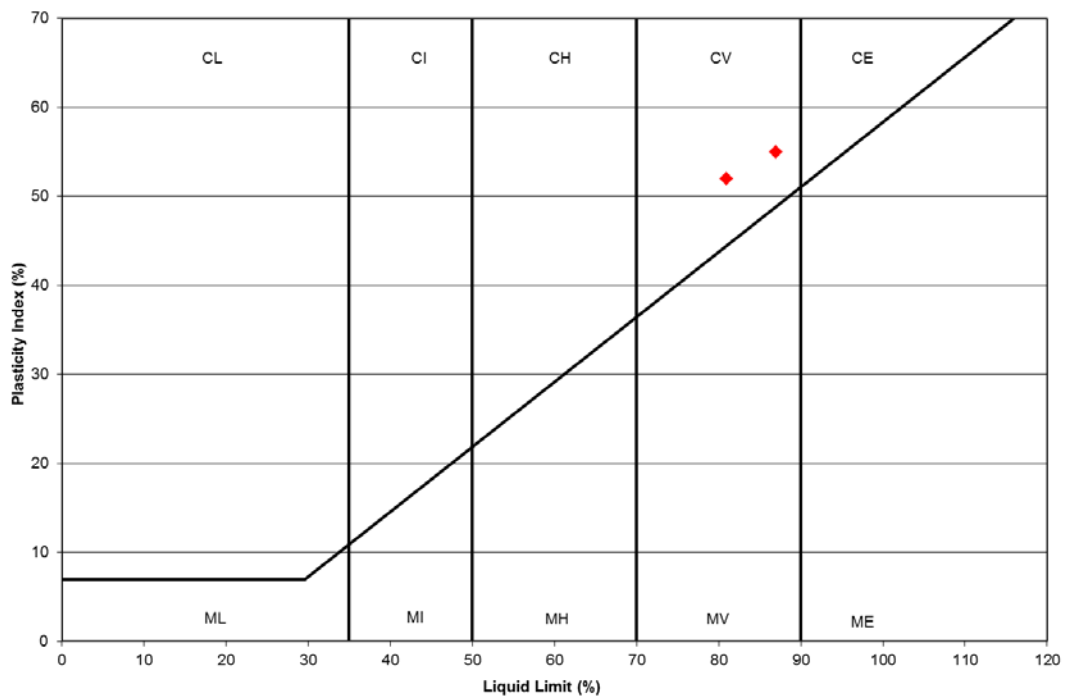
Beneath the ground surface, made ground was encountered in each of the exploratory holes. This was typically saturated dark grey gravelly sandy clay. The gravel consisted of sandstone, brick, glass and wood. At location C, this was encountered to a depth of up to 0.8m. At location L, the made ground was typically described as clayey sandy gravel. This was encountered up to 1.8m depth.

Dynamic probe results do not generally record the strength profile of the top 1.2m due to the required hand-dug service pits. However results at location L suggest an equivalent SPT N value of 4 (correlation based on Cearns et al, 1988), and a relative density of very loose to loose.

Using the relationship between SPT N and angle of shearing resistance (after Peck et al, 1974), a  $\phi'$  of 28° may be assumed for the made ground.

## 5.4 Alluvium

Alluvium was encountered below the made ground in all the exploratory holes to a depth of between 5.5m and 7m. This is very soft to soft, high plasticity grey to dark grey clay, within which the dynamic probe equipment sank under its own weight. Atterberg tests (liquid and plastic limit) classified the clay as being of high plasticity with PI values of 52% and 55% also indicating the is highly compressible. Results have been plotted on a Casagrande A-line graph in Figure 5.1 with both results falling within the CV category indicating a very high plasticity clay. Full laboratory results can be found in Appendix C.



**Figure 5.1: Casagrande A-Line graph of Alluvium**

Using usual correlations (e.g. Stroud, 1975), the dynamic probe test results show the undrained shear strength may be as low as 5kPa (extremely low strength).

No tests were undertaken to determine effective stress parameters, but based on the plasticity index, an effective angle of shearing resistance  $\phi'$  of  $24^\circ$  is appropriate (Clayton and Milititsky, 1986). For design purposes an effective cohesion of zero should be used.

For the purpose of concrete protection, the guidance given in BRE Special Digest 1 (BRE, 2005) has been followed. The superficial deposits are deemed to be *natural ground locations except those containing pyrite*. The maximum water soluble sulphate content was 1.4g/l and the pH was 8.0 (point C) and 8.6 (point L). Therefore if concrete is to be used, it should be designed as sulphate class DS2 and for AC2 exposure conditions.

## 5.5 Underlying strata

A deposit of contrasting strength was encountered in dynamic probing beneath the alluvium. This is likely to be either a head brickearth deposit or the weathered Thanet Sand or possibly a combination of both. The top of this deposit lies at approximately 7mbgl, and the strength differs at locations C and L.

At location C, dynamic probes between 6m and 8m depth give blow counts between 7 and 23 blows per 100mm. Usual correlations give an equivalent SPT N of 36, and an angle of shearing resistance,  $\phi'$  of 37°.

At location L, dynamic probe results between 7 and 8m depth give an equivalent SPT N of 16 and a  $\phi'$  of 32°. The lower value of 32° should be applied at both locations.

Using usual correlations (e.g. Stroud, 1975) the dynamic probe test results show that a conservative equivalent undrained shear strength of 80kPa can be used for preliminary design (assuming head brickearth and Thanet Sand are quite clayey).

## 5.6 Groundwater

Groundwater was found to be influenced by the tide but will always be higher than the river level. If groundwater levels are critical in design then consideration could be given to further monitoring during a tidal cycle.

## 5.7 Waste classification and materials re-use

Due to the nature of the project, there is potential for some excavation and disposal of the underlying material. Tests were carried out on two samples for a general suite of contaminants, and the results can be found in Appendix D.

To determine the potential waste class of excavated materials, a preliminary waste classification exercise was undertaken. This is a two stage process, with the first step comprising a hazard assessment of the soil quality data in line with the guidance set out in the Environment Agency WM2 document (EA, 2013). Once the hazardous nature of the materials is known, the second step is to assess the potential performance of the materials in a landfill. This is undertaken by looking at results of waste acceptance criteria (WAC) testing.

Generally wastes that are classified as hazardous will need to be deposited in a hazardous waste landfill or within a stable non-reactive hazardous waste cell in a non-hazardous waste landfill (depending on the WAC test results). Wastes that are shown not to be hazardous may either be deposited in a non-hazardous waste landfill (for which no WAC tests are required) or as inert waste (which would require confirmation of suitability for this particular waste stream via WAC testing).

In this report, only stage one, a hazard assessment, has been undertaken.

Soil quality data from the investigation was entered into a hazard assessment tool - *Hazwaste on-line*. The tool uses the current EA WM2 (v3) guidance to determine whether the substances contained within the soils tested exceed the threshold for any risk phrases that would render the materials as hazardous waste.

The preliminary analyses suggest that the near surface material can be disposed of as a not hazardous waste, however additional testing should be considered.



**Table 5-1: Characteristic material properties for the strata encountered**

Stratum	Depth range	Undrained shear strength, $c_u$	Effective angle of shearing resistance, $\phi'$	Effective cohesion, $c'$	Coefficient of active earth pressure ( $k_a$ )*	Coefficient of passive earth pressure ( $k_p$ )*	Weight density
Made ground	0-1.5m	20kPa	28°	0kPa	0.361	2.770	19kN/m <sup>3</sup>
Alluvium (clay)	1.5-7m	5kPa	24°	0kPa	0.422	2.371	15kN/m <sup>3</sup>
Head brickearth and Thanet Sand	>7m	80kPa	32°	0kPa	0.249	4.028	19kN/m <sup>3</sup>

\*  $K_a$  and  $K_p$  are Rankine earth pressures; i.e. no allowance has been made for sloping backfill

## 6 Engineering assessment

As described previously, there is no illustrative design at present.

The underlying geology will be capable of supporting new piled structures through end-bearing and shaft resistance. Depending on the diameter and required loading, piles will embed in the Thanet Sand at least 7mbgl.

The bearing capacity of the piles can be determined using the characteristic soil properties in Table 5.1. If additional load is applied to the made ground and alluvium, i.e. more fill, then negative shaft friction should be applied due to the compressibility of the superficial deposits.

If the ramps are formed partly in engineered general fill, then an allowance should be made for ongoing settlement, say 15-20% of the fill height. Alternatively, earthwork ramps could be topped up at a later date. A geogrid or geotextile should be laid before placing any general fill. Imported granular fills would be preferred. Earthwork ramps are unlikely to suffer shear failure provided they are less than 1m high and have batter slopes slacker than 1v: 2h.

Concrete at the site may be designed for design sulphate class DS2 and AC2 exposure conditions.

Material for disposal is likely to be classed as inert waste. However, additional contamination testing and a waste acceptance criteria test (WAC) are recommended.

## 7 Geotechnical risk register

The following geotechnical risk register has been prepared for the scheme using the guidance given in the Highways England's standard HD22/08 *Managing Geotechnical Risk* (Highways Agency, 2008). This is a working document and is subject to revision as the design progresses.

