



Appendix F3

Final Verification – Test Data (December 2016)

Asbestos in Soils Site Investigation

Job Ref No: **144920**, Account Ref No: **18451**, Contract Ref No: **20654**

North Wales Prison Project Bridge Road Wrexham Industrial Estate Wrexham LL13 9QA UK

Title: Validation Soil Sampling on North Wales Prison Contract



on site photo

Total Records	Analysed Records	No Asbestos Detected	R3	R2	R1
14	14	14	0	0	0

Report Summary

This certificate is for the attention of	Paul Hine Lendlease Construction (Europe) Limited North Wales Prison Project Bridge Road Wrexham Industrial Estate Wrexham LL13 9QA UK
Contract Title	Surveying-soil sampling North Wales Prison Project
Survey Type	Asbestos in Soils Site Investigation
Site Address	North Wales Prison Project Bridge Road Wrexham Industrial Estate Wrexham LL13 9QA UK
Buildings Surveyed	North Wales Prison-Area 1- North Basement Zone

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Report Comments	Soil Sampling & Strategy The site should be inspected to identify the location of building remains or rubble that may include asbestos containing materials and to look for other evidence of possible asbestos containing materials. When reinstating a trial pit no asbestos should be left on the surface. Working in conjunction with an engineering subcontractor Adana and Hydrock who will log the ground conditions. Lucion should note 'suspected ACMs' including any observations on form and type of asbestos encountered. Lucion staff should be advised by Hydrock of the depths the engineering subcontractor excavates to and when samples are to be taken and provide asbestos descriptions (if required). Information such as depth below ground level of asbestos and approximate percentage amounts of asbestos materials within the excavated soils will provide useful information. Asbestos is not confirmed on site until it has been analysed by a laboratory. A key requirement for site investigation is while excavating soils for sampling or removal works should cease if there is a foreseeable risk of airborne fibre release. Before a site investigation is undertaken preparation of a tablet is advisable using the following inputs: Building name = North Wales Prison project - Area 1 -North Basement Zone Location Level = 0 Location Description = TP01.01 (this is the trial pit number, followed by the zone or area number) Location Photo = A photo can be taken of the trial pit location (prior to excavation) Item Description = made ground at depth of 100mm (i.e. this must be a description of the item being inspected, not the material being sample) Material Description = soil, gravel and fragmented cement (i.e. this is a short summary of the material observed and represented within the collected sample pot) Item Photo = a photo will be needed of the made ground horizon of that particular depth Extent = full extent indiscernible Surveyors Comments = a basic summary (i.e. 2 or 3 sentences) of the made ground strata that this sample point/depth is representing. SAMPLING OF SOILS WITH SUSPECTED ACM. Sampling of any suspected soil must always be undertaken wearing the appropriate PPE / RPE (see RPE/ PPE section in this document). Wet the ground to be sampled (the ground must be maintained in a damp condition throughout the sampling exercise). Collect photographs of the suspected ACMs. If pieces of potential asbestos are too large to fit into the sample container, consider double bagging (dependent on size) or consider taking a sample of the piece (following HSG 264 undertaken by a trained
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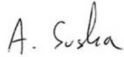
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and competent person). In addition, photograph and record visual observations (condition, colour, type i.e. cement bound or fibrous, extent etc.).

Use a clean trowel to fill the sealable sample container with the suspected ACMs and soil, which will be pre-labelled with the job reference, sample number, site location and material details. The date and the sampler's name should also be included. The sample container should be sealed, double bagged and stored in a closed secure container i.e. cool box. This ensures any contamination from the sample container does not escape if broken. Clean the trowel between samples using water/wiping.

It is extremely important to prevent soils that may potentially contain asbestos fibre being transferred to the inside of vehicles, the home or office environment.

Sampling strategies should be discussed with Hydock before site work commences i.e. number of samples in each exploratory location, depth of samples depending on human health requirements or tailored to the clients specifications. Generally, samples will be analysed to ascertain the presence of any fragmented bulk materials containing asbestos and / or, asbestos 'free fibre', via identification analysis in accordance with HSG248, using stereo microscopy, polarised light microscopy and dispersion staining . Any positive identification analysis of asbestos fibres in soil samples will result in a further laboratory analysis process for the quantitative analysis, using polarised light optical microscopy and dispersion staining, gravimetric analysis and fibre counting/sizing via phase contrast optical microscopy. The amount of samples required to go for quantification analysis will need to be communicated to the client (client led).

