PURCELL

Project address: The Horniman Museum and Gardens
South Boiler Room

Pre Construction Information

Project number	238350
Date	17 August 2017
Client	The Horniman Museum and Gardens

PURCELL

PRE CONSTRUCTION INFORMATION

FOR

South Boiler Room

ON BEHALF OF

The Horniman Museum and Gardens

Prepared in accordance with the requirements of Regulation 4(4) and Appendix 2 of the

CONSTRUCTION (DESIGN & MANAGEMENT) REGULATIONS 2015

and for no other purpose

ISSUE LOG

Prepared by:	Cameron Miller	Date: 17 August 2017	Issue: 002
Updated for asbestos removal works			
Prepared by:	Cameron Miller	Date: 8 June 2017	Issue: 001

CONTENTS

APPENDICES

1 Description of Project

1.1 Project description

The works to be carried out are the removal of asbestos containing materials in preparation for replacement of existing boiler plant.

1.2	Planned start date	to be agreed
1.3	Planned completion date	to be agreed
1.4	Time planned for mobilisation	two weeks

CDM Duty Holders

1.5	Client	Tim Hopkins Estates Manager Horniman Museum 100 London Road Forest Hill London SE23 PQ
1.6	Principal Designer	Cameron.Miller@PurcellUK.com Purcell 15 Bermondsey Square Tower Bridge Road London SE1 3UN +44 20 397 7171
1.7	Contract Administrator	Niall.CampbellMorrison@harleyhaddow.com Harley Haddow Vox Studios – V305 1 – 45 Durham Street London SE11 5JH +44 203 735 5060
1.8	Principal Contractor	to be advised

HSE Notification

1.9 The project may not be considered notifiable under the CDM regulations.

Other Parties

1.10 Not applicable

Workplace Regulations

1.11 The project is for a structure that shall be used as a workplace within the meaning of the Workplace (Health, Safety & Welfare) Regulations.

Existing Records

1.12 A Refurbishment Survey report for asbestos containing materials is provided for the areas affected by the works. Refurbishment Survey reports for adjacent areas are appended.

1.13 Records of live services shall be provided.

1.14 All other records are available from the Estates Manager

2 Client's Considerations and Management Requirements

2.1 Planning for and Managing the Construction Work

The work shall be managed by the Principal Contractor.

The health and safety objective is to carry out the construction works with due regard to the health, safety and welfare of all operatives engaged on the project and members of the public without putting anybody's health and safety at risk.

The Principal Contractor will name a point of contact to liaise with the Contract Administrator and Client for management issues.

2.2 Health and Safety Goals for the Project

The overall goal is to complete the project with zero lost time or reportable injuries, diseases or dangerous occurrences affecting those involved in the construction work, members of the general public or others and to ensure that no long term health effects are brought about or exacerbated by activities involved in the project.

The aim is also to provide a safe and secure interface throughout the project between work areas and those occupied by staff and visitors.

The Principal Contractor is to specify within the Construction Phase Plan the initiatives which are to be followed to meet this goal, e.g. induction, supervision, tool box talks, training, monitoring, welfare etc.

2.3 Communication and Liaison between Client and Others

Part of the Principal Contractor's role is to ensure that all operatives have received appropriate health and safety training.

The Principal Contractor shall ensure that daily consultation takes place between all contractors and others affected to discuss risk controls and safety procedures and to ensure that necessary information is with those who need it. This will be the responsibility of the Principal Contractor's site manager.

2.4 Construction Phase Design

No Construction Phase design is anticipated.

2.5 Security of the Site

The Principal Contractor is to secure the site area to deter entry by unauthorized persons.

2.6 Working Hours

Working hours are restricted by agreement with the client. Noisy operations may be further restricted. Note that the museum opens to visitors at 10:00 and activities outside the direct works area may be restricted after then.

2.7 Welfare Arrangements

The client has made welfare facilities available. The Principal Contractor shall maintain the welfare facilities for site personnel in accordance with the appropriate standard laid down in the CDM Regulations 2015 and HSE information sheets, provision of welfare facilities at construction sites (see Appendix B). The facilities are to be located within the contractor's parking area.

Arrangements for maintaining welfare facilities and first aid provision shall be detailed in the Construction Phase Plan.

Requirements relating to the health and safety of the client's employees or visitors or those involved in the project

2.8 Site Hoarding

The Principal Contractor shall make suitable arrangements for securing the site to exclude all non authorized personnel from entry to any area under his control.

2.9 Site Transport Arrangements and Vehicle Movement Restrictions

The Principal Contractor shall carefully manage any interaction of neighbours and members of the public with site traffic etc. to avoid risk to pedestrians and vehicles.

Materials deliveries shall be via the Horniman Drive gate, which is open from 07:00 hours. This route is through gardens to which the public have access. Vehicles are restricted to 5 mph with hazard lights on. Banksmen must be in attendance if needed for safe movement.

Note that members of the public using the gardens are not expecting traffic and relax their perception of hazards; children may not be under close supervision. Whilst the museum requires all deliveries to be completed and vehicles off site by 10:00 hours, this should be regarded as exceptional. Every effort should be made to ensure vehicles are off site by 08:30, after which time children are more likely to be present.

No parking is permitted on site and parking restrictions apply locally; parking on footpaths is not permitted.

For materials and equipment deliveries, arrangements should be made with the client for short term parking for the duration of off loading.

2.10 Non Working Hours

At the end of each working day, leave the site and access routes in a tidy condition free from hazards.

2.11 Client Rules and Restrictions

The Museum Rules for Visiting Contractors are appended. The following shall also apply.

All work will be planned in advance and agreed with all relevant parties with permits being issued by the Principal Contractor as and when required.

The Principal Contractor's site rules shall include the following:

- All people entering site shall report to the site manager upon arrival and sign the site register upon entering and leaving the site.
- Noise shall be kept to a minimum.
- Operatives shall dress appropriately.
- No offensive language, swearing, singing or shouting is permitted.
- No one under the influence of alcohol or drugs shall be permitted on site.
- The site is to be kept tidy and rubbish removed promptly.
- Burning of rubbish on site is not permitted.
- Plant and materials may only be stored within the site compound.

2.12 Fire Precautions

The Principal Contractor shall put in place precautions to prevent fire. Note that acetylene is not permitted on site. All personnel shall be familiar with the emergency procedures to follow in case of fire. The Principal Contractor shall provide appropriate firefighting appliances.

A permit to work system is required for all hot works. Hot works must be agreed in advance with the client, who shall issue a Permit to Work.

Whenever possible, hot works are to be avoided or undertaken off site.

2.13 Emergency Procedures and Means of Escape

A suitable means of escape from site in the event of fire or other emergency shall be maintained.

The alternative means of escape from the south boiler room is through the plant room courtyard; ensure this route is clear upon each occasion of starting work.

2.14 Fire Hydrants and Warning Notices

Do not obstruct fire hydrants or warning notices.

2.15 Restricted Access

Access shall be restricted to those areas occupied by the client or required for staff or visitor access.

Access to the works area shall be from the London Road entrance and through staff areas. Note that there is a staircase to the boiler room. Plant and equipment should be delivered in sizes suitable for handling.

2.16 Confined Spaces

No areas have been designated as confined spaces, however be aware that some work activities may cause the boiler room to become a confined space. Monitor planned work activities and take precautions if required.

HSE guidance on Safe Work in Confined Spaces is appended.

2.17 Work at Height

A permit to work system is required for all work at height. Work at height must be agreed in advance with the client, who shall issue a Permit to Work.

Whenever possible, work at height is to be avoided.

2.18 Emergency Escapes

Ensure that emergency escape routes from adjacent premises are maintained free of obstructions and asbestos containing materials.

2.19 Smoking

Smoking is not permitted on the site.

2.20 Reportable Occurrences

Any reportable incident prescribed under the 'Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 is to be reported to the Health and Safety Executive within the required notice period for that event and the Client, Contract Administrator and the Principal Designer are to be notified immediately.

2.21 HSE and Local Authority Notices

Notify the Client, Contract Administrator and the Principal Designer of any notices (improvement or prohibition) or summons received from the Health and Safety Executive or Local Authority.

3 Environmental Restrictions and Existing On Site Risks

Safety hazards

3.1 Site Boundary

The site boundary shall be agreed. The site is set within the Horniman Museum and Gardens, which are bounded by residential properties and public gardens. The Contractor may be required to erect fencing to boundaries.

3.2 Restrictions on Waste Collection or Storage

There are no specific restrictions on waste collection, however busy times are best avoided. Agree the strategy for waste removal with the client.

Waste is to be removed from site on a daily basis as far as is practicable.

3.3 Adjacent Land Uses

The site is set within the Horniman Museum and Gardens. Other contractors may be employed (eg exhibition fit out). Communicate, cooperate and coordinate activities with other contractors.

3.4 Existing Storage of Hazardous Materials

No storage of hazardous materials is known on site which shall affect the works.

3.5 Location of Existing Services

The Principal Contractor shall undertake suitable precautions to identify and protect existing services.

Care shall be taken not to break or disrupt existing drainage pipes/conduits running across the site. When undertaking this work the Principal Contractor is required to survey the site to ascertain the position of all services including drainage, electrical power supply lines, gas pipes etc running through the site.

3.6 Ground Conditions, Underground Structures or Water Courses

Not applicable

3.7 Information about Existing Structures

Use with caution when removing existing plant and moving new plant into place; ensure temporary supports are placed to prevent damage to existing structure.

3.8 Previous Structural Modifications

None known.

3.9 Fire Damage, Ground Shrinkage, Movement, Poor Maintenance

None known.

3.10 Existing Plant and Equipment

Decommission and remove as specified.

3.11 Existing Health and Safety Information

No Health and Safety File exists relevant to the works.

No other information is available.