**Key:**

Likelihood		Impact	Time impact
Very likely	5	Very high	5 >10 weeks on completion
Likely	4	High	4 >1 week to completion
Probable	3	Medium	3 >4 weeks: <1 week on completion
Unlikely	2	Low	2 1 to 4 weeks: None on completion
Negligible	1	Very low	1 <1 week to activity: None on completion

Risk	Risk rating	Response
<b>L*I=R</b>		
17 to 25	Intolerable	Unacceptable
13 to 16	Intolerable	Unacceptable
9 to 12	Substantial	Early attention
5 to 8	Tolerable	Regular attention
1 to 4	Trivial	Monitor

**Table 7-1 Geotechnical risk assessment**

Risk No	Hazard/Risk	Before control			Consequence	Control Measure	After Control			Comment
		Likelihood	Impact	Risk			Likelihood	Impact	Risk	
1	Ground conditions different from those anticipated from the results of the available GI	2	3	6	Delays whilst design amended. Cost of additional construction materials	Modify geotechnical parameters to allow for variations	2	3	6	
2	Excavation / piling difficulties due to presence of unexpected hard ground in areas of foundations.	3	3	9	Delays and additional costs to programme whilst appropriate plant is mobilised.	Sufficient investigation should be undertaken to determine presence of hard ground. Establish contingency plan for mobilising alternative plant.	2	3	6	
3	Materials at structure foundation formation level more compressible than anticipated	3	3	9	Excessive settlement of structure	Adequate GI carried out to establish ground conditions.	2	3	6	
4	Adverse weather conditions during construction.	3	2	6	Delay and additional costs. Imported materials become acceptable, damage to pavement formation.	Adopt good 'materials husbandry', control surface water during works.	2	2	4	
5	Design and / or alignment changes following completion of GI	2	3	6	Delay while further investigation undertaken.	Ensure GI caters for latest design and potential alternatives.	1	3	3	
6	Foundation works causing contamination of aquifer and adjacent river.	2	3	6	Cost and delays to project	Ensure results of GI and contamination testing are consulted when determining foundation design. Undertake risk assessment as appropriate.	1	3	3	
7	Chemical attack on buried structural elements due to soil borne contaminants.				Premature degradation and failure of buried elements.	Ensure adequate laboratory testing and appropriate design of concrete/steel, etc.	1	3	3	
8	Unexpected water ingress into foundation excavations from perched water tables / groundwater	3	2	6	Reduced bearing capacity. Delays to construction while water removed	Adequate GI and monitoring. Ensure appropriate plant is available.	2	2	4	
9	Encountering unexpected contamination "hotspots"	3	2	6	Delays whilst contamination is quantified and qualified and remedial action/remediation is designed and undertaken	Undertake contamination during the GI and subsequent risk assessment. Ensure contamination specialists are available	2	2	4	
10	Encountering unidentified services during construction	3	3	9	Site Safety implications. Delays whilst diversions agreed and carried out.	Undertake desk study. In particular liaise with UK Power Networks on the location of their numerous assets in this area. Accurately locate known services before works commences.	2	3	6	
11	Discovery of unexploded war- time ordnance	2	3	6	Site safety implications. Delays whilst ordnance is made safe/ removed	Consult specialist UXB contractors. Establish procedures to identify and make safe ordnance.	1	3	3	



		Before control					After Control			
Risk No	Hazard/Risk	Likelihood	Impact	Risk	Consequence	Control Measure	Likelihood	Impact	Risk	Comment
12	Geological hazards such as faults, fissures, cavities, etc	2	2	4	Delays to contract while design amendments undertaken.	During construction geotechnical engineer to inspect all foundations/earthworks to ensure ground conditions as expected or to advise on necessary design changes	1	2	2	
13	Restrictions due to unexpected archaeological features	2	2	4	Delays whilst approvals, rescue excavations or mitigation measures are undertaken	Adequate pre-construction surveys and liaison with Archaeologist prior to and during construction	1	2	2	

At this stage, the main geotechnical risks are perceived to be:

- Ground conditions differing from those encountered in the ground investigation
- Excavation/piling difficulties due to presence of unexpected ground in areas of foundations
- Encountering services

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## **Appendix A Exploratory hole location plan**



**Key - Fieldwork**  
 ● DP# & WS# Window Sample Borehole and Dynamic Probe

Rev	Revision details	Chkd	Appd	Date
Drawn: JT				Preliminary
Design: SM				For comment
Chkd: DIB				For tender
Appd: DIB				For construction
Date: 21.09.2015				As constructed
				Other



Client  
**Project Name**  
 Public Footpath ZF5  
 Favershams

Drawing Title  
 Geotechnical  
**Exploratory Hole  
 Location Plan**

Original Drg Size : A3 Dimensions : -  
 Scale : 1:1250 Copyright © Amey

Drawing No  
**CO04300288/001** Rev  
**0**

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## **Appendix B Exploratory hole logs**



# Borehole Log

Borehole No.

**WS1**

Sheet 1 of 1

Project Name: Faversham public footpath ZF5 ramp

Project No. CO04300288

Co-ords: -

Hole Type WS

Location: Faversham Creek

Level:

Scale 1:25

Client: Kent County Council

Dates: 29/07/2015 -

Logged By SM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20		Brown sandy SILT. (Topsoil)		
					0.50		Brown sandy silty gravelly CLAY. Gravel sub-angular to sub-rounded of flint, brick and sandstone. (Made ground)		
					1.00		Very soft grey slightly sandy silty CLAY with rare sub-rounded gravels of flint. (Made ground)	1	
					2.50		Red brown very gravelly clayey silty SAND. Gravel sub-angular to sub-rounded of brick and sandstone. (Made ground)	2	
					5.00		Very soft grey CLAY. (Alluvium)	3	
							End of borehole at 5.00 m	4	
								5	

Remarks  
Remained wet but stable throughout.





# Probe Log

Borehole No.

**DP1**

Sheet 1 of 1

Project Name: Faversham public footpath ZF5 ramp

Project No. CO04300288

Co-ords: -

Hole Type DCP

Location: Faversham Creek

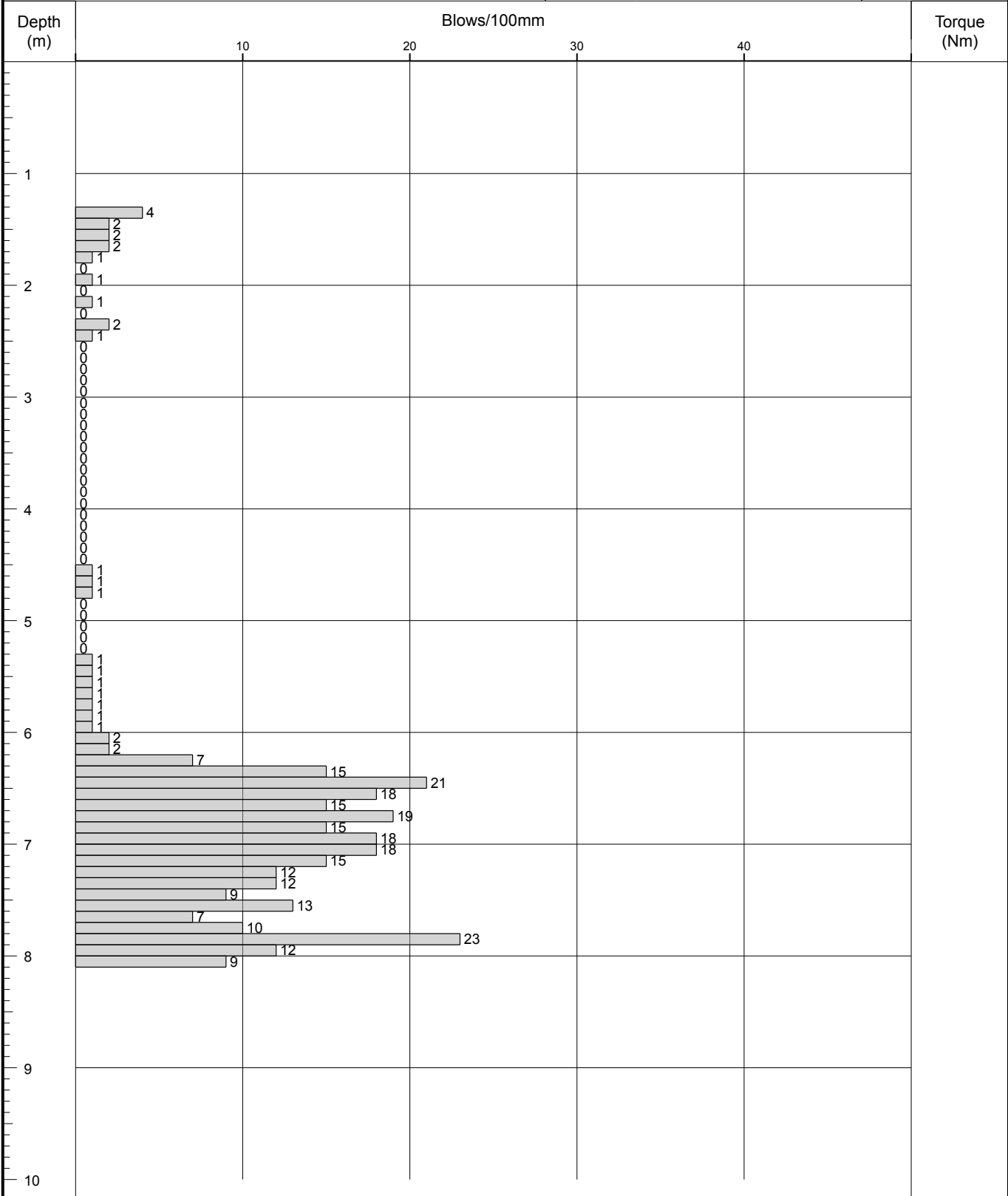
Level:

Scale 1:50

Client: Kent County Council

Dates: 29/07/2015 -

Logged By



Remarks

Fall Height  
Hammer Wt  
Probe Type DPH

Cone Base Diameter  
Final Depth 8.00  
Log Scale 1:50





# Borehole Log

Borehole No.