Surveyor(s)	Gareth Cooper, Christopher Sayle
Surveyor signature(s)	
Survey Date	Monday, 28th November, 2016
Analyst(s)	Agnes Suska
Analyst signature(s)	
Analysis date	Thursday, 15th December, 2016
Approved signatory	Gareth Cooper
Approved signature	
Approval date	Monday, 19th December, 2016
Report Rendered on	Mon 19 Dec 2016 @ 10:22:39

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Asbestos Register and Executive Summary

Ordered By Building, Level and Location

Building	Level	Location	Item / Product Examined	Material Description	Risk Level (Material Score)	Initial Control Recommendation
Nothing to report						

Introduction

This report aims to:

- Introduce pertinent legislation relating to the management of asbestos including when in made ground and soils
- Outline the sample testing and inspection methodology employed by the surveyor
- Relate the significance of the report contents to the Control of Asbestos Regulations (2012) and CIRIA guidance C733
- Detail site findings compliant with Regulation 4 of the Control of Asbestos Regulations (2012)
- Serve as a reference document to assist in making further steps towards the management of any asbestos containing materials at the site

Regulation 4 of the Control of Asbestos Regulations (2012) states the obligations that persons defined as "duty holders" have to manage asbestos containing materials in non-domestic premises. This instrument defines a duty holder as being:

"Every person who has, by virtue of a contract or tenancy, an obligation of any extent in relation to the maintenance or repair of non-domestic premises or any means of access thereto or egress there from; or

*In relation to any part of non-domestic premises where there is no such contract or tenancy, every person who, to any extent, has control of that part of non-domestic premises or any means of access thereto or egress there from" - **CAR, 2012.***

Regulation 4 also states the following:

"In order to enable him [sic "dutyholder"] to manage the risk from asbestos in non-domestic premises, the dutyholder shall ensure that a suitable and sufficient assessment is carried out as to whether asbestos is or is liable to be present in the premises"

This report satisfies this requirement, unless stated otherwise, by detailing the site investigation findings by reporting the presence of asbestos containing materials in exploratory locations carried out on site.

The Hazardous Waste Regulations were implemented in England and Wales (July 2005), which replaced the Special Waste Act 1996. The regulations outline the required documentation associated with both the collection and disposal of hazardous waste. The regulations do cover asbestos as an exception from hazardous waste produced by households (domestic waste). Also, refer to technical guidance WM2 Hazardous Waste - Interpretation of the definition and classification of hazardous waste.

Health and Safety Guidance - Publication "Asbestos: The Survey Guide (HSG 264)" details asbestos surveying techniques and how assessment of materials can be categorised by risk, which relevant draw across can be made for asbestos in made ground.

Site Investigation Scope

Site Address: **North Wales Prison Project Bridge Road Wrexham Industrial Estate Wrexham LL13 9QA UK**

Surveyed Area(s): **North Wales Prison-Area 1- North Basement Zone**

A limited site investigation was undertaken to characterise the site so far as was reasonably practical within the timeframe and budget agreed with the client. Methods used to carry out the investigation were agreed with the client prior to any commencement of works by way of acceptance of our contract / quotation.

This inspection was conducted in accordance with Health and Safety Guidance - Publication "Asbestos: The Survey Guide (HSG 264)" and "Asbestos: The analysts' guide for sampling, analysis and clearance procedures (HSG 248)". Lucion Environmental Ltd cannot accept any liability for loss, injury, damage or penalty issues that arise for reasons of survey scope limitations. Lucion Environmental Ltd cannot be held responsible for any damage caused as part of this inspection carried out on your behalf.

The scope of this inspection relates to land investigation only.

Site Data

Site ID	106210
Address	North Wales Prison Project Bridge Road Wrexham Industrial Estate Wrexham LL13 9QA UK
Property Type	Contaminated Land
Property Construction type	Mixed Constructions
Property access notes	Liase with Lendlease on site- PM Sam Peck 0774 006 1976
Property access restrictions	Induction required for all staff. Swipe card access provided and CSCS card required.

Site Investigation Methodology

The inspection findings detailed in this report were gathered using documented in house inspection (TOP01.01), sampling procedures (TOP01.02) and made ground stepped approach (TOP01.08) that implement the requirements of the Health and Safety Executive Publications HSG 264 (Asbestos: The survey guide) and HSG 248 (Asbestos: The analysts' guide for sampling, analysis and clearance procedures). Individual site investigation methodologies derived from in house preliminary risk assessments or specific client requirements are implemented using available guidance documents as reference i.e. CIRIA C733, WM2 and CLR11.

Sampling of Asbestos Containing Soils (ACMs)

A representative sample of suspected bulk asbestos material is taken, along with an accompanying soil matrix, according to the "sampling strategy". An assessment (where necessary or possible) of the material's extent and condition is made. Laboratory screening analysis will determine the form and presence of any asbestos fibres (fibre type), while quantitative laboratory analysis will assess the total percentage of asbestos within a soil sample.