Health hazards

3.12 Asbestos

A Refurbishment Survey Report for asbestos containing materials has been undertaken for adjacent areas and a copy of the reports is appended. A Refurbishment Survey for the boiler room is also provided.

Note that asbestos containing materials may be encountered which have not been identified in the surveys. If suspect material is uncovered, cease work, prevent exposure of workers and others to suspect material and seek instruction from the Contract Administrator.

3.13 Existing Storage of Hazardous Materials

None known.

3.14 Contaminated Land

There are no reports of contaminated land. Based on the history of the site, contamination is not expected.

3.15 Existing Structures containing Hazardous Materials

No hazardous materials have been identified.

3.16 Health Risks arising from Client's Activities

None is known and the boiler rooms shall be unoccupied for the duration of the works.

4 Significant Design and Construction Hazards

4.1 Design Assumptions and Control Measures

No significant hazards have been identified, over ordinary site hazards that fall within the expertise of a competent contractor.

Significant hazards are defined as those which are unusual, unexpected or difficult to manage.

4.2 Arrangements for Coordination of Ongoing Design Work

Regular site meetings are to be held throughout the programme of works.

4.3 Significant Risks Identified During Design

No significant risks have been identified during the design.

4.4 Materials Requiring Particular Precautions.

None has been identified.

5 The Health and Safety File

The Principal Designer shall be responsible for preparing the Health and Safety File. The Principal Contractor and Designers are required to provide the information necessary for inclusion in the File.

The Contractor shall provide final waste transfer notes (ie those signed by the waste receiving facility) and records of asbestos containing materials remaining on site.

APPENDIX A

CONSTRUCTION PHASE PLAN CONTENT

1.0 DESCRIPTION OF PROJECT

1.1 Programme details including key dates

1.2 Key members of project team

Client

Principal Designer

Designers

Principal Contractor

2.0 MANAGEMENT OF THE WORK

2.1 Management structure and responsibilities

2.2 Health and safety aims for the project

2.3 Arrangements to ensure cooperation between project team members and coordination of their work

2.4 Arrangements for involving workers

2.5 Site induction

2.6 Welfare facilities

2.7 Fire and emergency procedures

3.0 CONTROL OF SCHEDULE 3 RISKS

3.1 Work which puts workers at risk of burial under earth falls, engulfment in swamp land or falling from height, where the risk is particularly aggravated by the nature of the work or processes used or by the environment at the place of work or site.

3.2 Work which puts workers at risk from chemical or biological substances constituting a particular danger to the safety or health of workers or involving a legal requirement for health monitoring.

3.3 Work with ionising radiation requiring the designation of controlled or supervised areas under Regulation 16 of the Ionising Regulations 1999.

3.4 Work near high voltage power lines.

3.5 Work exposing workers to the risk of drowning.

3.6 Work on wells, underground earthworks and tunnels.

3.7 Work carried out by divers having a system of air supply.

3.8 Work carried out by workers in caissons with a compressed air atmosphere.

3.9 Work involving the use of explosives.

3.10 Work involving the assembly or dismantling of heavy prefabricated components.

APPENDIX B

WELFARE FACILITIES

Health and Safety Executive

Provision of welfare facilities during construction work

HSE information sheet

Construction Information Sheet No 59

Introduction

This information sheet is for dutyholders involved in construction work. It replaces previous guidance contained in *Provision of welfare facilities at transient construction sites* and in *Provision of welfare facilities at fixed construction sites*. It gives guidance on the **minimum** welfare facilities that must be provided or made available to workers on construction sites.

Construction workers need adequate toilet and washing facilities, a place to warm up and eat their food and somewhere to store clothing. However, these basic requirements are often neglected. A cold water tap and chemical toilet on their own are not adequate facilities. Good facilities can positively benefit health and well-being and can help to prevent dermatitis.

General duties (Construction (Design and Management) Regulations 2007)[1]

Clients

If you are a client (but not a domestic client, ie you or your family live in the building under construction) then you must ensure that your contractors have arrangements to provide adequate welfare facilities for construction workers. This does not mean that you have to provide the facilities yourself. If the work is notifiable (that is lasts more than 30 days or will involve more than 500 person days of work) then you must ensure that construction work (including demolition) does not start until suitable welfare facilities are in place.

CDM coordinators

You should give suitable and sufficient advice to the client on the measures needed to ensure that suitable welfare is provided during the construction phase.

Principal contractors

You should make sure that suitable welfare facilities are provided from the start and are maintained throughout the construction phase.

Contractors (including the self-employed)

In all cases you should ensure that there are adequate welfare facilities for workers under your control.

Planning

The availability of welfare facilities, their location on site and regular maintenance must be considered at the planning and preparation stages of every construction project, before construction work (including demolition) starts.

When planning welfare provision, consider:

- the nature of the work to be carried out and the health risks associated with it. For example, consider the provision of showers if the project involves hazardous substances or very dirty work, eg sewer maintenance, dusty demolition activities, work with contaminated land or concrete pouring;
- the distance workers will have to travel to the welfare facilities;
- the duration of the work and number of different locations;
- the numbers of people who will use them;
- the cleaning and maintenance of the welfare facilities;
- whether they need to be relocated during the construction phase.

Installing and removing from site

You need to plan how welfare units will be moved from delivery vehicles into position. It is preferable to mechanically move these units; if manual handling cannot be avoided then you should manage the risk effectively. Your plans should cover safe lifting practices and ensure proper protection of workers from falls from vehicles or portable units.

Positioning on site

You should site welfare units and manage traffic effectively to ensure adequate segregation of pedestrians and vehicles.

Toilets

So far as is reasonably practicable you need to provide flushing toilets and running water, connected to mains water and drainage systems. If this is not possible, facilities with a built-in water supply and drainage tanks should be used. Portable chemical toilets are acceptable only if it is not reasonably practicable to make other adequate provision.

Toilets must be adequately ventilated, lit and maintained in a clean condition. The frequency of cleaning will depend on usage. Basic daily cleaning may not always be sufficient.

Provide an adequate number of toilets. The number needed will depend on the number of workers on site and the type of facilities provided. Portable toilets have a limited capacity and will need emptying. The number of portable toilets needed depends on the number of persons and the frequency of emptying. BS6465–1:2006 recommends a ratio of 1 toilet to 7 persons where portable toilets are emptied once a week.

Men and women may use the same toilet, if it is in a lockable room and partitioned from any urinals. Otherwise provide separate toilets. Adequate supplies of toilet paper should always be available.

Sanitary waste disposal should be provided in facilities used by female workers.

Washing facilities

Provide washing facilities next to both toilets **and** changing areas. Consider placing them next to rest areas if these are far from toilets or changing areas. They should include:

- a supply of clean hot and cold, or warm, water (which should be running water so far as is reasonably practicable);
- soap or other suitable means of cleaning;
- towels or other suitable means of drying;
- sufficient ventilation and lighting;
- sinks large enough to wash face, hands and forearms.

Men and women can share sinks used for washing hands, face and arms. Unisex shower facilities can be provided if they are in a separate, lockable room, which can be used by one person at a time.

Showers used for particularly dirty work, or when workers are exposed to especially hazardous substances (eg development of contaminated land, or demolition of old industrial buildings which are contaminated with toxic substances etc), will need to be separate from the main facilities.

Specialist facilities are needed for certain activities, eg working with lead or asbestos or tunnelling in compressed air.

Drinking water

A supply of wholesome drinking water should be readily available. Where possible, it should be supplied direct from the mains. If water is stored, protect it from possible contamination and make sure it is changed often enough to prevent it from becoming stale or contaminated. Where necessary, clearly mark the drinking water supply to prevent it being confused with hazardous liquids or water which is not fit to drink. Provide cups or other drinking vessels at the outlet, unless the water is supplied in an upward jet, which can be drunk easily (eg a drinking fountain).

Changing rooms and lockers

Every site should have arrangements for securely storing personal clothing not worn on site and for protective clothing needed for site work. Men and women should be able to change separately. Separate lockers might be needed, although on smaller sites the site office may be a suitable storage area provided it is kept secure. Where there is a risk of protective site clothing contaminating everyday clothing, items should be stored separately.

Provision should be made to allow wet clothing to be dried. As a general rule clothing should not be placed directly on heaters due to the risk of fire. If electrical heaters are used, they should be properly ventilated and, if possible, fitted with a high temperature cut-out device.

Rest facilities

Rest facilities should provide shelter from wind and rain. The rest facilities should have adequate numbers of tables, seating with backs, a means for heating water for drinks and for warming up food (eg a gas or electrical heating ring or microwave oven) and be adequately heated. Rest areas are not to be used to store plant, equipment or materials.

Smoking

Smoking is prohibited in enclosed public places and workplaces such as construction sites or work vehicles. Further information is available at www.smokefreeengland.co.uk, www.clearingtheairscotland.com and www.smokingbanwales.co.uk.

Heating

Rest facilities will normally require heating. Using properly maintained electrical equipment can eliminate the risks associated with LPG heaters. Inadequately ventilated LPG cookers and heaters can produce carbon monoxide, with potentially fatal results. Flammable gas may escape from leaking cylinders, which have not been properly turned off. If LPG is used reduce the risks by:

- using and storing the cylinders in safe, well-ventilated places outside the accommodation (including overnight) or in purpose-built ventilated storage areas;
- ensuring that the appliances have been properly installed, checked and maintained by a competent person;
- providing adequate combustion ventilation (provide fixed grilles at high and low level);
- checking that the ventilation provided is not blocked, eg fixed grilles blocked by newspaper or rags in cold weather to 'stop draughts';
- checking that cylinders are properly turned off when not in use;
- using wall or ceiling-mounted carbon monoxide detectors.

Use of alternative facilities for transient construction sites

For the purpose of this information sheet, a transient construction site is either where short duration work (up to a week) is carried out at one or many locations, or is of a longer duration carried out while moving over a continuous geographical area, eg major roadworks, cable laying contracts etc.