**WS2**

Sheet 1 of 1

Project Name: Faversham public footpath ZF5 ramp

Project No. CO04300288

Co-ords: -

Hole Type WS

Location: Faversham Creek

Level:

Scale 1:25

Client: Kent County Council

Dates: 30/07/2015 -

Logged By SM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20		Brown silty gravelly SAND. Gravel of sandstone and brick. (Topsoil).		
					0.45		Reddish brown slightly clayey, silty, gravelly SAND. Gravel angular to sub-rounded of sandstone, brick, macadam and glass. (Made ground) Very soft reddish brown silty CLAY. (Alluvium)		
					1.05		Very soft grey CLAY. (Alluvium)	1	
					1.40		Black fibrous silty PEAT. (Alluvium)		
					1.55		Very soft grey CLAY. (Alluvium)		
							2m - Brick	2	
								3	
								4	
					5.00		End of borehole at 5.00 m	5	

Remarks  
Remained wet but stable throughout.







# Probe Log

Borehole No.

**DP2**

Sheet 1 of 1

Project Name: Faversham public footpath ZF5 ramp

Project No. CO04300288

Co-ords: -

Hole Type DCP

Location: Faversham Creek

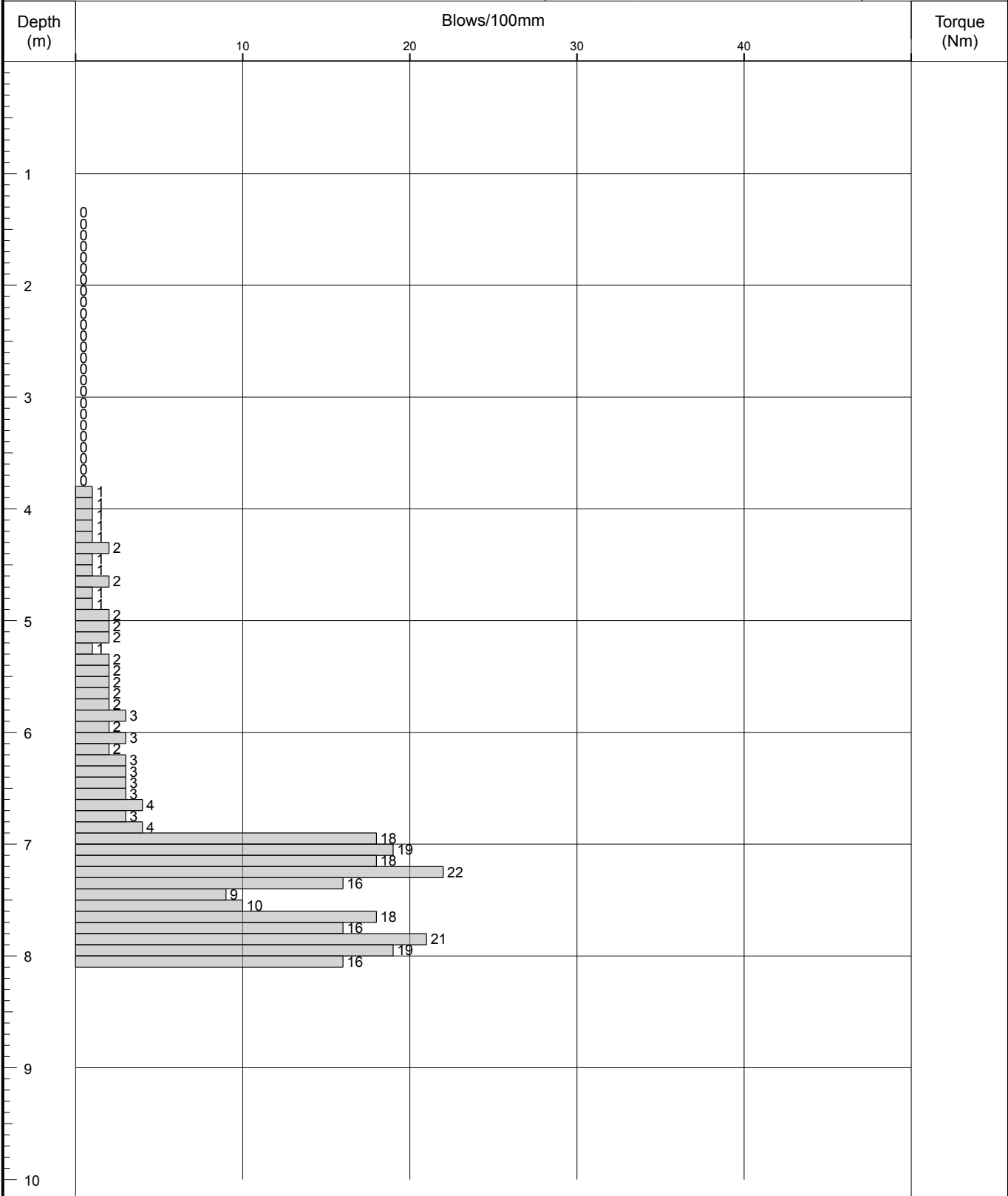
Level:

Scale 1:50

Client: Kent County Council

Dates: 29/07/2015 -

Logged By



Remarks

Fall Height  
Hammer Wt  
Probe Type DPH

Cone Base Diameter  
Final Depth 8.00  
Log Scale 1:50





# Borehole Log

Borehole No.

**WS3**

Sheet 1 of 1

Project Name: Faversham public footpath ZF5 ramp

Project No. CO04300288

Co-ords: -

Hole Type WS

Location: Faversham Creek

Level:

Scale 1:25

Client: Kent County Council

Dates: 30/07/2015 -

Logged By SM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.95		Dark grey very sandy gravelly CLAY. Gravel is sub-angular to sub-rounded of brick and sandstone. (Made ground)		
					1.80		Red brown sandy clayey GRAVEL. Gravel is fine to coarse angular to sub-rounded brick, chalk, sandstone, wood and pottery. (Made ground)	1	
					2.00		Very soft grey very sandy silty CLAY. (Alluvium)		
					2.50		Very soft grey CLAY. (Alluvium)	2	
							End of borehole at 2.50 m	3	
								4	
								5	

Remarks  
Wet throughout, beginning to collapse between 2m and 2.5m.





# Probe Log

Borehole No.

**DP3**

Sheet 1 of 1

Project Name: Faversham public footpath ZF5 ramp

Project No. CO04300288

Co-ords: -

Hole Type DCP

Location: Faversham Creek

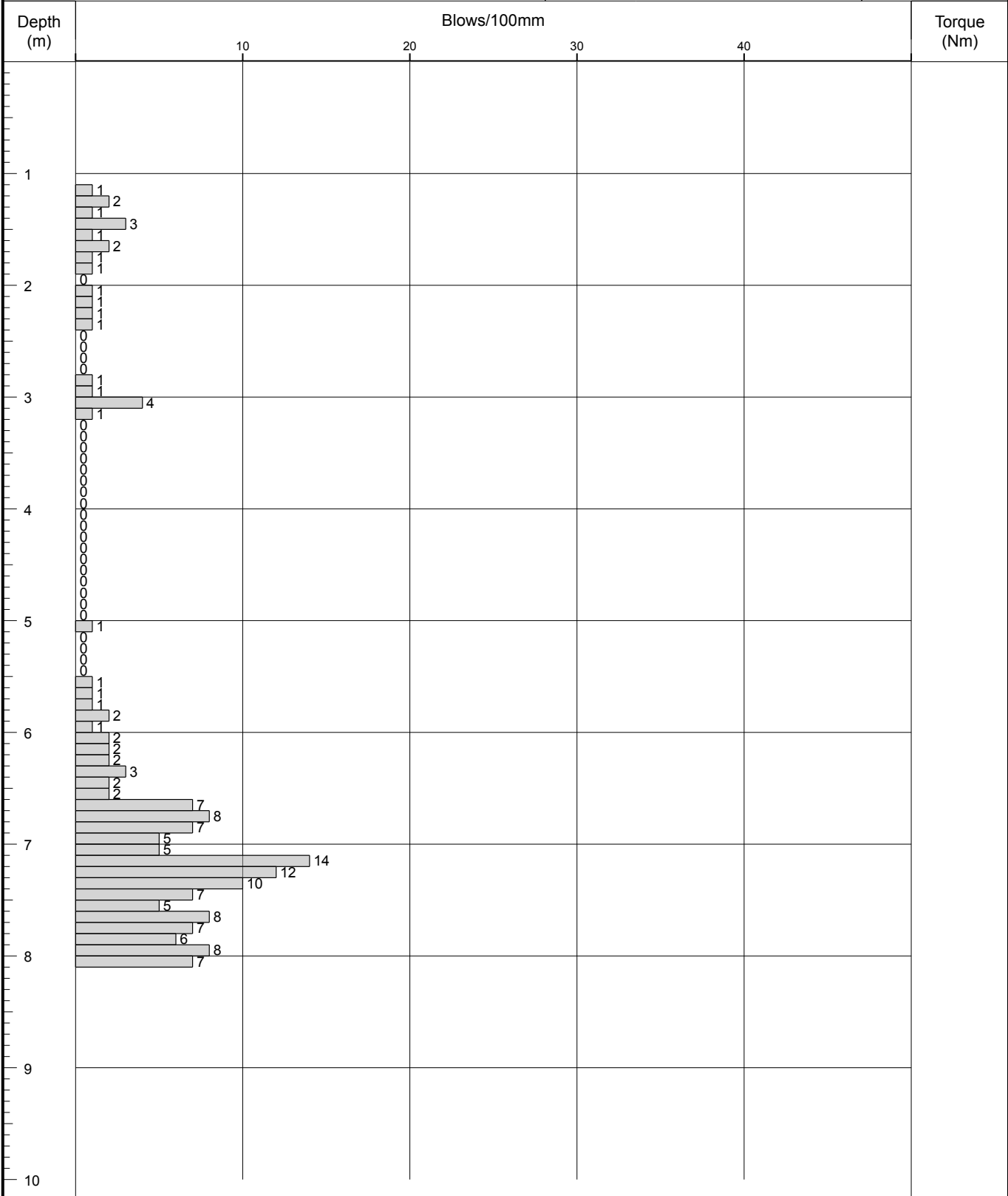
Level:

Scale 1:50

Client: Kent County Council

Dates: 30/07/2015 -

Logged By



Remarks

Fall Height  
Hammer Wt  
Probe Type DPH

Cone Base Diameter  
Final Depth 8.00  
Log Scale 1:50





# Borehole Log

Borehole No.

**WS4**

Sheet 1 of 1

Project Name: Faversham public footpath ZF5 ramp

Project No. CO04300288

Co-ords: -

Hole Type WS

Location: Faversham Creek

Level:

Scale 1:25

Client: Kent County Council

Dates: 29/07/2015 -

Logged By SM

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.70		Brown gravelly sandy silty CLAY. Gravel sub-angular of brick, sandstone and glass. (Made ground)		
					1.50		Dark brown very clayey GRAVEL. Gravel is sub-angular to sub-rounded brick, sandstone, concrete and glass. (Made ground)	1	
					2.10		Brown very gravelly, sandy CLAY. Gravel of brick and sandstone. (Made ground)	2	
					2.40		Very soft dark grey slightly silty CLAY. (Alluvium)		
					2.60		Black clayey fibrous PEAT. (Peat)		
					4.00		Very soft grey CLAY. (Alluvium)	3	
							End of borehole at 5.00 m	4	
								5	

Remarks  
Remained wet but stable throughout.





# Probe Log

Borehole No.

**DP4**

Sheet 1 of 1

Project Name: Faversham public footpath ZF5 ramp

Project No. CO04300288

Co-ords: -

Hole Type DCP

Location: Faversham Creek

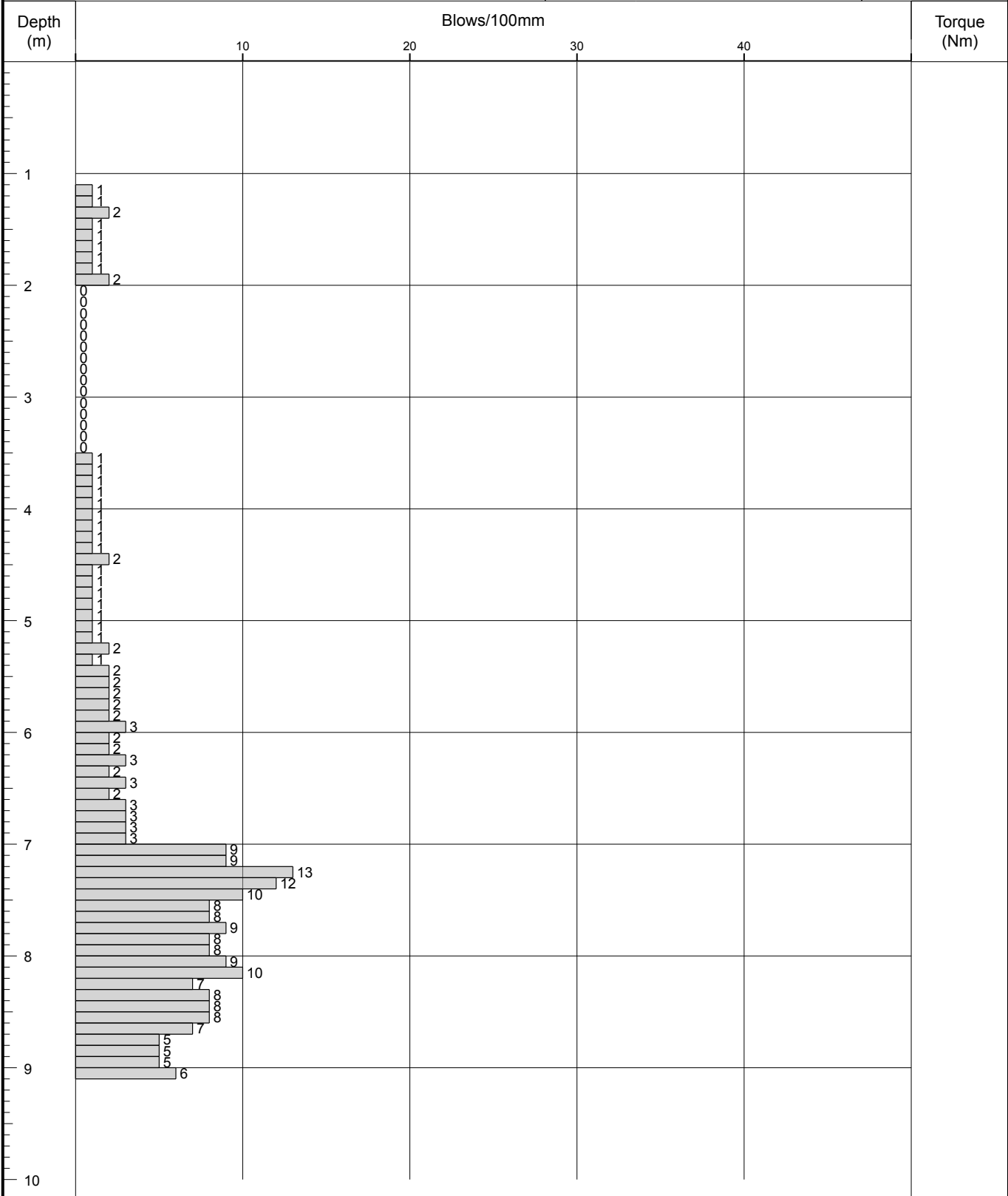
Level:

Scale 1:50

Client: Kent County Council

Dates: 30/07/2015 -

Logged By



Remarks

Fall Height	Cone Base Diameter
Hammer Wt	Final Depth 9.00
Probe Type DPH	Log Scale 1:50

Cone Base Diameter	Final Depth 9.00
Final Depth 9.00	Log Scale 1:50



## **Appendix C Laboratory testing**

**Atterberg and Moisture Content Summary**

To BS1377-2:1990(2003) cl.3.2, 3.3, 4.2, 4.3



Project Name		Faversham ( Public Footpath )					Project Number		GL3389	
Client		Amev			PE	TG	Date Issued		11-Aug-15	
Location	Depth m	Sample Type	Visual Description	Comments	Natural MC %	Liquid Limit %	Plastic Limit %	Plasticity Index	Classi- fication	Passing 425 micron %
WS1	3.50	D	<i>Very soft extremely low strength black organic CLAY with occasional gravel.</i>		74	81	29	52	CVO	99
WS1	4.50	D			69					
WS2	2.50	D			72					
WS2	3.50	D	<i>Very soft very low strength dark grey organic CLAY.</i>		78	87	32	55	CVO	100
WS3	0.30	D			26					
WS4	0.50	D			27					
WS4	2.60	D			62					
WS4	4.50	D			74					