Method of Sample analysis

The asbestos fibre identification results detailed in this report and the appended certificate of bulk analysis were obtained using documented in house testing procedures (TOP01.03 & TOP01.03.01) that implements the requirements of Health and Safety Executive Publication HSG 248, Appendix 2 (Asbestos: The analysts' guide for sampling, analysis and clearance procedures). All samples collected during the course of this inspection are tested in accordance with these methods.

HSG 248 Asbestos: The Analysts' Guide for Sampling, Analysis and Clearance Procedures

Publication HSG 248 describes a two stage approach to the detection and subsequent identification of asbestos fibre in bulk (i.e. suspect sample) materials. Initially the microscopist will examine the material under a low power stereo light microscope. The microscopist then performs extensive optical tests using polarised light microscopy in order to confirm or refute that the material contains an asbestos mineral. This technique allows for the detection of the six common forms of asbestos fibre as follows:

Asbestos Fibre Type	Common Nomenclature
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	N/A
Fibrous Anthophyllite	N/A
Fibrous Tremolite	N/A

The results of this test are given, where appropriate, in the inspection detail report for each sample taken and are summarised in the management recommendation report. They are also separately detailed in the bulk-analysis report appended to this report. The homogeneity of asbestos containing materials can differ depending on their type.

Typically, homogeneous materials include sprayed coatings, insulating board and asbestos cement products. Other materials are typically less homogeneous including pipe lagging (due to patch repairs, hand mixing at time of application), textured coatings (due to low concentration of asbestos fibre and hand application), composites (due to low concentration of asbestos fibre and material matrix) and debris samples (due to the potentially inconsistent occurrences that have led to their presence). Whilst sampling frequencies / techniques and analysis methods attempt to address the issue of non-homogeneity it should be realised that sampling in accordance with HSG 264 and analysis in accordance with HSG 248 cannot always obviate the problems of determining asbestos fibre content in non-homogeneous materials. The results of sample analysis presented in this report therefore pertain to the samples analysed and so relate only to the time at which sampling took place and to the conditions prevailing during that time.

Sampling Strategy

A site and project specific sampling strategy has been developed in line the timeframe and budget agreed with the client. Ultimately, the sampling strategy adopted attempts to adequately characterise the potential presence of asbestos across the site as far as is reasonably practicable. However, following laboratory testing and data review it may be deemed more cost effective to undertake further soil sampling to further delineate the presence of asbestos at the site.

Results and Findings

The item examination and inspection findings, bulk analysis results, material assessment and initial risk level assessment are reported in the form of an asbestos inspection and testing detail register. The purpose and structure of this register are explained in the proceeding sections.

Initial Risk Level Assessment

The initial risk level assessments made within this report for those items strongly presumed, or positively proven by sampling and subsequent analysis, to contain asbestos have been made on the basis of the Material Assessment Algorithm detailed within the publications HSG 264 and HSG 227.

This assessment aims to elucidate the potential for a particular material to release hazardous fibres and expose those within the specific area to asbestos dust. The following table gives the scoring strategy for the initial risk level assessment and indicates the scoring degree of those points that are considered, namely product type, condition, surface treatment and asbestos fibre type present.

Score Score Category		
Product Type An assessment of the inherent risk a product may pose (Product debris is assessed on the product type from which it originates)	1	Asbestos reinforced composites - Plastics / resins / mastics / felts / vinyl tiling / semi rigid paints / decorative finishes / asbestos cement and other such similar bound materials.
	2	Materials of a medium asbestos content including - Asbestos insulating board / millboard / low density insulation board / textiles / gaskets / ropes / papers / debris from asbestos containing composite material and cement.
	3	Materials of a high asbestos content including - Thermal insulation / sprayed asbestos / loose asbestos / packing / filled padding / all other debris.

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	Score	Score Category
Material Condition An assessment of the damage or deterioration in condition of product	0	Undamaged - No visible signs of damage
	1	Minor damage - Light material surface abrasion / abrasion to edges
	2	Medium damage - Evidence of loose asbestos fibre protruding from material / poor condition of material is notable
	3	Major damage - Significant damage to materials often resulting in the short-term production of asbestos containing debris / delamination of sprays and thermal insulation / asbestos debris