In such cases, it may be appropriate to make arrangements to use facilities provided by the owner of existing premises, in which the work is being done, local public facilities or the facilities of local businesses. Clear agreement should be made with the provider of the facilities; it should not be assumed that local commercial premises can be used without their agreement. In all cases the standards above must be provided or made available. Facilities must be readily accessible to the worksite, open at all relevant times, be at no cost to the workers, be of an acceptable standard in terms of cleanliness and have hand-washing facilities. Workers need to be made aware of the arrangements to use them and be informed of their location.

Table 1 gives an indication of the options available, in order of preference, for providing welfare facilities for transient construction sites.

Table 1 Welfare facilities: the options

Type of installation	Additional notes
1a Fixed installation: connected to mains drainage and water.	Order of preference: ■ on site; ■ at a base location; ■ at a satellite compound. NB This may include the pre-arranged use of private facilities. Permission, preferably in writing, should be obtained from the proprietor in advance of the work starting. The use of public toilets is acceptable only where it is impractical to provide or make available other facilities.
1b Portable water flushing units with water bowser supplies and waste storage tanks.	
2 Portable installation on site.	Consisting of chemical toilet(s), washing facilities and sufficient tables and seating.
3 Suitably designed vehicle.	Consisting of chemical toilet(s), washing facilities and sufficient tables and seating.
4 Facilities which are conveniently accessible to the worksite (includes public toilets).	Use of public toilets is acceptable only where it is impractical to provide or make available other facilities.
5 Portable installation near site.	Incorporating a chemical toilet, washing facilities and sufficient tables and seating.

References

1 *Managing health and safety in construction. Construction (Design and Management) Regulations 2007. Approved Code of Practice* L144 HSE Books 2007 ISBN 978 0 7176 6223 4

While every effort has been made to ensure the accuracy of the references listed in this publication, their future availability cannot be guaranteed.

Further reading

Health and safety in construction HSG150 (Third edition) HSE Books 2006 ISBN 978 0 7176 6182 4
Fire safety in construction work HSG168 HSE Books 2010 ISBN 978 0 7176 6345 3

BS 6465–1: 2006 *Sanitary installations. Code of practice for the design of sanitary facilities and scales of provision of sanitary and associated appliances*

Further information

Visit www.hse.gov.uk/construction for more specific information on CDM 2007 and health and safety in the construction industry, including a link to additional guidance for CDM dutyholders developed by the construction industry.

HSE priced and free publications can be viewed online or ordered from www.hse.gov.uk or contact HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995. HSE priced publications are also available from bookshops.

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, ring HSE's Infoline Tel: 0845 345 0055
Fax: 0845 408 9566 Textphone: 0845 408 9577
e-mail: hse.infoline@connaught.plc.uk or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

This information sheet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

First published 03/10.

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APPENDIX C

ASBESTOS SURVEY REPORTS

UKAS INSPECTION
8883

deriskuk.com

Asbestos Refurbishment Survey

The Horniman Museum & Gardens
100 London Road
Forest Hill
London
SE23 3PQ

14th – 15th July 2016

Job Number: 16120
Issue: 01

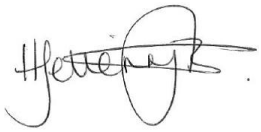
www.deriskuk.com

THE DE GROUP

Contents

Report Authorisations

Quality Check

Report Author	Hannah Setterington		
Report Compiled On:	21st July 2016		
Lead Surveyor:	Warren Green		
Date Checked:	21st July 2016		
Quality Check:	Dean Robson		
Date Authorised:	22nd July 2016		
Date Issued:	22nd July 2016	To:	Tim Hopkins

Issue Summary Table

Issue 01	Original Issue

Survey Details

Client Details

Company:	The Horniman Museum & Gardens
Contact:	Tim Hopkins
Address:	The Horniman Museum & Gardens 100 London Road Forest Hill London SE23 3PQ

Survey Scope and Methodology

Site Address:	The Horniman Museum & Gardens 100 London Road Forest Hill London SE23 3PQ		
Site Description	The Horniman Museum is a British museum in Forest Hill, London, England. Commissioned in 1898, it opened in 1901 and was designed by Charles Harrison Townsend in the Arts and Crafts style. The South Hall is the oldest section of the building which was originally constructed circa 1901 and the Studio Space falls into the 1911 extension. Concrete frame and tone cladding construction. The recorded dates for extension are 14911, 1996 and 2002.		
Survey Type:	Refurbishment	Date(s) of Survey:	14th and 15th July 2016
Scope of Survey:	<u>South Hall</u> <u>Walkway and Guttering</u> To allow revision to the walkway and guttering at high level over the Plant Courtyard, the existing guttering, fixing points and all associated materials needed to be investigated. In particular, investigation was required into the type and construction of the existing guttering to check for gaskets and seals, including down pipes and wall brackets. Access to the guttering was severely restricted without the provision of a proprietary scaffold deck. Access was possible to access materials from the existing adjacent flat roof, but this did not provide comprehensive access along the full length of the elevation to allow full surveying and sampling. It is recommended that a second visit be made when the scaffold is erected for the full project works. This will provide inspection/sampling opportunities along the full length but will likely confirm visual assessments made from the restricted access that is currently available from the flat roof.		

	A safe access system or method needed to be adopted to get to the flat roof in the Plant Courtyard. A Mansafe cable was available on the roof once up on the roof. The new guttering install will be similar to other recent upgrades. <u>Roof – new skylights</u> Natural lighting is to be re-introduced into the South Hall by opening up the existing roof lights at the apex of the curved roof/ceiling. Access to the roof was possible from existing ladders and the Mansafe cable system. Internally, a suitable mobile tower was built to give access, although safe access was only possible at the North end of the Hall where there is adequate space for the size of the tower required. In particular, care was required to ensure any external investigations do not compromise the weather roofing of the roof. Due to the likely nature of the materials internally, a permanent and matching repair was not possible, but it was repaired using white correx sheeting firmly fixed in place. <u>New door opening</u> The new door opening on the North elevation was inspected internally and externally to assess all materials through the wall. Temporary repairs were made using polyfilla and white paint – a decorative match could not be guaranteed. <u>New ducting</u> Openings for new ducting are to be made through toe Lower Ground floor slab. Access was not possible where there are exhibits in place but at the perimeter of the room there were opportunities to open up safely and sample materials there. <u>Graphic wall</u> A new graphic wall is to be created at the entrance to the South Hall. This will require installation of a new wall to the existing soffit and slab in the arched lobby adjacent to the current Hall entrance. <u>Studio Space</u> The windows along the East elevation which open into the Plant Courtyard are to be replaced and so needed to be investigated. There are 5 windows along the elevation, a minimum of 2 have been inspected to provide a representative overview of the construction materials in place. Access was possible from both sides. The building is normally occupied. Certain areas are external and plant areas and so could be accessed during normal working hours, all public areas were accessed out of normal Museum opening times, on agreement with the Estates Department. Structural fabric and features are listed and all exhibits are of historic interest and all were not disturbed. Confirmation with the client was sought where any doubt exists as to the provenance of any material.
Agreed Excluded Areas:	Structural fabric and features are listed and all exhibits are of historic interest and were not disturbed. Confirmation with the client was sought where any doubt exists as to the provenance of any material.

	Only those areas within the scope of works were included. No intrusions were made where this would compromise the security, integrity or weather proofing of the building fabric. Access was restricted where any exhibits are present or where live plant or services prevented investigation. Visual assessment and recommendation for further action will be made in such situations.
Deviations from Standard Methods:	None

The survey was carried in accordance with in-house procedure DEPROC04 and HSG264 – Asbestos: The Survey Guide, unless stated above, and by lead asbestos surveyors who are authorised for this inspection and property type. A Derisk UK approved UKAS accredited laboratory was used to analyse all samples taken as described in HSG248 – Asbestos: The analysts' guide for sampling, analysis and clearance procedures. Copies of the full certificate(s) are included within this report (Section – Certificate of Analysis).

Refurbishment Survey

A refurbishment survey is used to locate as far as reasonably practicable, the presence and extent of any suspected ACM's within the client defined scope of works. Areas that have not been mentioned within the scope outlined above should be deemed as not inspected within this report. Destructive and intrusive inspections have been used in areas agreed with the client to investigate sealed areas, no intrusions have been made through items that were presumed on site to contain asbestos fibres.

This survey does not include inspections below any floor slab unless specifically stated as inspected within this survey report.

The purpose of this survey is to assist the client in compiling a detailed asbestos removal specification, to manage any asbestos materials which remain in-situ during the planned refurbishment works and allow for designers and contractor to assess asbestos risks prior to tendering for proposed works.

The survey report alone should not be used as an asbestos removal specification or reason not be undertake a site visit for compiling a quotation or RAMS documentation. All quantities within the report are estimates only

Navigating and Understanding the Survey Report

Overview of Sample/ Observation Numbering/ Suffix Lettering and Drawing Annotations

This report uses the following system to identify observations, sample locations, referrals and presumptions.

Each entry within the survey report will be given a unique number following in a sequence. Inspections/ observation are shown on the floor plans within a square. Samples, presumptions and referrals are shown on the floor plans within a circle.

All entries which are presumptions are suffixed with a '**P**', referred samples are suffixed with an '**R**'.

All positive samples, referrals and presumptions are in '**red**' font on the floor plans. Negative samples or referrals on the floor plans are shown in a '**black**' font.

All observations are in a '**black**' font on the floor plans.

Where possible material extents will be shaded on the floor plans in '**red**' for positive, presumed and referenced samples. Limited or restricted areas will be shaded on the floor plans in '**purple**'. All areas out of agreed scope of this survey will be shaded '**grey**'. Inspections and non-asbestos materials are not shaded on the floor plans.