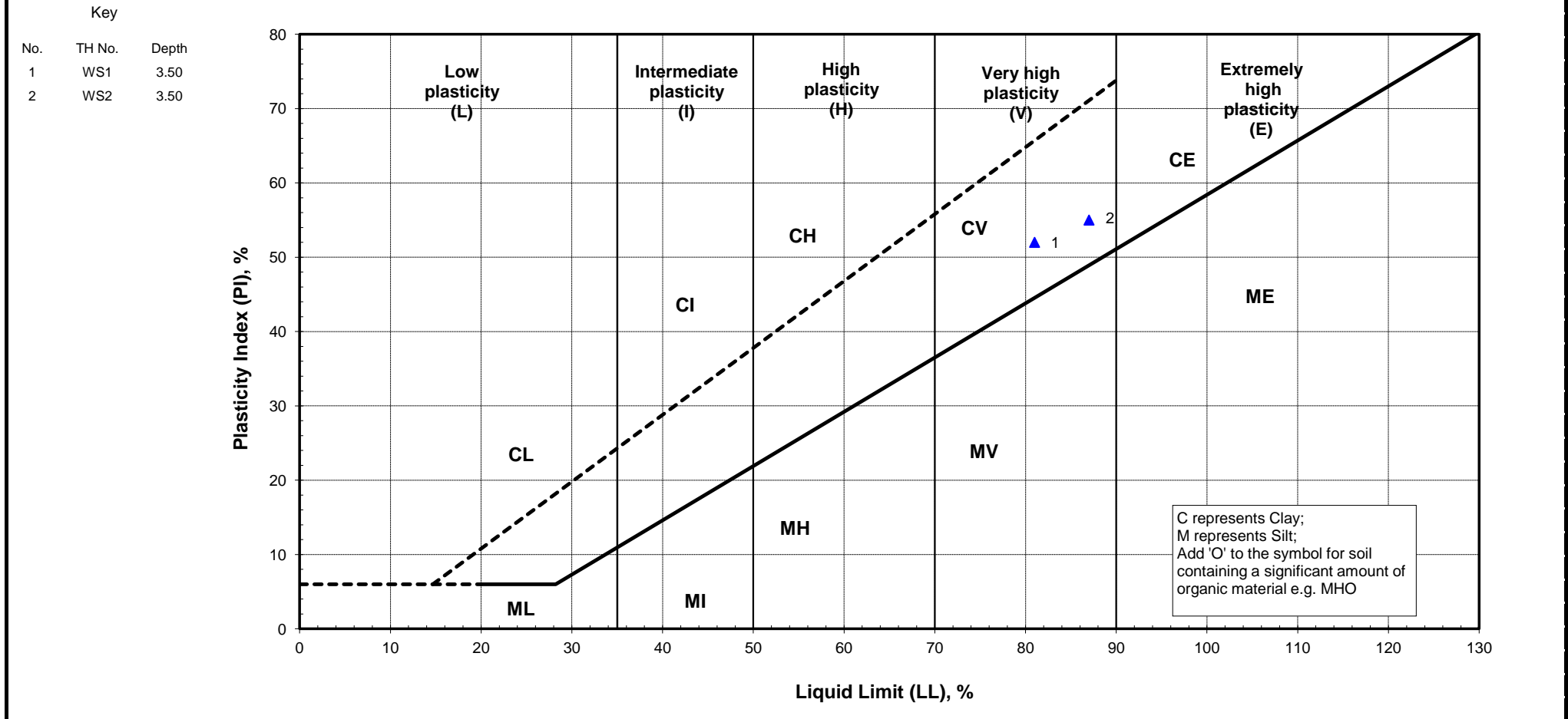
Southern Testing Laboratories Limited, East Grinstead is registered under BS EN ISO 9001:2008 BSI ref: FS29280

Jun 13

# Plasticity Chart for Atterberg Limit Tests



<b>Project Name</b>	Faversham ( Public Footpath )	<b>Project Number</b>	GL3389
<b>Client Name</b>	Amey	<b>PE</b>	TG
		<b>Date Issued</b>	11-Aug-15



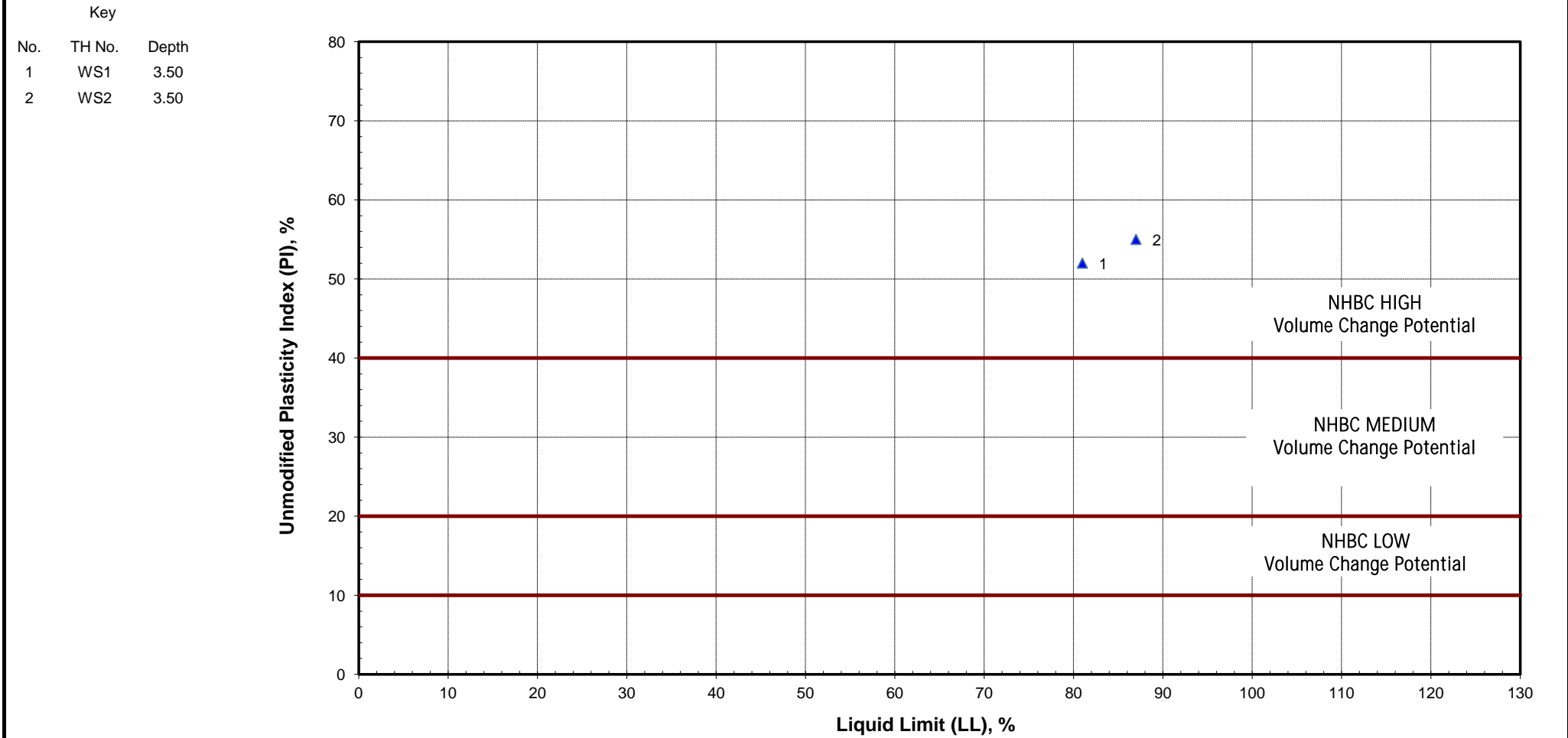
Liquid Limit		Plastic Limit		Plasticity Index	
Maximum Value	87	Maximum Value	32	Maximum Value	55
Minimum Value	81	Minimum Value	29	Minimum Value	52
Average Value	84	Average Value	31	Average Value	54



## NHBC Classification for Volume Change Potential



<b>Project Name</b>	Faversham ( Public Footpath )	<b>Project Number</b>	GL3389
<b>Client Name</b>	Amey	<b>PE</b>	TG
		<b>Date Issued</b>	11-Aug-15



Liquid Limit	Plastic Limit	Unmodified Plasticity Index
Maximum Value	87	32
Minimum Value	81	29
Average Value	84	31
		54



# Scientific Analysis Laboratories Ltd

## Certificate of Analysis

3 Crittall Drive  
Springwood Industrial  
Estate  
Braintree  
Essex  
CM7 2RT  
Tel : 01376 560120  
Fax : 01376 552923

Scientific Analysis Laboratories is a  
limited company registered in England and  
Wales (No 2514788) whose address is at  
Hadfield House, Hadfield Street, Manchester M16 9FE

**Report Number:** 499856-1

**Date of Report:** 19-Aug-2015

**Customer:** Southern Testing Laboratories  
Keeble House  
Stuart Way  
East Grinstead  
West Sussex  
RH19 4QA

**Customer Contact:** Mr Timon Greenwood

**Customer Job Reference:** GL3389

**Customer Purchase Order:** GL3389\_1 Timon

**Customer Site Reference:** Faversham (Public Footpath)

**Date Job Received at SAL:** 07-Aug-2015

**Date Analysis Started:** 11-Aug-2015

**Date Analysis Completed:** 19-Aug-2015

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with SAL SOPs

All results have been reviewed in accordance with Section 25 of the SAL Quality Manual



Report checked  
and authorised by :  
Miss Claire Brown  
Customer Service Manager

Issued by :  
Miss Claire Brown  
Customer Service Manager





Unit A2  
Windmill Road  
Ponswood Industrial Estate  
St Leonards on Sea  
East Sussex  
TN38 9BY  
Telephone: (01424) 718618  
Facsimile: (01424) 729911  
[info@elab-uk.co.uk](mailto:info@elab-uk.co.uk)

---

**THE ENVIRONMENTAL LABORATORY LTD**

---

**Analytical Report Number:** 15-03226

**Issue:** 1

**Date of Issue:** 13/08/2015

**Contact:** Sarah Mellers

**Customer Details:** AMEY plc  
Explora II  
Fleming Way  
Crawley  
West Sussex  
RH10 9GT

**Quotation No:** Q15-00313


**Order No:** Not Supplied

**Customer Reference:** Not Supplied

**Date Received:** 05/08/2015

**Date Approved:** 13/08/2015

**Details:** Faversham Public Footpath ZF5

**Approved by:** 

Steve Knight, Business Development Manager

---

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

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## Sample Summary

Report No.: 15-03226

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
35905	WS1 1.50	29/07/2015	05/08/2015	Sandy loam	
35906	WS2 0.10	29/07/2015	05/08/2015		
35907	WS3 0.30	30/07/2015	05/08/2015	Sandy clayey loam	
35908	WS4 1.00	30/07/2015	05/08/2015	Sandy silty loam	