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	Score	Score Category
Surface Treatment An assessment of the level of fibre retention the surface of a material may be capable of	0	Composite materials - Plastics / resins / mastics / felts / vinyl tiling / semi rigid paints / decorative finishes
	1	Sealed and enclosed materials - Painted asbestos insulating board (with exposed face painted or encapsulated) / enclosed asbestos lagging and sprayed asbestos (as originally installed) / unsealed asbestos cement products
	2	Unsealed and encapsulated materials - Unsealed asbestos insulating board / asbestos lagging, sprayed asbestos and woven material encapsulated (remedially)
	3	Unsealed friable materials - Unsealed asbestos lagging and sprayed asbestos
Asbestos Fibre Type An assessment of asbestos fibre types propensity to cause asbestos related diseases	1	Serpentine Asbestos - Chrysotile
	2	Amphibole Asbestos - Amosite / Anthophyllite / Tremolite / Actinolite
	3	Amphibole Asbestos - Crocidolite

Material / Accessibility Score

Following the rating of a material using the above criteria, the resulting aggregated additive material score may be assessed in terms of accessibility to derive an assessment of initial risk level as follows:

	Very Low Risk (2-4)	Low Risk (5-6)	Medium Risk (7-9)	High Risk (10-12)
Inaccessible (1)	R3	R3	R3	R2
Periodically Accessed (2)	R3	R3	R2	R1
Frequently Accessed (3)	R3	R2	R1	R1

General Interpretation of Risk Assessment Level

Risk Assessment Level	Interpretation of the Recommended Control Action ^[1]
R1	immediate implementation
R2	as soon as practicable - <i>in interim period material should be regularly inspected and its management planned for</i>
R3	not immediately necessary - <i>material should be regularly inspected and its management planned for</i>

Recommendations

In addition to the risk assessment level assigned to strongly presumed and identified asbestos containing material, a management control action recommendation is also made. In the case of survey carried out prior to refurbishment or demolition works, the "normal" recommendation will be "remove" as the surveyor assumes that asbestos removal will take place prior to other works commencing (unless the surveyor has been advised otherwise in advance of the survey).

1. The risk level assessment is determined on the basis of information collated during the course of the survey. The risk assessment level needs to be reviewed periodically, (normally in line with a frequency defined in an asbestos management plan) to verify its validity and prior to any refurbishment work within the building/ site.

The current recommendations conventionally made by the surveyor may include the following:

Recommendation	Description	Notes
Air Monitoring	Sampling of air for asbestos fibre concentration. Necessary where a risk of fibre exposure is present and assessment of such exposure presence or absence is prudent.	UKAS accredited analytical laboratory should perform reassurance air testing.
Access Restriction	Restriction of access to area / location only to personnel wearing appropriate PPE / RPE.	Suitability of RPE / PPE must be carefully assessed and procedure invoked to ensure these control measures are adhered to.
Access Prohibition	Prohibition of access to area / location to all personnel.	Area should be marked clearly as being prohibited to all personnel, possibly in conjunction with asbestos warning stickers.
Environmental Clean	A cleaning process used to prevent the spread of asbestos containing contaminants.	Services of a licensed asbestos removal contractor should be engaged and all works carried out under appropriate controlled conditions. Works should also be accompanied by an appropriate air test performed by a UKAS accredited laboratory.
Material Repair	Repair of the material in such a manner as to minimise the release of asbestos fibre.	Repair of materials is recommended by the Health and Safety Executive as an alternative to removal, where reasonably safe to do so.
Material Encapsulation	Encapsulation of the material in a manner that ensures the complete enclosure of any remaining asbestos fibres.	Encapsulation of materials is a possible alternative to their removal, where reasonably safe to do so. Works should also be accompanied by appropriate air test performed by a UKAS accredited laboratory.
Material Removal	Removal of the material in instances where it is remaining in situ would lead to a high residual risk level. Or removal may be necessary to permit work within the location. Removal of materials may also be carried out on a preventive basis.	Removal works should be carried out in accordance with the relevant ACOP (approved code of practice), L143

Any recommendations made within this report are made on the basis of findings collated at the time of survey.

Recommendations should undergo careful client evaluation prior to a final management decision being made.

Lucion Environmental Ltd does not accept any responsibility for any works carried out as a result of recommendations made within this report.

If any remedial works need to be carried out, decide whether or not they need to be carried out by a licensed contractor. If you are unsure about this we can offer advice as to what you should do.