Executive Summary – Asbestos Containing Materials

No asbestos containing materials identified during this survey.

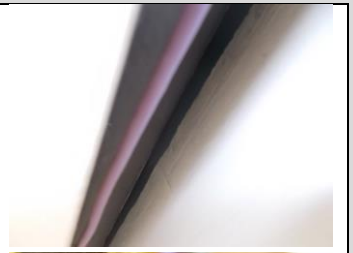
Executive Summary - Limited or No Access Areas

There were no further areas of limited or no access during this survey in additional to those highlighted within the scope of works.

Observations – Lower Ground Floor

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
LG.01 South Hall Gallery	Timber parquet floor over the concrete slab floor.	01	-	-	-	-	-	-	  
LG.01 South Hall Gallery	Bitumen product beneath the parquet flooring.	02	Non-asbestos	Bitumen	800m²	Good Condition	Composite	N/A	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
LG.01 South Hall Gallery	North side wall: Lath and plaster onto a solid soffit ceiling. Solid walls on both sides.	03	-	-	-	-	-	-	 
LG.02 South Hall Entrance	Lath and plaster to the concrete soffit ceiling. Timber ceiling board. MDF and plasterboard walls fixed to the solid walls. Linoleum floor covering over the concrete slab floor. Timber and glass windows above the core and framed fire door behind a MDF board wall. High level MMMF lagged metal pipe. Solid arched slab. Timber heater panels. Original timber clad to the fire exit side walls behind the MDF walls.	06	-	-	-	-	-	-	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
LG.02 South Hall Entrance	Inspection 06 continued.	06	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
LG.02 South Hall Entrance	Inspection 06 continued.	06	-	-	-	-	-	-	   

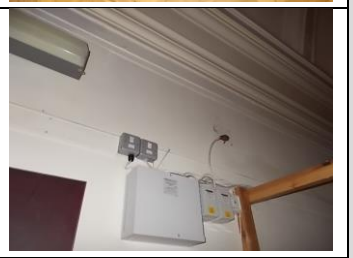
Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
LG.02 South Hall Entrance	Inspection 06 continued.	06	-	-	-	-	-	-	
LG.02 South Hall Entrance	Putty to the window.	07	Non-asbestos	Sealant	2m	Good Condition	Composite	N/A	
LG.02 South Hall Entrance	Linoleum floor covering. No bitumen present.	08	Non-asbestos	Composite	16m^2	Good Condition	Composite	N/A	 

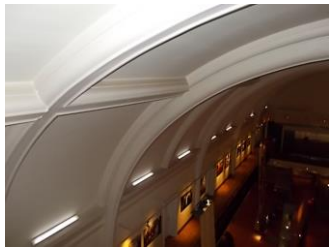
Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
LG.03 Studio Space	High level timber façade panel. Timber and plaster surround panelling. Timber window frames with a lead trim. Pane of glass and timber ledge.	09	-	-	-	-	-	-	  
LG.03 Studio Space	Sealant behind the lead trim to the timber window frames.	10	Non-asbestos	Sealant	4m	Good Condition	Composite	N/A	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
LG.03 Studio Space	High level timber façade panel. Timber and plaster surround panelling. Timber window frames with a lead trim. Pane of glass and timber ledge. Note: investigations to the three remaining windows revealed them to have the same fabrications.	11	-	-	-	-	-	-	
LG.03 Studio Space	Sealant behind the lead trim to the timber window frames.	12	Non-asbestos	Sealant	4m	Good Condition	Composite	N/A	
LG.03 Studio Space	Sealant behind the lead trim to the timber window frame of window number 3. The window is behind the display cabinet. Refer to sample 12 for analysis.	13R	Non-asbestos	Sealant	4m	Good Condition	Composite	N/A	
LG.03 Studio Space	Sealant behind the lead trim to the timber window frames of window number 4. The window is behind the display cabinet. Refer to sample 12 for analysis.	14R	Non-asbestos	Sealant	4m	Good Condition	Composite	N/A	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
LG.03 Studio Space	Sealant behind the lead trim to the timber window frames of window number 5. Refer to sample 12 for analysis.	15R	Non-asbestos	Sealant	4m	Good Condition	Composite	N/A	

Observations – Ground Floor

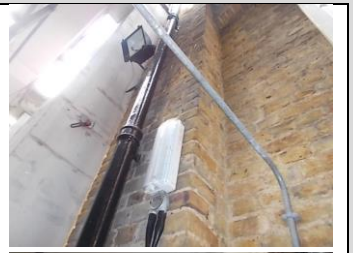
Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
G.01 South Hall Gallery North Side Balcony Area	Timber parquet flooring over the solid slab floor.	04	-	-	-	-	-	-	
G.01 South Hall Gallery North Side Balcony Area	Bitumen product beneath the parquet flooring. Refer to sample 02 for analysis.	05R	Non-asbestos	Bitumen	300m^2	Good Condition	Composite	N/A	
G.02 South Hall Gallery	Lath and plaster decorative coving. Solid wall.	22	-	-	-	-	-	-	

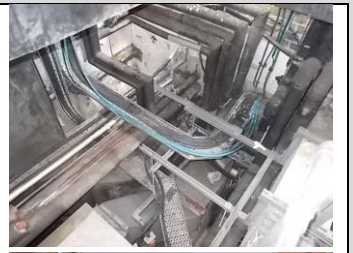
Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
G.03 Balcony	South Hall Gallery ceiling: Lath and plaster decorative coving with RSJ beams behind. Plasterboard and timber ceiling boards. Lath and plaster grid ceiling panels. Redundant metal lighting pulley with a metal plate. Solid walls. Note: the remaining ceiling is at a higher elevation due to its location. Further investigations will take place once the roof is lifted.	28	-	-	-	-	-	-	   

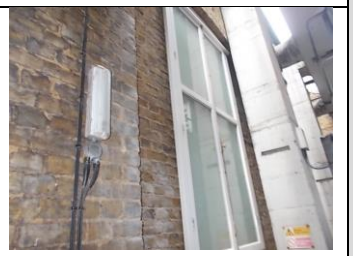
Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
G.03 Balcony	Inspection 28 continued.	28	-	-	-	-	-	-	  

Observations – External

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.01 Lower Ground Courtyard	Brick walls with a metal grid floor and concrete slab floor. Cast iron gutters and metal down pipes. Bare and MMMF lagged ductwork. Flow and return gas pies. Black armour wrapped pipes. Air extraction appliances.	16	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.01 Lower Ground Courtyard	Inspection 16 continued.	16	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.01 Lower Ground Courtyard	Inspection 16 continued.	16	-	-	-	-	-	-	  
E.01 Lower Ground Courtyard	Window 1: Timber frames with a MMMF insulation infill fixed to the original timber framed window.	17	-	-	-	-	-	-	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.01 Lower Ground Courtyard	Window 2: Timber frames with a MMMF insulation infill fixed to the original timber framed window.	18	-	-	-	-	-	-	
E.01 Lower Ground Courtyard	Window 3: Timber frames with a MMMF insulation infill fixed to the original timber framed window.	19	-	-	-	-	-	-	
E.01 Lower Ground Courtyard	Window 4: Timber frames with a MMMF insulation infill fixed to the original timber framed window.	20	-	-	-	-	-	-	
E.01 Lower Ground Courtyard	Window 5: Timber frames with a MMMF insulation infill fixed to the original timber framed window.	21	-	-	-	-	-	-	

Observations – Roof

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.02 Roof	Metal facia roof covers and lead sheets. Timber and lead pent houses. RSJ beams, and timber joists and battens with hessian insulation fixed to them. Lath and plaster. Aluminium studwork clipped to the metal roof covers. Lead roof covers. Inspections were made through the access points.	23	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.02 Roof	Inspection 23 continued.	23	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.02 Roof	Inspection 23 continued.	23	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.02 Roof	Inspection 23 continued.	23	-	-	-	-	-	-	
E.02 Roof	Lead roof covers. Hessian insulation blanket. Timber joists and battens. Note: inspections were carried out as far as reasonably practical, with the remaining roof to be further investigated once the roof is lifted.	38	-	-	-	-	-	-	  

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.02 Roof	Inspection 38 continued.	38	-	-	-	-	-	-	 
E.03 Roof	Lead access panel. Timber joists and battens, and an RSJ beam. Brick wall and lath and plaster.	24	-	-	-	-	-	-	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.04 Roof	Lead access panel. Timber joists and battens, and an RSJ beam. Brick wall and lath and plaster.	25	-	-	-	-	-	-	 
E.05 Roof	Lead access panel. Timber joists and battens, and an RSJ beam. Brick wall and lath and plaster.	26	-	-	-	-	-	-	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.06 Roof	Lead access panel. Timber joists and battens, and an RSJ beam. Brick wall and lath and plaster.	27	-	-	-	-	-	-	 
E.07 Roof	Lead access panel. Timber joists and battens, and an RSJ beam. Brick wall and lath and plaster.	29	-	-	-	-	-	-	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.07 Roof	Inspection 29 continued.	29	-	-	-	-	-	-	
E.08 Roof	Lead access panel. Timber joists and battens, and an RSJ beam. Brick wall and lath and plaster.	30	-	-	-	-	-	-	  

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.09 Roof	Lead access panel. Timber joists and battens, and an RSJ beam. Brick wall and lath and plaster.	31	-	-	-	-	-	-	 
E.10 Roof	Lead access panel. Timber joists and battens, and an RSJ beam. Brick wall and lath and plaster.	32	-	-	-	-	-	-	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.10 Roof	Inspection 32 continued.	32	-	-	-	-	-	-	
E.11	Timber and lead construction. RSJ beam and a lath and plaster grid ceiling.	33	-	-	-	-	-	-	  

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.11	Inspection 33 continued.	33	-	-	-	-	-	-	
E.12	Timber and lead construction. RSJ beam and a lath and plaster grid ceiling.	34	-	-	-	-	-	-	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.13	Timber and lead construction. RSJ beam and a lath and plaster grid ceiling.	35	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.14	Timber and lead construction. RSJ beam and a lath and plaster grid ceiling.	36	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
E.15 Access Cover	Lead access cover. Timber joists and battens. RSJ beams.	37	-	-	-	-	-	-	  

Certificate of Analysis

UKAS TESTING
1249

Vintec Laboratories Ltd.
Building Research Establishment
Bucknalls Lane
Garston
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WD25 9XX

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Derisk UK Ltd
Unit 24 Schooner Court
Crossways Business Park
Dartford,
DA2 6NW

TEST REPORT

Analytical Report Number	: J025471	Sample received on	: 19th July 2016
Sample submitted by	: Derisk UK Ltd	Analysis completed by	: 21st July 2016
Analysis requested	: Asbestos Identification.	Report issued on	: 21st July 2016
Client reference	: 16120 - 15.07.2016 - Horniman Museum, 100 London Road, Forest Hill, London, SE23 3PQ		
Report issue number	: 1		

Any sample location or detail provided with each sample appears with the results of analysis.