# Results Summary

Report No.: 15-03226

ELAB Reference	35905	35907	35908
Customer Reference			
Sample ID			
Sample Type	SOIL	SOIL	SOIL
Sample Location	WS1	WS3	WS4
Sample Depth (m)	1.50	0.30	1.00
Sampling Date	29/07/2015	30/07/2015	30/07/2015

Determinand	Codes	Units	LOD			
<b>Metals</b>						
Arsenic	M	mg/kg	1	47.2	15.0	14.5
Cadmium	M	mg/kg	0.5	1.1	< 0.5	0.6
Chromium	M	mg/kg	5	33.3	30.5	26.3
Copper	M	mg/kg	5	242	57.8	63.4
Lead	M	mg/kg	5	1320	205	190
Mercury	M	mg/kg	0.5	0.7	< 0.5	< 0.5
Nickel	M	mg/kg	5	32.5	23.4	20.5
Selenium	M	mg/kg	1	1.5	< 1.0	1.0
Zinc	M	mg/kg	45	282	144	85.5
<b>Anions</b>						
Water Soluble Sulphate	M	mg/l	20	191	578	279
<b>Inorganics</b>						
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0
Water Soluble Boron	N	mg/kg	0.5	2.6	4.4	1.6
<b>Miscellaneous</b>						
pH	M	units	0.1	8.2	8.2	8.5
Soil Organic Matter	U	%	0.1	1.6	1.7	0.1
<b>Phenols</b>						
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5
<b>Polyaromatic hydrocarbons</b>						
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	0.4	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	0.9	0.3	0.2
Pyrene	M	mg/kg	0.1	0.6	0.2	0.1
Benzo (a) anthracene	M	mg/kg	0.1	0.3	0.1	< 0.1
Chrysene	M	mg/kg	0.1	0.4	0.2	< 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	0.6	< 0.1	0.4
Benzo (k) fluoranthene	M	mg/kg	0.1	0.3	< 0.1	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	0.4	0.2	< 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	0.3	0.2	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	M	mg/kg	0.1	0.2	0.2	< 0.1
Total PAH(16)	M	mg/kg	0.4	4.7	1.5	0.7
<b>BTEX</b>						
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0
MTBE	N	ug/kg	10	< 10.0	< 10.0	< 10.0
<b>TPH CWG</b>						
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	1.3
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	< 1.0	< 1.0	1.3

## Method Summary

Report No.: 15-03226

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
<b>Soil</b>					
Hexavalent chromium	N	As submitted sample	07/08/2015	110	Colorimetry
pH	M	Air dried sample	10/08/2015	113	Electromeric
Aqua regia extractable metals	M	Air dried sample	10/08/2015	118	ICPMS
Phenols in solids	M	As submitted sample	07/08/2015	121	HPLC
Polyaromatic hydrocarbons (GC-FID)	M	As submitted sample	07/08/2015	133	GC-FID
Water soluble anions	M	Air dried sample	07/08/2015	172	Ion Chromatography
BTEX in solids	M	As submitted sample	10/08/2015	181	GC-MS
Water soluble boron	N	Air dried sample	07/08/2015	202	Colorimetry
Total cyanide	M	As submitted sample	10/08/2015	204	Colorimetry
Aliphatic hydrocarbons in soil	N	As submitted sample	07/08/2015	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	11/08/2015	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	07/08/2015	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	10/08/2015	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	10/08/2015	214	GC-MS
Soil organic matter	U	Air dried sample	10/08/2015	BS1377:P3	Titrimetry

Tests marked N are not UKAS accredited



## Report Information

Report No.: 15-03226

### Key

---

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

### Deviation Codes

- 
- |   |  |
|---|--|
| a | No date of sampling supplied                             |
| b | No time of sampling supplied (Waters Only)               |
| c | Sample not received in appropriate containers            |
| d | Sample not received in cooled condition                  |
| e | The container has been incorrectly filled                |
| f | Sample age exceeds stability time (sampling to receipt)  |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

### Sample Retention and Disposal

---

All soil samples will be retained for a period of one month

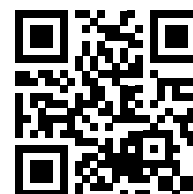
All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



## **Appendix D Waste classification**

# Waste Classification Report



GZJ5Y-RN9H9-LCUGN

## Job name

Faversham Public Footpath ZF5

## Waste Stream

Default Contaminated Land

## Comments

## Project

## Site

## Classified by

Name:  
**Giordanelli, Dino**  
 Date:  
**17/09/2015 14:06 UTC**  
 Telephone:  
**01293 657232**

Company:  
**Amey plc**  
**South East Hub, Explorer II**  
**Fleming Way**  
**Crawley**  
**RH10 9GT**

## Report


Created by: Giordanelli, Dino  
 Created date: 17/09/2015 14:06 UTC

## Job summary

#	Sample Name	Depth [m]	Classification Result	Hazardous properties	Page
1	WS1	1.5	Non Hazardous		2
2	WS3	0.3	Non Hazardous		4
3	WS4	1	Non Hazardous		6

Appendices	Page
<a href="#">Appendix A: Classifier defined and non CLP determinands</a>	9
<a href="#">Appendix B: Notes</a>	11
<a href="#">Appendix C: Version</a>	11

**Classification of sample: WS1**

 **Non Hazardous Waste**  
Classified as **17 05 04**  
in the List of Waste

**Sample details**

Sample Name:	LoW Code:	
<b>WS1</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
<b>1.5 m</b>		
Moisture content: <b>0%</b> (no correction)		

**Hazard properties**

None identified

**Determinands** (Moisture content: 0%, no correction)

acenaphthene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

acenaphthylene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

anthracene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

arsenic trioxide: (Cation conc. entered: 47.2 mg/kg, converted to compound conc.:62.319 mg/kg or 0.00623%)

benzene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

benzo[a]anthracene: (Whole conc. entered as: 0.3 mg/kg or 0.00003%)

benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 0.4 mg/kg or 0.00004%)

benzo[b]fluoranthene: (Whole conc. entered as: 0.6 mg/kg or 0.00006%)

benzo[ghi]perylene: (Whole conc. entered as: 0.2 mg/kg or 0.00002%)

benzo[k]fluoranthene: (Whole conc. entered as: 0.3 mg/kg or 0.00003%)

boron tribromide/trichloride/trifluoride (combined): (Cation conc. entered: 2.6 mg/kg, converted to compound conc.:34.918 mg/kg or 0.00349%)

cadmium sulfide: (Cation conc. entered: 1.1 mg/kg, converted to compound conc.:1.414 mg/kg or 0.000141%, Note 1 conc.: 0.00011%)

chromium(III) oxide: (Cation conc. entered: 33.3 mg/kg, converted to compound conc.:48.67 mg/kg or 0.00487%)

chromium(VI) oxide: (Cation conc. entered: <0.8 mg/kg, converted to compound conc.:<1.538 mg/kg or <0.000154%) **IGNORED Because: "<LOD"**

chrysene: (Whole conc. entered as: 0.4 mg/kg or 0.00004%)

copper (I) oxide: (Cation conc. entered: 242 mg/kg, converted to compound conc.:272.465 mg/kg or 0.0272%)

cyanides (with the exception of complex cyanides): (Whole conc. entered as: <1 mg/kg or <0.0001%) **IGNORED Because: "<LOD"**

dibenz[a,h]anthracene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

ethylbenzene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

fluoranthene: (Whole conc. entered as: 0.9 mg/kg or 0.00009%)

fluorene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

indeno[123-cd]pyrene: (Whole conc. entered as: 0.3 mg/kg or 0.00003%)

lead compounds (with the exception of those listed separately in this Annex): (Cation conc. entered: 1320 mg/kg, converted to compound conc.:1993.2 mg/kg or 0.199%, Note 1 conc.: 0.132%)

mercury dichloride: (Cation conc. entered: 0.7 mg/kg, converted to compound conc.:0.947 mg/kg or 0.0000947%)

naphthalene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

nickel dihydroxide: (Cation conc. entered: 32.5 mg/kg, converted to compound conc.:51.334 mg/kg or 0.00513%)

pH: (Whole conc. entered as: 8.2 pH, converted to conc.:8.2 pH or 8.2 pH)

phenanthrene: (Whole conc. entered as: 0.4 mg/kg or 0.00004%)

phenol: (Whole conc. entered as: <5 mg/kg or <0.0005%) **IGNORED Because: "<LOD"**

pyrene: (Whole conc. entered as: 0.6 mg/kg or 0.00006%)

selenium compounds (with the exception of cadmium sulfoselenide and sodium selenite): (Cation conc. entered: 1.5 mg/kg, converted to compound conc.:2.25 mg/kg or 0.000225%)

toluene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

TPH (C6 to C40) petroleum group: (Whole conc. entered as: <1 mg/kg or <0.0001%) **IGNORED Because: "<LOD"**

xylene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

zinc chromate: (Cation conc. entered: 282 mg/kg, converted to compound conc.:782.309 mg/kg or 0.0782%)

## Notes utilised in assessment

### C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "cadmium sulfide"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "arsenic trioxide"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]anthracene"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[b]fluoranthene"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[ghi]perylene"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[k]fluoranthene"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chromium(III) oxide"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chrysene"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "copper (I) oxide"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "fluoranthene"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "mercury dichloride"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "nickel dihydroxide"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "phenanthrene"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "pyrene"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "selenium compounds (with the exception of cadmium sulfoselenide and sodium selenite)"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "zinc chromate"