Cited References and Further Reading

1. Control of Asbestos Regulations (2012) ~ The Stationery Office. **ISBN 978-0111521083**
2. Construction (Design and Management) Regulations (2007) ~ The Stationery Office. **ISBN 011043845-0**
3. The Hazardous Waste (England and Wales) Regulations (2005) ~ The Stationery Office. **ISBN 011072685-5**
4. Managing and working with asbestos Control of Asbestos Regulations 2012. Approved Code of Practice & guidance L143 (second edition, 2013) ~ HSE Books. **ISBN 978-0717666188**
5. A Comprehensive Guide to Managing Asbestos in Premises (2002) ~ HSE Books. **ISBN 978-0717623815**
6. Asbestos Essentials: A task manual for building, maintenance and allied trades of non-licensed asbestos work (third edition, 2012) ~ HSE Books. **ISBN 978-0717665037**
7. Asbestos Essentials Task Sheets ~ HSE. electronic downloadable version of the above
8. Asbestos: The licensed contractors' guide HSG247 (2006) ~ HSE Books. **ISBN 978-0717628742**
9. Asbestos: The analysts' guide for sampling, analysis and clearance procedures HSG248 (2005) ~ HSE Books. **ISBN 978-0717628759**
10. Asbestos: The Survey Guide HSG 264 (second edition, 2012) ~ HSE Books. **ISBN 978-0717665020**
11. The Management of Health and Safety at Work Regulations (1999) ~ The Stationery Office. **ISBN 011085625-2**
12. The Health & Safety at Work etc. Act (1974) ~ The Stationery Office.
13. CIRIA C733 Asbestos in Soil and Made Ground: A Guide to Understanding and Managing Risks (2014).
14. WM2 Hazardous Waste Technical Guidance (updated 2014).

Management Recommendation Detail

Building	Level	Location	Item / Product Examined	Sample No.	Material Description	Fibre Type	Material Score	Extent	Risk Level Assessment	Initial Control Recommendation	Photograph
Nothing to report											

Areas Excluded & Not Fully Accessed During Survey

⊖ Asbestos should be presumed to be present within Locations and Items not accessed until a further assessment can be performed.

💬 Additional surveyor comments.

Building	Level	Location	Item / Product Examined	Accessibility	Access Comments	Photograph
Nothing to report						

Survey Inspection Detail, Sample Test Report and Risk Level Assessment Report

⊖ Asbestos should be presumed to be present within Locations and Items not accessed until a further assessment can be performed.

 Additional surveyor comments.

Building: North Wales Prison-Area 1- North Basement Zone

Level: 0

Location: TP01.01 (HYD-TPV14)

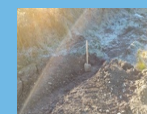


Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	clay	Sample	TP01.01								 NAD
		💬 Brown clay to depth of 1000mm. Slate observed within clay. Full amount indiscernable									

Building: North Wales Prison-Area 1- North Basement Zone

Level: 0

Location: TP02.01 (HYD-TPV19)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	Made ground	Sample	TP02.01								 NAD
		🗨️ Made ground to depth of 1000mm with assorted timber, brick and aggregate within. Full amount indiscernable									

Building: North Wales Prison-Area 1- North Basement Zone

Level: 0

Location: TP03.01 (HYD-TPV18)



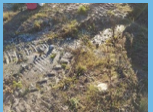
Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	Clay with gravel	Sample	TP03.01								 NAD
		💬 Clay at depth of 1000mm with localised gravel, cobble and brick. Full amount indiscernable									

Building: North Wales Prison-Area 1- North Basement Zone Level: 0 Location: TP04 .01 (HYD-TPV31)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground to depth of 1000mm	Clay	Sample	TP04.01								
 Brown clay to level of 1000mm intertwined with grey clay. Full amount discernable											 NAD

Building: North Wales Prison-Area 1- North Basement Zone Level: 0 Location: TP05 .01 (HYD-TPV33)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground to depth of 1000mm	clay and sand	Sample	TP05.01								
 Brown clay at top level with underlying sand. Metal and brick mixed in. Full amount discernable											 NAD

Building: North Wales Prison-Area 1- North Basement Zone Level: 0 Location: TP06 .01 (HYD-TPV46)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	Made ground with clay	Sample	TP06.01								
 Reworked clay to level of 1000mm with stratas of made ground and aggregate. Full amount indiscernable											 NAD

Building: North Wales Prison-Area 1- North Basement Zone

Level: 0

Location: TP07.01 (HYD-TPV43)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	Made ground	Sample	TP07.01								
 Made ground to depth of 1000mm. No strata, uniform throughout. Full amount indiscernable											 NAD

Building: North Wales Prison-Area 1- North Basement Zone

Level: 0

Location: TP08.01 (HYD-TPV41)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	Made ground	Sample	TP08.01								
 Made ground to 1000mm. Reworked clay with made ground underlying and pockets of brick. Full amount indiscernable											 NAD

Building: North Wales Prison-Area 1- North Basement Zone

Level: 0

Location: TP09.01 (HYD-TPV12)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	Made ground	Sample	TP09.01								
 Top layer 300mm topsoil. Made ground at depth of 1000mm below. Full amount discernible											 NAD