Analysed By:

Ben Pillay (Bulk Analyst)

For & on behalf of Vintec Laboratories Ltd.

Authorised By:

Vanessa Meades (Assistant Quality Manager)

For & on behalf of Vintec Laboratories Ltd.

The analysis of samples submitted for asbestos identification is undertaken using polarised light microscopy in conjunction with dispersion staining techniques in accordance with our documented in house procedure P008 and HSG248. Asbestos is defined in the Control of Asbestos Regulations 2012 as any of the following naturally occurring fibrous silicate minerals : Crocidolite, Amosite, Chrysotile, Actinolite, Anthophyllite and Tremolite. Most commonly found are the following: CROCIDOLITE (Blue Asbestos), AMOSITE (Brown Asbestos) and CHRYSOTILE (White Asbestos). Those contemplating any form of work involving asbestos should refer to the Approved Code of Practice published by the Health & Safety Executive. VEM stores samples for six months following date of reporting unless instructed otherwise. VEM offers no guarantee of the accuracy of reported sample locations as supplied with sample by clients. Sampling conducted by clients falls outside the scope of VEM's bulk sampling accreditation.

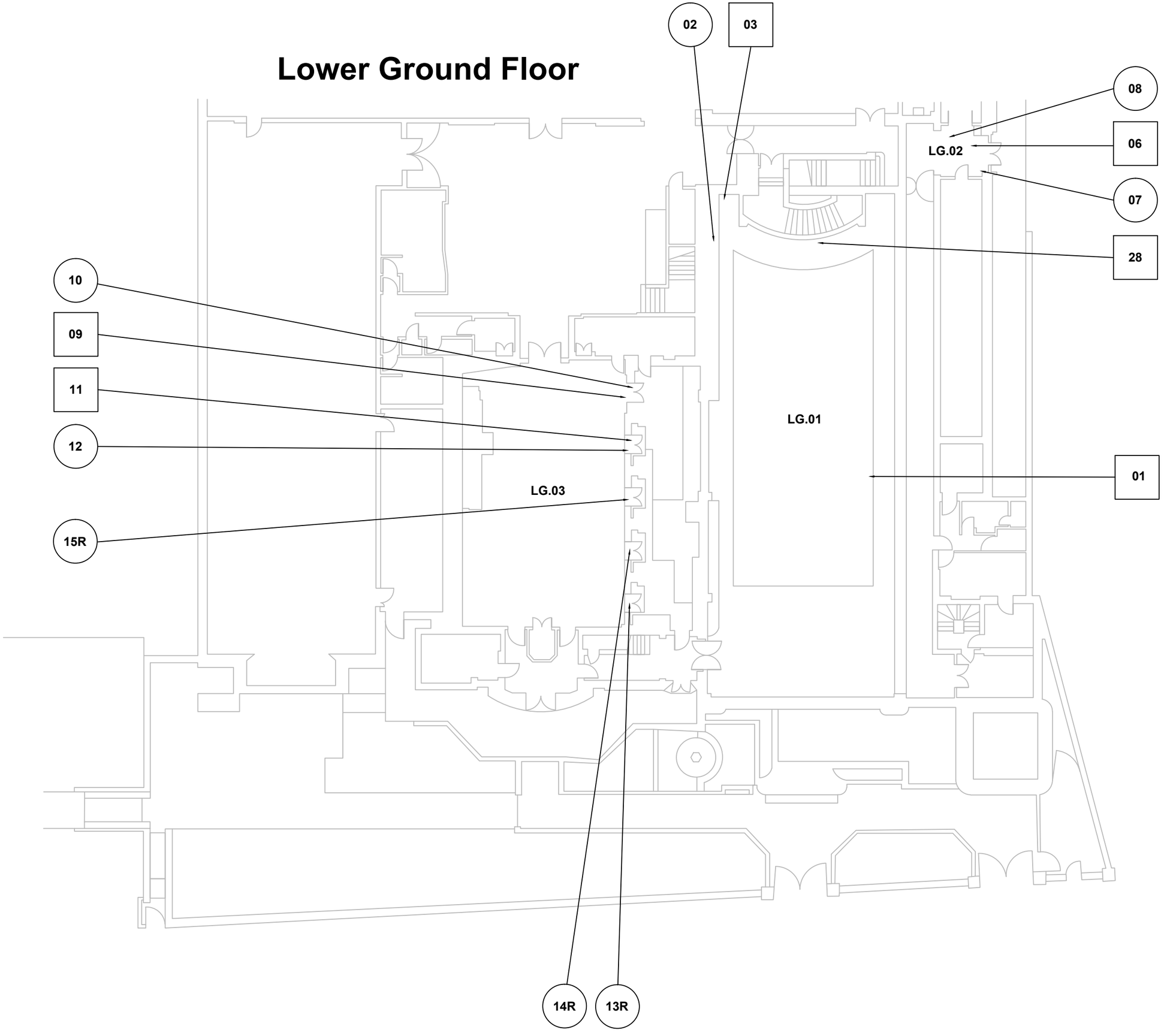
In certain types of sample where very small quantities of asbestos may be present we advise on the possibility of unidentified and unreported asbestos being present in trace quantity, however small. We advise this principally in relation to textured paint samples, sometimes referred to by the trade name 'artex', thermoplastic floor tiles or linoleum, and bitumen based samples including roofing felts, acoustic pads etc. This uncertainty arises from the fact that analysis is normally based on the treatment and examination of a small proportion of the supplied sample, which leaves open the possibility that small traces may remain unreported. Where only one or two fibres have been identified within a sample, this will be reported as 'trace asbestos identified'.

Analytical Report Number : J025471
Client : Derisk UK Ltd
Client Reference : 16120 - 15.07.2016 - Horniman Museum, 100 London Road, Forest Hill, London, SE23 3PQ
Report Issue Number : 1

Vintec Reference	Product Type	Client Reference	Sample Description	Asbestos Content	Comments
BS033364	Reinforced Composite	02	LG.01 South Hall Gallery, Lower Ground - Bitumen product beneath parquet floor	No Asbestos Detected	
BS033365	Reinforced Composite	07	LG.02 South Hall Entrance, Lower Ground - Putty from timber window	No Asbestos Detected	
BS033366	Reinforced Composite	08	LG.02 South Hall Entrance, Lower Ground - Linoleum Floor Cover	No Asbestos Detected	Non-Asbestos in Blue & White Floor Covering & Adhesive on Floor Covering
BS033367	Reinforced Composite	10	LG.03 Studio Space, Lower Ground - Sealant from behind lead trim to timber window	No Asbestos Detected	
BS033368	Reinforced Composite	12	LG.03 Studio Space, Lower Ground - Sealant from behind lead trim to timber window	No Asbestos Detected	

Floor Plans

Lower Ground Floor



A DE GROUP COMPANY

SITE DETAILS

The Horniman Museum and Gardens
100 London Road, Forest Hill
London, SE23 3PQ

EXTENT OF POSITIVE MATERIALS

OUTSIDE SCOPE OF WORKS

NO ACCESS / LIMITED / RESTRICTED ACCESS

000 ASBESTOS IDENTIFIED IN SAMPLE

000 NO ASBESTOS IDENTIFIED IN SAMPLE

IDENTIFIED AS SAMPLE

IDENTIFIED AS INSPECTION

NOT TO SCALE
THIS SITE SKETCH IS INTENDED FOR THE IDENTIFICATION OF AREAS ONLY IN RELATION TO THE ASBESTOS SURVEY
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deriskuk.com

Unit 24
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TEL - **01322 276760**