### Note 1 , used on:

Test: "HP 5 on STOT SE 1; H370, STOT RE 1; H372" for determinand: "cadmium sulfide"  
 Test: "HP 5 on STOT SE 2; H371, STOT RE 2; H373" for determinand: "cadmium sulfide"  
 Test: "HP 6 on Acute Tox. 4; H302" for determinand: "cadmium sulfide"  
 Test: "HP 6 on Acute Tox. 4; H332" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"  
 Test: "HP 7 on Carc. 1B; H350, Carc. 1A; H350, Carc. 1B; H350i, Carc. 1A; H350i" for determinand: "cadmium sulfide"  
 Test: "HP 7 on Carc. 2; H351" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"  
 Test: "HP 10 on Repr. 1A; H360, Repr. 1B; H360, Repr. 1B; H360F, Repr. 1A; H360F, Repr. 1A; H360D, Repr. 1B; H360D, Repr. 1B; H360FD, Repr. 1A; H360FD, Repr. 1A; H360Fd, Repr. 1B; H360Fd, Repr. 1B; H360Df, Repr. 1A; H360Df" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"  
 Test: "HP 10 on Repr. 2; H361, Repr. 2; H361f, Repr. 2; H361d, Repr. 2; H361fd" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"  
 Test: "HP 11 on Muta. 2; H341" for determinand: "cadmium sulfide"  
 Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "cadmium sulfide"

## Determinand notes


### Note 1 , used on:

determinand: "cadmium sulfide"  
 determinand: "lead compounds (with the exception of those listed separately in this Annex)"

### Note A , used on:

determinand: "lead compounds (with the exception of those listed separately in this Annex)"  
 determinand: "selenium compounds (with the exception of cadmium sulfoselenide and sodium selenite)"  
 determinand: "zinc chromate"

**Classification of sample: WS3**

 **Non Hazardous Waste**  
Classified as **17 05 04**  
in the List of Waste

**Sample details**

Sample Name:	LoW Code:	
<b>WS3</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
<b>0.3 m</b>		
Moisture content: <b>0%</b> (no correction)		

**Hazard properties**

None identified

**Determinands** (Moisture content: 0%, no correction)

acenaphthene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

acenaphthylene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

anthracene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

arsenic trioxide: (Cation conc. entered: 15 mg/kg, converted to compound conc.:19.805 mg/kg or 0.00198%)

benzene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

benzo[a]anthracene: (Whole conc. entered as: 0.1 mg/kg or 0.00001%)

benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: 0.2 mg/kg or 0.00002%)

benzo[b]fluoranthene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

benzo[ghi]perylene: (Whole conc. entered as: 0.2 mg/kg or 0.00002%)

benzo[k]fluoranthene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

boron tribromide/trichloride/trifluoride (combined): (Cation conc. entered: 4.4 mg/kg, converted to compound conc.:59.092 mg/kg or 0.00591%)

cadmium sulfide: (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.643 mg/kg or <0.0000643%, Note 1 conc.: <0.00005%) **IGNORED Because: "<LOD"**

chromium(III) oxide: (Cation conc. entered: 30.5 mg/kg, converted to compound conc.:44.577 mg/kg or 0.00446%)

chromium(VI) oxide: (Cation conc. entered: <0.8 mg/kg, converted to compound conc.:<1.538 mg/kg or <0.000154%) **IGNORED Because: "<LOD"**

chrysene: (Whole conc. entered as: 0.2 mg/kg or 0.00002%)

copper (I) oxide: (Cation conc. entered: 57.8 mg/kg, converted to compound conc.:65.076 mg/kg or 0.00651%)

cyanides (with the exception of complex cyanides): (Whole conc. entered as: <1 mg/kg or <0.0001%) **IGNORED Because: "<LOD"**

dibenz[a,h]anthracene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

ethylbenzene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

fluoranthene: (Whole conc. entered as: 0.3 mg/kg or 0.00003%)

fluorene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

indeno[123-cd]pyrene: (Whole conc. entered as: 0.2 mg/kg or 0.00002%)

lead compounds (with the exception of those listed separately in this Annex): (Cation conc. entered: 205 mg/kg, converted to compound conc.:309.55 mg/kg or 0.031%, Note 1 conc.: 0.0205%)

mercury dichloride: (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.677 mg/kg or <0.0000677%) **IGNORED Because: "<LOD"**

naphthalene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

nickel dihydroxide: (Cation conc. entered: 23.4 mg/kg, converted to compound conc.:36.96 mg/kg or 0.0037%)

pH: (Whole conc. entered as: 8.2 pH, converted to conc.:8.2 pH or 8.2 pH)

phenanthrene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

phenol: (Whole conc. entered as: <5 mg/kg or <0.0005%) **IGNORED Because: "<LOD"**

pyrene: (Whole conc. entered as: 0.2 mg/kg or 0.00002%)

selenium compounds (with the exception of cadmium sulfoselenide and sodium selenite): (Cation conc. entered: <1 mg/kg, converted to compound conc.:<1.5 mg/kg or <0.00015%) **IGNORED Because: "<LOD"**  
 toluene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**  
 TPH (C6 to C40) petroleum group: (Whole conc. entered as: <1 mg/kg or <0.0001%) **IGNORED Because: "<LOD"**  
 xylene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**  
 zinc chromate: (Cation conc. entered: 144 mg/kg, converted to compound conc.:399.477 mg/kg or 0.0399%)

### Notes utilised in assessment

#### C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "arsenic trioxide"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]anthracene"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[a]pyrene; benzo[def]chrysene"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "benzo[ghi]perylene"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chromium(III) oxide"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "chrysene"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "copper (I) oxide"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "fluoranthene"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "nickel dihydroxide"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "pyrene"
- Test: "HP 14 on R50, R52, R53, R50/53, R51/53, R52/53" for determinand: "zinc chromate"

### Determinand notes


**Note 1** , used on:

determinand: "lead compounds (with the exception of those listed separately in this Annex)"

**Note A** , used on:

determinand: "lead compounds (with the exception of those listed separately in this Annex)"  
 determinand: "zinc chromate"

**Classification of sample: WS4**

 **Non Hazardous Waste**  
Classified as **17 05 04**  
in the List of Waste

**Sample details**

Sample Name:	LoW Code:	
<b>WS4</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
<b>1 m</b>		
Moisture content: <b>0%</b> (no correction)		

**Hazard properties**

None identified

**Determinands** (Moisture content: 0%, no correction)

acenaphthene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

acenaphthylene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

anthracene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

arsenic trioxide: (Cation conc. entered: 14.5 mg/kg, converted to compound conc.:19.145 mg/kg or 0.00191%)

benzene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

benzo[a]anthracene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

benzo[a]pyrene; benzo[def]chrysene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

benzo[b]fluoranthene: (Whole conc. entered as: 0.4 mg/kg or 0.00004%)

benzo[ghi]perylene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

benzo[k]fluoranthene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

boron tribromide/trichloride/trifluoride (combined): (Cation conc. entered: 1.6 mg/kg, converted to compound conc.:21.488 mg/kg or 0.00215%)

cadmium sulfide: (Cation conc. entered: 0.6 mg/kg, converted to compound conc.:0.771 mg/kg or 0.0000771%, Note 1 conc.: 0.00006%)

chromium(III) oxide: (Cation conc. entered: 26.3 mg/kg, converted to compound conc.:38.439 mg/kg or 0.00384%)

chromium(VI) oxide: (Cation conc. entered: <0.8 mg/kg, converted to compound conc.:<1.538 mg/kg or <0.000154%)  
**IGNORED Because: "<LOD"**

chrysene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

copper (I) oxide: (Cation conc. entered: 63.4 mg/kg, converted to compound conc.:71.381 mg/kg or 0.00714%)

cyanides (with the exception of complex cyanides): (Whole conc. entered as: <1 mg/kg or <0.0001%) **IGNORED Because: "<LOD"**

dibenz[a,h]anthracene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

ethylbenzene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

fluoranthene: (Whole conc. entered as: 0.2 mg/kg or 0.00002%)

fluorene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

indeno[123-cd]pyrene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

lead compounds (with the exception of those listed separately in this Annex): (Cation conc. entered: 190 mg/kg, converted to compound conc.:286.9 mg/kg or 0.0287%, Note 1 conc.: 0.019%)

mercury dichloride: (Cation conc. entered: <0.5 mg/kg, converted to compound conc.:<0.677 mg/kg or <0.0000677%)  
**IGNORED Because: "<LOD"**

naphthalene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

nickel dihydroxide: (Cation conc. entered: 20.5 mg/kg, converted to compound conc.:32.38 mg/kg or 0.00324%)

pH: (Whole conc. entered as: 8.5 pH, converted to conc.:8.5 pH or 8.5 pH)

phenanthrene: (Whole conc. entered as: <0.1 mg/kg or <0.00001%) **IGNORED Because: "<LOD"**

phenol: (Whole conc. entered as: <5 mg/kg or <0.0005%) **IGNORED Because: "<LOD"**

pyrene: (Whole conc. entered as: 0.1 mg/kg or 0.00001%)

selenium compounds (with the exception of cadmium sulfoselenide and sodium selenite): (Cation conc. entered: 1 mg/kg, converted to compound conc.:1.5 mg/kg or 0.00015%)

toluene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

TPH (C6 to C40) petroleum group: (Whole conc. entered as: 1.3 mg/kg or 0.00013%)

xylene: (Whole conc. entered as: <10 mg/kg or <0.001%) **IGNORED Because: "<LOD"**

zinc chromate: (Cation conc. entered: 85.5 mg/kg, converted to compound conc.:237.19 mg/kg or 0.0237%)