Building: North Wales Prison-Area 1- North Basement Zone

Level: 0

Location: TP10.01 (HYD-TPV03)

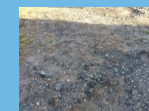


Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	Made ground	Sample	TP10.01								 NAD
 Made ground underlying 400mm of shale. Geotextile layer above clay. Full amount indiscernable											

Building: North Wales Prison-Area 1- North Basement Zone

Level: 0

Location: TP11.01 (HYD-TPV04)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	made ground	Sample	TP11.01								 NAD
 Made ground of clay, brick, shale and various other aggregates. Localised pockets of soil. Full amount indiscernable											

Building: North Wales Prison-Area 1- North Basement Zone

Level: 0

Location: TP12.01 (HYD-TPV06)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	Made ground	Sample	TP12.01								 NAD
 Made ground of clay, brick, shale and various other aggregates. Localised pockets of soil. Full amount indiscernable											

Building: North Wales Prison-Area 1- North Basement Zone Level: 0 Location: TP13.01 (HYD-TPV07)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground at depth of 1000mm	made ground and gravel	Sample	TP13.01								 NAD
		🗨️ Made ground of clay, brick, shale and various other aggregates. Localised pockets of soil and gravel. Full amount indiscernable									

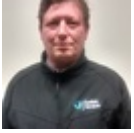
Building: North Wales Prison-Area 1- North Basement Zone Level: 0 Location: TP14.01 (HYD-TPV09)



Item / Product Examined	Material Description	Sampling Strategy	Sample No.	Extent	Product Score	Material Condition	Surface Treatment	Fibre Id.	Material Score	Accessibility Score	Risk Level Assessment
Made ground to depth of 1000mm	Made ground	Sample	TP14.01								 NAD
		💡 Made ground consisting of brown clay with pockets of localised soil and aggregate. Full amount indiscernable									

Job Notes

Operative	Note	Date
Christopher Sayle Analyst	08:00 - CHS arrives on site for 8.30 induction 08:30 inducted liaises with Sam and Ray (LL) and Karen (Hydrock) to discuss sampling. As agreed with Karen and GCO. Karen to take Hydrock and TPH samples for analysis and CHS to take asbestos validation samples	Tuesday, 29th November, 2016
Christopher Sayle Analyst	13:30 to 14:00 - Lunch. 6 no samples taken in the am 3 no. samples after lunch	Tuesday, 29th November, 2016
Christopher Sayle Analyst	17:00 - CHS leaved site (29/11/16)	Tuesday, 29th November, 2016

Operative		Note	Date
	Christopher Sayle <i>Analyst</i>	07:45 - CHS arrives on site and proceeds to Lendlease offices.	Wednesday, 30th November, 2016
	Christopher Sayle <i>Analyst</i>	07:45 - CHS arrives on site and proceeds to Lendlease offices. No sign of Hydrock. 09:15 - Hydrock on site. CHS rings Ray Long (LL) to arrange Adana digger driver. Former trial pit HYD-TPV05 is being missed out. This has been agreed with LL as it is right in middle of finished/occupied buildings and would cause too much disturbance with much making good. On discussion with The Hydrock consultant, CHS discovers that Hydrock have been sampling the top soil too (145175). This may mean duplicate samples. CHS to straighten out with Sam Peck. GCO Informed	Thursday, 1st December, 2016
	Christopher Sayle <i>Analyst</i>	Lunch 1330 - 14:00 5 tp validation samples taken before lunch	Thursday, 1st December, 2016

Annotated Plans and Other Additional Documents

The following documents accompany this report and should be regarded as an integral part of this report.

They can be downloaded from <http://web.lucion.co.uk/reports/144920/attachments>.

- Method Statement [http://web.lucion.co.uk/method_statements/144920?s=8b700914b4c33c1ce58ec7e8dd4f3a9d]
- Risk Assessment [http://web.lucion.co.uk/risk_assessment/144920?s=f33eae2d23151f65f75ce86b3e635cb7]
- ACFrOgDxqBBUIrX87NUPTvUBp2VLO6XMAoD8UQhMEqIQsU4zfUwduUUob-8ED4bpXBR1_CMfQo2CryRAI-WapLL7E10doXsbFYi33QESX0a2cZldONh0cAxZP1tnf4=.pdf
- C1999-01-validation-testing.pdf