Email : enquiries@deriskuk.com
Web : www.deriskuk.com

CLIENT

The Horniman Museum and Gardens
100 London Road, Forest Hill
London, SE23 3PQ

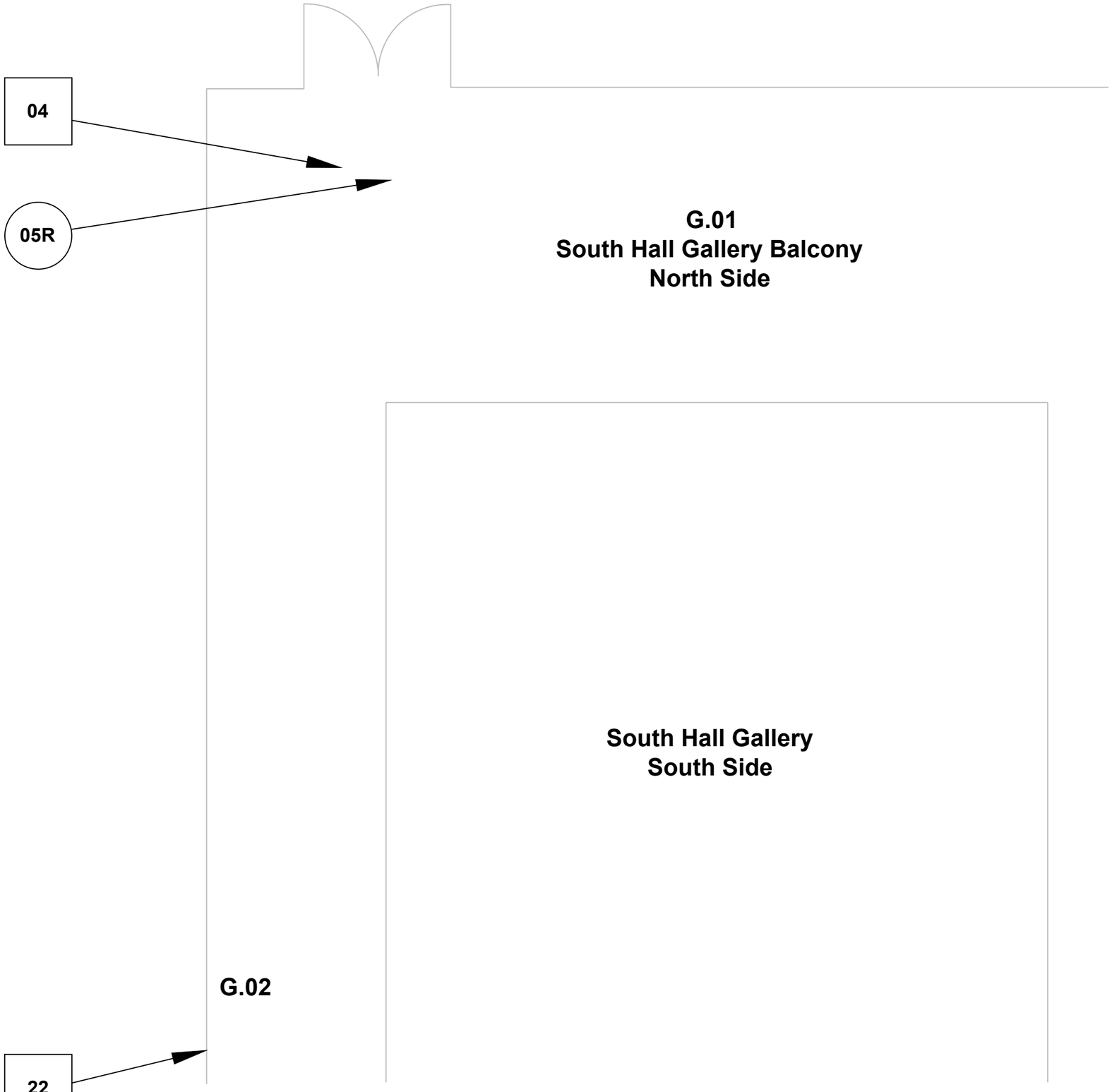
THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE ASBESTOS SURVEY REPORT FOR SURVEY NUMBER
16120

DRAWING TITLE

Lower Ground Floor

SURVEY NO.		
16120	Drawn By	M.Forsyth
	Drawing Date	19/07/2016
	Surveyor 1	Warren Green
	Surveyor 2	
	Survey Date	14-15/07/2016

South Hall Gallery



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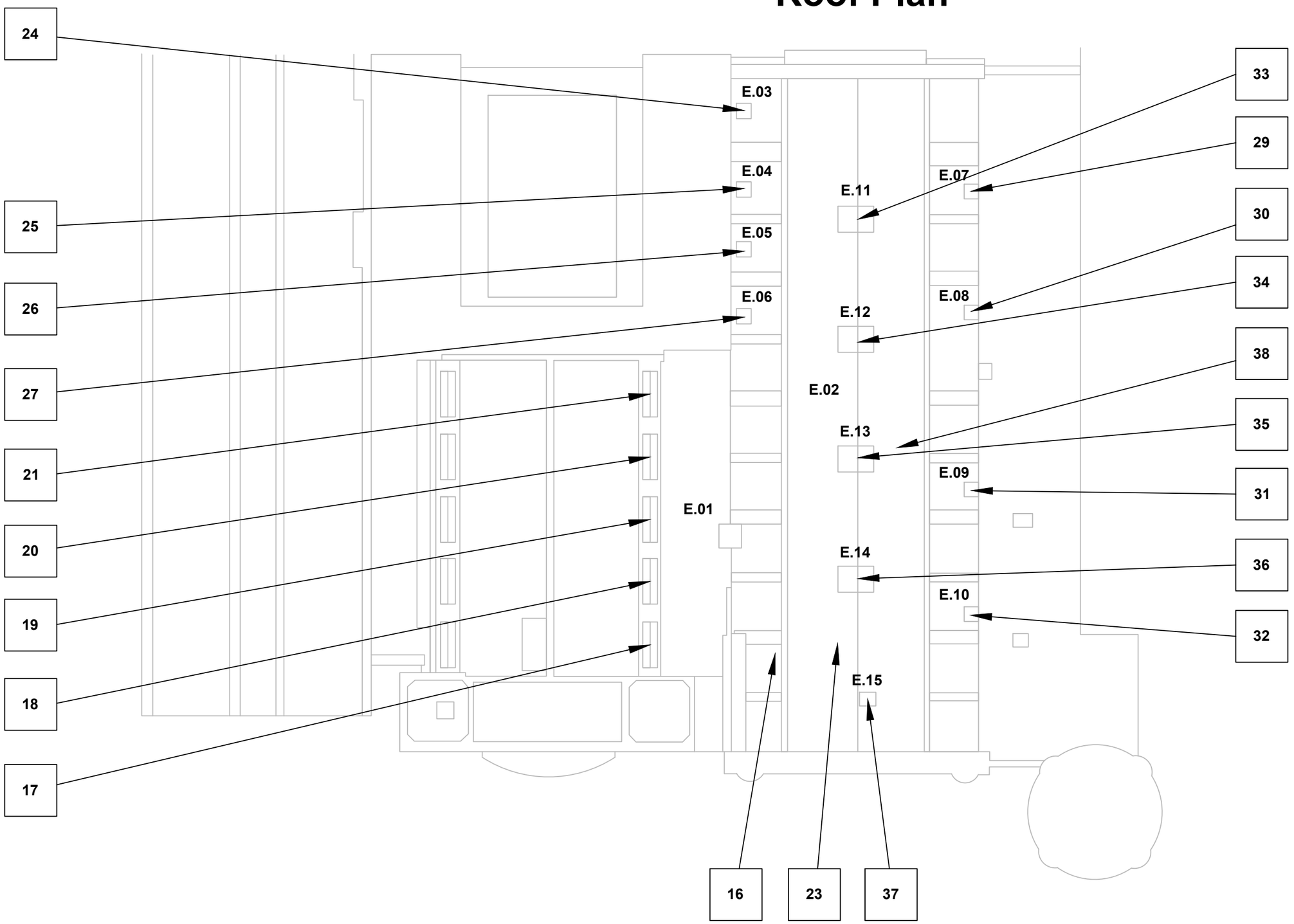
16120

DRAWING TITLE

South Hall Gallery

SURVEY NO.		
16120	Drawn By	M.Forsyth
	Drawing Date	19/07/2016
	Surveyor 1	Warren Green
	Surveyor 2	
	Survey Date	14-15/07/2016

Roof Plan



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16120

DRAWING TITLE

Roof Plan

SURVEY NO.		
16120	Drawn By	M.Forsyth
	Drawing Date	19/07/2016
	Surveyor 1	Warren Green
	Surveyor 2	
	Survey Date	14-15/07/2016

Management Information and Assessment Scoring

Asbestos Management

This survey should be used to form part of, or provide information for, inclusion into a specific management system. This report alone does not provide the client with a compliant Asbestos Management Plan. Derisk can provide further details on how to ensure compliance in either the building or within the organisation in which the Duty Holder may work (the definition of the Duty Holder for a building or organisation is given in Regulation 4 of Control of Asbestos Regulations 2012.)

The Duty Holder shall also be responsible for preparing appropriate Management Recommendations until such time as the ACMs are removed. Their responsibility extends also to preparing an Action Plan to manage those ACMs and to nominate a competent person who will hold the responsibility for that management.

Derisk UK Ltd can assist in the preparation of these assessments and advise on how to incorporate into a management system.

The recommendations given by the surveyor are based upon the condition and surface treatment recorded as part of the survey. The Duty Holder or client should ensure that the recommendations made adequately cover the future use, repair or maintenance of the ACMs.

Where remedial or removal works are required by the planned works or recommended by the survey, the Duty Holder or client shall ensure that a suitable and sufficient assessment is carried out before a competent contractor is appointed. This may involve the preparation of a project specific specification for these works. The information contained within this survey may be used as part of or in the preparation of such a specification, but this survey alone shall not be used as a specification document. In addition, the survey shall be read as a whole and shall not be reproduced in part or without the permission of the designated client.

Derisk UK Ltd can assist and advise on the specification of work and the selection, appointment and management of a competent contractor during any associated asbestos work.

Material and Priority Assessments

The following tables are extracts from HSG 264 and shows the values upon which the Material and Priority Assessments are based. The latter is used to assess the Human Exposure Potential by allocation risk values based on normal use and occupation.

Refer to the published guidance HSG227 for full description of calculation of all assessments and for the preparation of the necessary action plans and recommendations for management.

The combination of the Material and Priority Assessments provides data for the overall ACM Risk Assessment and it is this value on which the Duty Holder shall base decisions and recommendations for action, remedial work and planned project works.

As part of the management process, the Duty Holder shall ensure that all information is suitably disseminated to those persons who may be affected by the presence of ACMs during their normal work activities.