## Test Settings

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: **Force this test to non hazardous because: "Contaminant present at very low levels in wet soil mixture. Not flammable."**

## Notes utilised in assessment

### C14: Step 5

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..." , used on:

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "arsenic trioxide"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "benzo[b]fluoranthene"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "chromium(III) oxide"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "copper (I) oxide"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "fluoranthene"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "nickel dihydroxide"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "pyrene"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "selenium compounds (with the exception of cadmium sulfoselenide and sodium selenite)"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "zinc chromate"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "TPH (C6 to C40) petroleum group"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "cadmium sulfide"

**Note 1** , used on:

Test: "HP 5 on STOT SE 1; H370, STOT RE 1; H372" for determinand: "cadmium sulfide"

Test: "HP 5 on STOT SE 2; H371, STOT RE 2; H373" for determinand: "cadmium sulfide"

Test: "HP 6 on Acute Tox. 4; H302" for determinand: "cadmium sulfide"

Test: "HP 6 on Acute Tox. 4; H332" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"

Test: "HP 7 on Carc. 1A; H350, Carc. 1A; H350i, Carc. 1B; H350, Carc. 1B; H350i" for determinand: "cadmium sulfide"

Test: "HP 7 on Carc. 2; H351" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"

Test: "HP 10 on Repr. 1A; H360, Repr. 1A; H360F, Repr. 1A; H360D, Repr. 1A; H360FD, Repr. 1A; H360Fd, Repr. 1A; H360Df, Repr. 1B; H360, Repr. 1B; H360F, Repr. 1B; H360D, Repr. 1B; H360FD, Repr. 1B; H360Fd, Repr. 1B; H360Df" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"

Test: "HP 10 on Repr. 2; H361, Repr. 2; H361f, Repr. 2; H361d, Repr. 2; H361fd" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"

Test: "HP 11 on Muta. 2; H341" for determinand: "cadmium sulfide"

Test: "HP 14 on R50, R52, R50/53, R51/53, R53, R52/53" for determinand: "lead compounds (with the exception of those listed separately in this Annex)"

## Determinand notes

**Note 1** , used on:

determinand: "cadmium sulfide"

determinand: "lead compounds (with the exception of those listed separately in this Annex)"

**Note A** , used on:

determinand: "lead compounds (with the exception of those listed separately in this Annex)"

determinand: "selenium compounds (with the exception of cadmium sulfoselenide and sodium selenite)"



determinand: "zinc chromate"

**WM3: Unknown oil** , used on:

determinand: "TPH (C6 to C40) petroleum group"

## Appendix A: Classifier defined and non CLP determinands

### **acenaphthene** (CAS Number: 83-32-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=133563&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: R36, R37, R38, N; R50/53, N; R51/53

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 2; H411

### **acenaphthylene** (CAS Number: 208-96-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=59285&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: R22, R26, R27, R36, R37, R38

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

### **anthracene** (CAS Number: 120-12-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=101102&HarmOnly=no>

Data source date: 08/03/2013

Risk Phrases: R36, R37, R38, R43, N; R50/53

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

### **benzo[ghi]perylene** (CAS Number: 191-24-2)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=15793&HarmOnly=no>

Data source date: 16/07/2012

Risk Phrases: N; R50/53

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

### **boron tribromide/trichloride/trifluoride (combined)**

Comments: Combines the risk phrases and the average of the conversion factors for Boron tribromide, Boron trichloride and Boron trifluoride

Data source: N/A

Data source date: 10/01/2011

Risk Phrases: R14, T+; R26/28, C; R34, C; R35

Hazard Statements: EUH014, Acute Tox. 2; H330, Acute Tox. 2; H300, Skin Corr. 1A; H314, Skin Corr. 1B; H314

### **chromium(III) oxide** (CAS Number: 1308-38-9)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory

Data source: [http://clp-](http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=33806&HarmOnly=no?fc=true&lang=en)

[inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=33806&HarmOnly=no?fc=true&lang=en](http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=33806&HarmOnly=no?fc=true&lang=en)

Data source date: 26/11/2012

Risk Phrases: R20, R22, R36, R37, R38, R42, R43, R50/53, R60, R61

Hazard Statements: Acute Tox. 4; H332, Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Resp. Sens. 1; H334, Skin Sens. 1; H317, Repr. 1B; H360FD, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

### **ethylbenzene** (CAS Number: 100-41-4)

CLP index number: 601-023-00-4

Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)

Additional Risk Phrases: None.

Additional Hazard Statements: Carc. 2; H351

Reason:

03/06/2015 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

**fluoranthene** (CAS Number: 206-44-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory  
 Data source: <http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=56375&HarmOnly=no>  
 Data source date: 16/07/2012  
 Risk Phrases: R20, R22, R36, N; R50/53  
 Hazard Statements: Acute Tox. 4; H302, Acute Tox. 4; H332, Eye Irrit. 2; H319, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

**fluorene** (CAS Number: 86-73-7)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory  
 Data source: <http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=81845&HarmOnly=no>  
 Data source date: 16/07/2012  
 Risk Phrases: N; R50/53, R53  
 Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Aquatic Chronic 4; H413

**indeno[123-cd]pyrene** (CAS Number: 193-39-5)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory  
 Data source: <http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=128806&HarmOnly=no>  
 Data source date: 08/03/2013  
 Risk Phrases: R40  
 Hazard Statements: Carc. 2; H351

**lead compounds (with the exception of those listed separately in this Annex)**

CLP index number: 082-001-00-6  
 Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)  
 Additional Risk Phrases: None.  
 Additional Hazard Statements: Carc. 2; H351  
 Reason:  
 03/06/2015 - Carc. 2; H351 hazard statement sourced from: Larsen et al., 2014; Survey of lead and lead compounds, Environmental Project No. 1539, The Danish Environmental Protection Agency

**pH**

Comments: Appendix C, C4.5  
 Data source: WM2 - Interpretation of the definition and classification of hazardous waste (Second Edition, version2.2), Environment Agency  
 Data source date: 30/05/2008  
 Risk Phrases: None.  
 Hazard Statements: None.

**phenanthrene** (CAS Number: 85-01-8)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory  
 Data source: <http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=109754&HarmOnly=no>  
 Data source date: 16/07/2012  
 Risk Phrases: R22, R36, R37, R38, R40, R43, N; R50/53  
 Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

**pyrene** (CAS Number: 129-00-0)

Comments: Risk phrase data taken from European Chemicals Agency's Classification & Labelling Inventory  
 Data source: <http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=87484&HarmOnly=no>  
 Data source date: 16/07/2012  
 Risk Phrases: R23, N; R50/53  
 Hazard Statements: Acute Tox. 3; H331, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

### TPH (C6 to C40) petroleum group

Comments: Risk phrase data given on page A41

Data source: WM2 3rd edition, 2013

Data source date: 01/08/2013

Risk Phrases: R10, R45, R46, R51/53, R63, R65

Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

## Appendix B: Notes

### C14: Step 5

from section: WM3: C14 in the document: "[WM3 - Waste Classification](#)"

"identify whether any individual ecotoxic substance is present at or above a cut-off value ..."

#### Note 1

from section: 1.1.3.2, Annex VI in the document: "[CLP Regulations](#)"

"The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture."

#### Note A

from section: 1.1.3.1, Annex VI in the document: "[CLP Regulations](#)"

"Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4."

### WM3: Unknown oil

from section: Chapter 3: 4. Waste oils and other wastes containing or contaminated with oil in the document: "[WM3 - Waste Classification](#)"

"If the identity of the oil is unknown, and the petroleum group cannot be established, then the oil contaminating the waste can be classified as non-carcinogenic due to the presence of oil if all three of the following criteria are met:

- the waste contains **benzo[a]pyrene (BaP)** at a concentration of less than 0.01% (1/10,000th) of the TPH concentration (This is the carcinogenic limit specified in table 3.2 of the CLP for BaP)
- this has been determined by an appropriate and representative sampling approach in accordance with the principles set out in Appendix D, and
- the analysis clearly demonstrates, for example by carbon bands or chromatograph, and the laboratory has reasonably concluded that the hydrocarbons present have not arisen from petrol or diesel

"

## Appendix C: Version

Classification utilises the following:

- CLP Regulations - Regulation 1272/2008/EC of 16 December 2008
- 1st ATP - Regulation 790/2009/EC of 10 August 2009
- 2nd ATP - Regulation 286/2011/EC of 10 March 2011
- 3rd ATP - Regulation 618/2012/EU of 10 July 2012
- 4th ATP - Regulation 487/2013/EU of 8 May 2013
- Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
- 5th ATP - Regulation 944/2013/EU of 2 October 2013
- 6th ATP - Regulation 605/2014/EU of 5 June 2014
- WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
- Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
- WM3 - Waste Classification - May 2015
- 7th ATP - Regulation 2015/1221/EU of 24 July 2015
- POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
- 1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
- 2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010



HazWasteOnline Engine: WM3 1st Edition, May 2015  
HazWasteOnline Engine Version: 2015.253.2954.5948 (10 Sep 2015)  
HazWasteOnline Database: 2015.247.2953.5943 (04 Sep 2015)