Additional Advice and Information

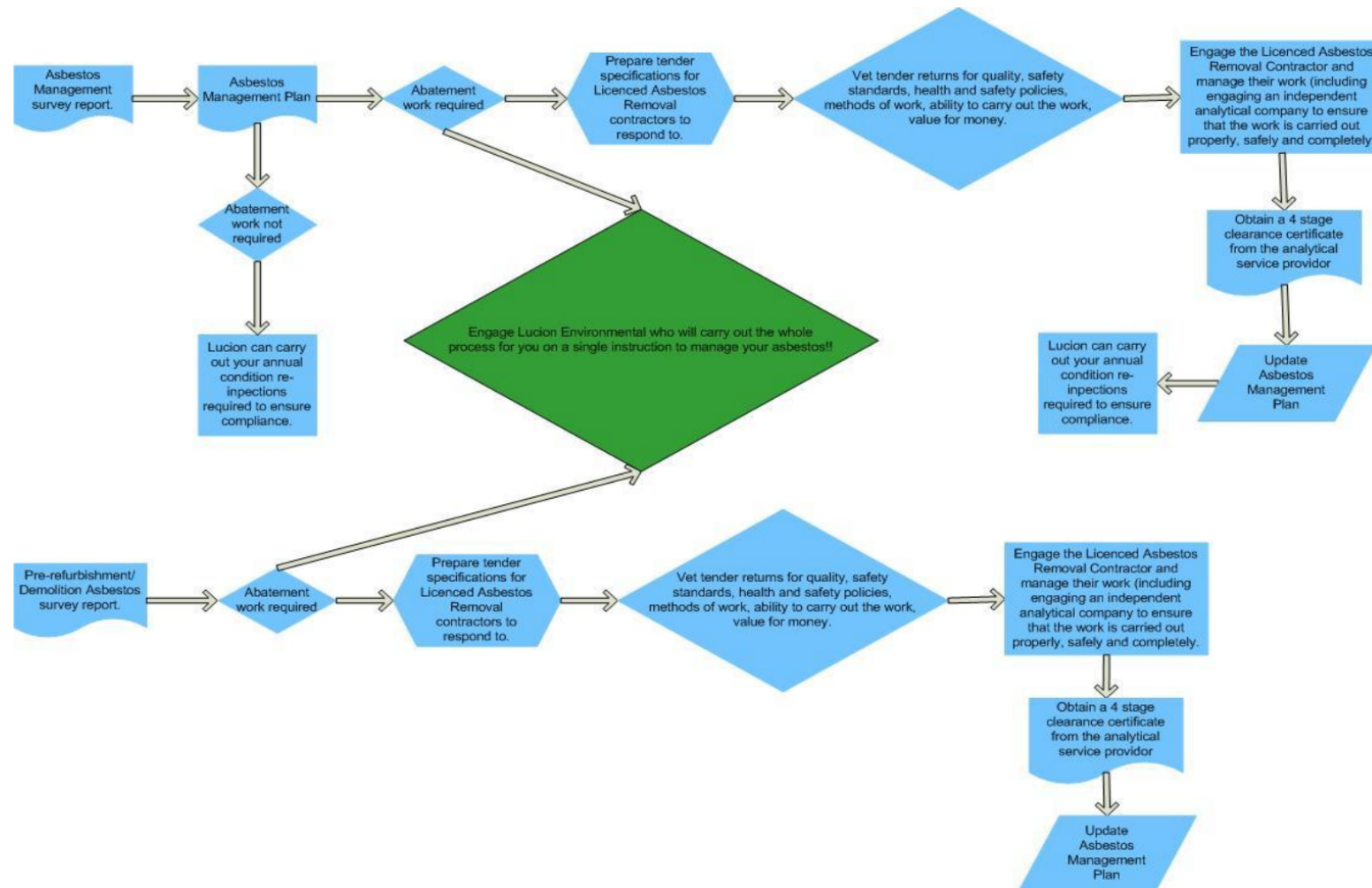
As the reader of this report you are recommended to make sure that it meets with your requirements. Publication HSG 264 Asbestos: The survey guide suggests the following:

- Check your report against our quotation or your tender
- Check for any caveats or disclaimers you are unsure of
- Check that the survey is as you requested
- Check you understand the included plans
- Check that we have accessed all the areas and rooms you wanted us to

Post Survey Support

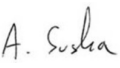
The ultimate aim of any management plan must be the prevention of exposure to personnel working on your premises. You should therefore make this register available for consultation and keep it regularly updated. Publications relating to the Control of Asbestos Regulations (2012) suggest an annual reinspection as minimum (more frequently for higher risk materials) by a competent person.