Material Assessment Parameters

Sample Variable	Score	Examples of scores (see notes for more detail)
Product type (or debris from product)	1	Asbestos-reinforced composites (plastics, resins, mastics, roofing felts, vinyl floor tiles, semi-rigid or decorative finishes, asbestos cement etc).
	2	AIB, millboards, other low-density insulation boards, asbestos textiles, gaskets, ropes and woven textiles, asbestos paper and felt.
	3	Thermal insulation (eg pipe and boiler lagging), sprayed asbestos, loose asbestos, asbestos mattresses and packing.
Extent of damage/deterioration	0	Good condition: no visible damage.
	1	Low damage: a few scratches or surface marks, broken edges on boards, tiles etc.
	2	Medium damage: significant breakage of materials or several small areas where material has been damaged revealing loose asbestos fibres.
	3	High damage or delamination of materials, spays and thermal insulation. Visible asbestos debris.
Surface treatment	0	Composite materials containing asbestos: reinforced plastic, resins, vinyl tiles.
	1	Enclosed sprays and lagging, AIB (with exposed face painted or encapsulated) asbestos cement sheets etc.
	2	Unsealed AIB, or encapsulated lagging and sprays.
	3	Unsealed lagging and sprays.
Asbestos type	1	Chrysotile.
	2	Amphibole asbestos excluding Crocidolite.
	3	Crocidolite.
Total		

Score	Potential to release asbestos fibres
10 or more	High
7-9	Medium
5-6	Low
4 or less	Very low

Priority Assessment Parameters

Assessment factor	Score	Examples of score variables
Normal occupant activity		
Main type of activity in area	0	Rare disturbance activity (eg little used store room)
	1	Low disturbance activities (eg office type activities)
	2	Periodic disturbance (eg industrial or vehicular activity which may contact ACMs)
	3	High levels of disturbance (eg fire door with asbestos insulating board sheet in constant use)
Secondary activities for area	As above	As above
Likelihood of disturbance		
Location	0	Outdoors
	1	Large rooms or well-ventilated areas
	2	Rooms up to $100m^2$
	3	Confined spaces
Accessibility	0	Usually inaccessible or unlikely to be disturbed
	1	Occasionally likely to be disturbed
	2	Easily disturbed
	3	Routinely disturbed
Extent/amount	0	Small amounts or items (eg strings, gaskets)
	1	$10m^2$ or <10m pipe run
	2	$>10m^2$ to $=<50m^2$ or >10m to =<50m pipe run
	3	$>50m^2$ or >50m pipe run
Human exposure potential		
Number of occupants	0	None
	1	1 to 3
	2	4 to 10
	3	>10
Frequency of use in area	0	Infrequent
	1	Monthly
	2	Weekly
	3	Daily
Average time area is in use	0	<1 hour
	1	>1 to <3 hours
	2	>3 to <6 hours
	3	>6 hours
Maintenance activity		
Type of maintenance activity	0	Minor disturbance (eg possibility of contact when gaining access)
	1	Low disturbance (eg changing light bulbs in asbestos insulating board ceiling)
	2	Medium disturbance (eg lifting one or two asbestos insulating board ceiling tiles to access a valve)
	3	High levels of disturbance (eg removing a number of asbestos insulating board ceiling tiles to replace a valve or recabling)
Frequency of maintenance activity	0	ACM unlikely to be disturbed for maintenance
	1	≤1 per year
	2	>1 per year
	3	>1 per month

Additional Information Available for Download

HSG 264 – Asbestos: The Survey Guide - hsg264.pdf

HSG 248 - Asbestos: The analysts' guide for sampling, analysis and clearance procedures - hsg248.pdf

HSG 227 - A comprehensive guide to Managing Asbestos in premises - hsg227.pdf

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THE **DE GROUP**

UKAS INSPECTION
8883

deriskuk.com

Asbestos Refurbishment Survey

The Horniman Museum and Gardens

The Horniman Museum and Gardens
100 London Road
Forest Hill
London
SE23 3PQ

13th September 2016

Job Number 16199
Issue: 01

THE DE GROUP

Contents

Report Authorisations

Quality Check

Report Author	Charlotte Carr		
Report Compiled On:	21st September 2016		
Lead Surveyor:	Warren Green		
Date Checked:	21st September 2016		
Quality Check:	Dean Robson		
Date Authorised:	21st September 2016		
Date Issued:	21st September 2016	To:	Tim Hopkins (The Horniman Museum and Gardens)

Issue Summary Table

Issue 01	Original Issue

Survey Details

Client Details

Company:	The Horniman Museum and Gardens
Contact:	Tim Hopkins
Address:	The Horniman Museum and Gardens 100 London Road Forest Hill London SE23 3PQ

Survey Scope and Methodology

Site Address:	The Horniman Museum and Gardens 100 London Road Forest Hill London SE23 3PQ		
Site Description	The Horniman Museum is a British museum in Forest Hill, London, England. Commissioned in 1898, it opened in 1901 and was designed by Charles Harrison Townsend in the Arts and Crafts style. The South Hall is in the oldest section of the building which was originally constructed circa 1901 and the studio space falls into the 1911 extension. Concrete frame and stone cladding construction. The recorded dates for extension are 1911, 1996 and 2002.		
Survey Type:	Refurbishment	Date(s) of Survey:	13th September 2016
Scope of Survey:	**South Hall Offices** The Horniman Museum require a Refurbishment Survey in accordance to HSG264 to be carried out to the South Hall Offices which are marked on the attached plans. The survey is to cater for the following works and intrusions and inspections will be limited to these items and areas listed below • Repair work that is occurring to the ceilings of the offices and in the process of repairing then it's anticipated that there will be a lot of rubble raised from the existing clinker concrete ceiling and therefore it required inspection and sampling representatively throughout the areas. A mobile telescopic tower was used on site to undertake high level ceiling inspections in excess of 3m in height. • Carpets are to be removed and the parquet floors are being sanded • Inspect area where the toilet is being replaced. • Some areas of false ceiling that will need to be investigated intrusions would be cut open any false ceilings and make good using polythene or tape and corex. • All light fittings will be removed as part of the work along with any other ceiling mounted fittings or equipment, including re-routing of the wired fire alarm.		

	• Areas outside the office areas highlighted on the plans where cabling runs may be affected/or destructive works are happening, these areas are to be identified and clearly explained to the surveyed team before the surveyed team undertake the survey in these RAMs by the lead surveyor. All of the offices were clear of staff and furniture so works can take place in normal working hours. The museum dose not open until 10.30am. Structural fabric and features were listed and all exhibits are of historic interest and all were not disturbed. Confirmation with the Client will be sought where any doubt exists as to the provenance of any material. All areas shall remain safe and tidy. Repairs will be temporary and will use polythene, corex, no nails and tape were necessary smaller inspection points will be filled with filler and tape sealed.
Agreed Excluded Areas:	Structural fabric and features are listed and all exhibits are of historic interest and shall not be disturbed. Confirmation with the Client will be sought where any doubt exists as to the provenance of any material. Only those areas within the scope of works shall be included. No intrusions were made where this would compromise the security, integrity or weatherproofing of the building fabric. Access were restricted where any exhibits are present or where live plant or services prevent investigation. Visual assessment and recommendation for further action will be made in such situations. All representative clinker samples taken from the First Floor ceilings. Referred the clinker to the ceiling on the Ground Floor security room G.01 although no works will be taking place at ceiling level. Entry ref 36R is what you can decide on to keep or erase.
Deviations from Standard Methods:	None

The survey was carried in accordance with in-house procedure DEPROC04 and HSG264 – Asbestos: The Survey Guide, unless stated above, and by lead asbestos surveyors who are authorised for this inspection and property type. A Derisk UK approved UKAS accredited laboratory was used to analyse all samples taken as described in HSG248 – Asbestos: The analysts' guide for sampling, analysis and clearance procedures. Copies of the full certificate(s) are included within this report (Section – Certificate of Analysis).

Refurbishment Survey

A refurbishment survey is used to locate as far as reasonably practicable, the presence and extent of any suspected ACM's within the client defined scope of works. Areas that have not been mentioned within the scope outlined above should be deemed as not inspected within this report. Destructive and intrusive inspections have been used in areas agreed with the client to investigate sealed areas, no intrusions have been made through items that were presumed on site to contain asbestos fibres.

This survey does not include inspections below any floor slab unless specifically stated as inspected within this survey report.

The purpose of this survey is to assist the client in compiling a detailed asbestos removal specification, to manage any asbestos materials which remain in-situ during the planned refurbishment works and allow for designers and contractor to assess asbestos risks prior to tendering for proposed works.

The survey report alone should not be used as an asbestos removal specification or reason not be undertake a site visit for compiling a quotation or RAMS documentation. All quantities within the report are estimates only

Navigating and Understanding the Survey Report

Overview of Sample/ Observation Numbering/ Suffix Lettering and Drawing Annotations

This report uses the following system to identify observations, sample locations, referrals and presumptions.

Each entry within the survey report will be given a unique number following in a sequence. Inspections/ observation are shown on the floor plans within a square. Samples, presumptions and referrals are shown on the floor plans within a circle.

All entries which are presumptions are suffixed with a '**P**', referred samples are suffixed with an '**R**'.

All positive samples, referrals and presumptions are in '**red**' font on the floor plans. Negative samples or referrals on the floor plans are shown in a '**black**' font.

All observations are in a '**black**' font on the floor plans.

Where possible material extents will be shaded on the floor plans in '**red**' for positive, presumed and referenced samples. Limited or restricted areas will be shaded on the floor plans in '**purple**'. All areas out of agreed scope of this survey will be shaded '**grey**'. Inspections and non-asbestos materials are not shaded on the floor plans.