Remember, an asbestos survey is the first step in asbestos management. Effective asbestos management often needs specialist advice; have a look at the diagram below which shows the basic steps in formulating a typical asbestos management plan. Lucion realise that you may need some assistance in drafting your management plan; please give us a call on **0191 4618999** or send an email to enquiries@lucion.co.uk or visit the [lucion website](http://lucion.co.uk) [<http://lucion.co.uk>] for advice on any of the steps shown below:



Asbestos Fibre Identification Material Test Certificate

Job Ref No: **144920**, Account Ref No: **18451**, Contract Ref No: **20654**

This certificate is for the attention of	Paul Hine Lendlease Construction (Europe) Limited North Wales Prison Project Bridge Road Wrexham Industrial Estate Wrexham LL13 9QA UK
Site Address	North Wales Prison Project Bridge Road Wrexham Industrial Estate Wrexham LL13 9QA UK
Sampled Buildings	North Wales Prison-Area 1- North Basement Zone
Analyst(s)	Agnes Suska
Analyst signature(s)	
Analysis date	Thursday, 15th December, 2016
Approved signatory	Gareth Cooper
Approved signature	
Approval date	Monday, 19th December, 2016
Report Rendered on	Mon 19 Dec 2016 @ 10:22:39

Analysis method - In-house method TOP01.03 in accordance with HSG 248 - Asbestos: The Analysts' Guide For Sampling, Analysis and Clearance Procedures H.S.E. 2005. All analysis carried out at Lucion's Head Office laboratory.

Lucion bear no responsibility for sample collection or sample description related information provided by the client.

Where Lucion Environmental Ltd has not undertaken sampling; any prior sampling activity is beyond the company's responsibility. Where Lucion Environmental Ltd has sampled the test material, this has been done in accordance with in-house method TOP01.02. Any opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

The results quoted in this report relate to:

1. Samples analysed in accordance with methods described above
2. Samples analysed and not necessarily to the material from which the samples were taken
3. The time during which sampling took place and to the conditions prevailing during that time

The samples referred to in this report will be retained for 6 months unless requested otherwise.

Total Samples	No Asbestos Detected	Asbestos-Containing Samples
14	14	0

Fibre Identification Analysis Results

Sample No.	Building	Level	Location	Item / Product Examined	Material Description	Analyst Comments	Fibre Identification
TP01.01	North Wales Prison-Area 1- North Basement Zone	0	TP01.01 (HYD-TPV14)	Made ground at depth of 1000mm	clay		NAD
TP02.01	North Wales Prison-Area 1- North Basement Zone	0	TP02.01 (HYD-TPV19)	Made ground at depth of 1000mm	Made ground		NAD
TP03.01	North Wales Prison-Area 1- North Basement Zone	0	TP03.01 (HYD-TPV18)	Made ground at depth of 1000mm	Clay with gravel		NAD
TP04.01	North Wales Prison-Area 1- North Basement Zone	0	TP04 .01 (HYD-TPV31)	Made ground to depth of 1000mm	Clay		NAD
TP05.01	North Wales Prison-Area 1- North Basement Zone	0	TP05 .01 (HYD-TPV33)	Made ground to depth of 1000mm	clay and sand		NAD
TP06.01	North Wales Prison-Area 1- North Basement Zone	0	TP06 .01 (HYD-TPV46)	Made ground at depth of 1000mm	Made ground with clay		NAD
TP07.01	North Wales Prison-Area 1- North Basement Zone	0	TP07.01 (HYD-TPV43)	Made ground at depth of 1000mm	Made ground		NAD
TP08.01	North Wales Prison-Area 1- North Basement Zone	0	TP08.01 (HYD-TPV41)	Made ground at depth of 1000mm	Made ground		NAD
TP09.01	North Wales Prison-Area 1- North Basement Zone	0	TP09.01 (HYD-TPV12)	Made ground at depth of 1000mm	Made ground		NAD
TP10.01	North Wales Prison-Area 1- North Basement Zone	0	TP10.01 (HYD-TPV03)	Made ground at depth of 1000mm	Made ground		NAD
TP11.01	North Wales Prison-Area 1- North Basement Zone	0	TP11.01 (HYD-TPV04)	Made ground at depth of 1000mm	made ground		NAD
TP12.01	North Wales Prison-Area 1- North Basement Zone	0	TP12.01 (HYD-TPV06)	Made ground at depth of 1000mm	Made ground		NAD
TP13.01	North Wales Prison-Area 1- North Basement Zone	0	TP13.01 (HYD-TPV07)	Made ground at depth of 1000mm	made ground and gravel		NAD
TP14.01	North Wales Prison-Area 1- North Basement Zone	0	TP14.01 (HYD-TPV09)	Made ground to depth of 1000mm	Made ground		NAD