Executive Summary – Asbestos Containing Materials

Room/ Area Location and Description	Inspection/ Sample No.	MATERIAL ASSESSMENT				Hazard Score	Hazard Rating	Quantity	Recommendation
		Asbestos Type	Product	Extent of Damage	Surface Treatment				
1.02 Office Loft hatch insulating board.	05	Amosite Chrysotile	Insulating Board	Low	Sealed	6	Low	<1m^2	Remove
1.09 Office Presumed rope inside the safe. Further investigation required once access can be gained. Presumed to contain chrysotile rope.	24P	Chrysotile	Rope	Low	Composite	4	Very Low	1m	Remove

Executive Summary - Limited or No Access Areas

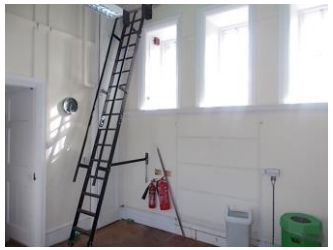
Room/ Area Location and Description	Reason for Limited or No Access	Recommendation
1.01 Corridor 1.02 Office and Lobby	No access to the solid casing to the ceiling due to causing significant damage.	Further investigation required.
1.10 Office	No access to the fireplace due to causing damage.	Further investigation required.

Observations – First Floor

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.01 Corridor	Solid soffit ceiling and a fibreboard suspended ceiling. Solid casing to the ceiling. Solid and plasterboard walls. Timber parquet floor. Metal conduit electric distribution box unlagged metal pipe with metal collars.	01	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.01 Corridor	Inspection 01 continued.	01	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.01 Corridor	Inspection 01 continued.	01	-	-	-	-	-	-	 
1.01 Corridor	Clinker to the ceiling.	02	Non-asbestos	Cement	20m^2	Good Condition	Cement	N/A	
1.01 Corridor	No access to the solid casing to the ceiling. This is due to causing significant damage. Further investigation required.	03	-	-	-	-	-	-	

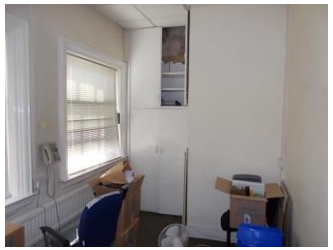
Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.02 Office	Solid soffit ceiling. Solid walls and timber parquet floor. Timber loft hatch door. MMMF lagged metal pipes beneath metal radiators. Unlagged metal pipe. Timber riser boxing with unlagged metal pipes.	04	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.02 Office	Inspection 04 continued.	04	-	-	-	-	-	-	 
1.02 Office	Loft hatch insulating board.	05	Amosite Chrysotile	Insulating Board	<1m^2	Low	Sealed	Remove	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.02 Office	Clinker to the ceiling.	06	Non-asbestos	Cement	20m^2	Medium	Cement	N/A	
1.03 Office and Lobby	Solid soffit ceiling and a fibreboard suspended ceiling. Solid walls and timber parquet flooring. Metal conduits. Timber access hatch with unlagged metal pipes inside and brick walls. MMMF lagged metal pipes.	07	-	-	-	-	-	-	  

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.03 Office and Lobby	Inspection 07 continued.	07	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.03 Office and Lobby	Inspection 07 continued.	07	-	-	-	-	-	-	
1.03 Office and Lobby	Clinker to the ceiling.	08	Non-asbestos	Cement	14m^2	Medium	Cement	N/A	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.03 Office and Lobby	Partly visualised which contains an RSJ beam. No access to the remaining solid casing to the ceiling due to causing significant damage. Further investigation required.	09	-	-	-	-	-	-	 
1.04 Office	Solid soffit ceiling and fibreboard suspended ceiling. Solid walls. Carpet over the timber parquet floor. Unlagged metal pipe at high level with a metal collar. Timber cupboard and boxing within, housing unlagged and MMMF lagged metal pipes. Unlagged metal pipes at low level beneath the metal radiator.	10	-	-	-	-	-	-	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.04 Office	Inspection 10 continued.	10	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.04 Office	Inspection 10 continued.	10	-	-	-	-	-	-	 
1.04 Office	Clinker to the ceiling.	11	Non-asbestos	Cement	14m^2	Medium	Cement	N/A	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.05 Kitchen	Solid soffit ceiling and fibreboard suspended ceiling. Solid walls and timber parquet flooring. Timber boxing housing unlagged metal pipes. Kitchen sink unit. Timber door and glass header.	12	-	-	-	-	-	-	 
1.05 Kitchen	Clinker to the ceiling. Refer to sample 11 for analysis.	13R	Non-asbestos	Cement	4m^2	Good Condition	Cement	N/A	
1.05 Kitchen	Two mastic pads located beneath the sink and the drainage top.	14	Non-asbestos	Bitumen	2 no.	Low	Composite	N/A	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.06 WC	Solid soffit ceiling and fibreboard suspended ceiling. Solid walls and timber parquet flooring. Ceramic sink and toilet system. Unlagged metal pipes. Timber door.	15	-	-	-	-	-	-	  
1.06 WC	Clinker to the ceiling. Refer to sample 11 for analysis.	16R	Non-asbestos	Cement	2m²	Good Condition	Cement	N/A	

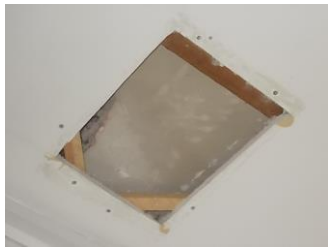
Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.07 Corridor	Solid soffit ceiling and fibreboard suspended ceiling. Solid walls and timber parquet floor. Unlagged low level metal pipe. Timber door.	17	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.07 Corridor	Residue sampled to the low level pipe located beside the corridor door entrance.	18	Non-asbestos	Residue	<1m	Low	Sealed	N/A	
1.07 Corridor	Clinker to the ceiling. Refer to sample 11 for analysis.	19R	Non-asbestos	Cement	4m^2	Good Condition	Cement	N/A	
1.08 Office Room	Solid soffit ceiling, solid walls and timber parquet flooring. Bricked up chimney stack. Timber doors. Timber boxing with unlagged metal pipes and MMMF lagged metal pipes.	20	-	-	-	-	-	-	 

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.08 Office	Clinker to the ceiling.	21	Non-asbestos	Cement	15m^2	Good Condition	Cement	Remove	
1.09 Office	Solid soffit ceiling, solid walls and timber parquet flooring. Bricked up chimney stack. Timber doors. Timber boxing with unlagged metal pipes and MMMF lagged metal pipe.	22	-	-	-	-	-	-	  

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.09 Office	Inspection 22 continued.	22	-	-	-	-	-	-	
1.09 Office	Clinker to the ceiling.	23	Non-asbestos	Cement	16m^2	Good Condition	Cement	N/A	
1.09 Office	Presumed rope inside the safe. Further investigation required once access can be gained. Presumed to contain chrysotile rope.	24P	Chrysotile	Rope	1m	Low	Composite	Remove	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.10 Office	Solid soffit ceiling behind the plasterboard ceiling. Solid walls and a timber parquet floor. Old cast iron fireplace. Timber doors. Timber boxing with unlagged metal pipes and MMMF lagged metal pipes. Data unit fixed to the wall.	25	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.10 Office	Clinker to the ceiling.	26	Non-asbestos	Cement	17m^2	Good Condition	Cement	N/A	 
1.10 Office	No access to the fireplace due to causing damage. Further investigation required.	27	-	-	-	-	-	-	

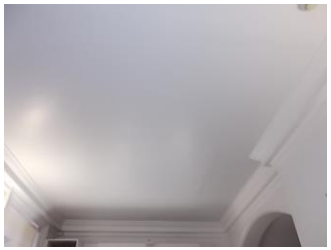
Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.11 Office	Solid soffit ceiling, solid walls and timber parquet flooring. Low level MMMF lagged metal pipes beneath the metal radiator. Metal conduit with	28	-	-	-	-	-	-	  
1.11 Office	Clinker to the ceiling.	29	Non-asbestos	Cement	22m²	Good Condition	Cement	Remove	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.12 Office	Solid soffit ceiling. Solid walls and partition wall. Carpet onto the timber parquet flooring. MMMF lagged metal pipe beneath the metal radiator. Plastic fuse box at high level. Timber doors.	30	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.12 Office	Inspection 30 continued.	30	-	-	-	-	-	-	
1.12 Office	Clinker to the ceiling.	31	Non-asbestos	Cement	14m^2	Good Condition	Cement	N/A	
1.12 Office	Bakelite fuse box at high level.	32	Non-asbestos	Composite	<1m^2	Low	Composite	N/A	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
1.13 Office	Solid soffit ceiling, solid walls and a plasterboard partition wall. Carpet over the timber parquet flooring. Timber shelving.	33	-	-	-	-	-	-	 
1.13 Office	Clinker to the ceiling.	34	Non-asbestos	Cement	15m^2	Good Condition	Cement	N/A	

Observations – Ground Floor

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
G.01 Reception	Solid soffit ceiling, solid walls and ceramic floor tiles. Floor tiles. Timber boxing housing fire alarm wiring. Timber door. Unlagged low level pipes beneath the radiator.	35	-	-	-	-	-	-	  
G.01 Reception	Clinker to the ceiling. Refer to sample 34 for analysis.	36R	Non-asbestos	Cement	20m^2	Low	Cement	N/A	

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
G.02 Security Office	Timber structured ceiling with fibre glass insulation and plasterboard panels. Fibreboard suspended celling. Plasterboard and solid walls. Lino floor covering over the concrete floor.	37	-	-	-	-	-	-	   

Room/Area	Observation/Comment	Inspection/ Sample No.	Analysis Result	Product	Quantity	Extent of Damage	Surface Treatment	Recommendation	Photo
G.02 Security Office	Inspection 37 continued.	37	-	-	-	-	-	-	
G.02 Security Office	Grey floor tile.	38	Non-asbestos	Composite	<1m^2	Low	Composite	N/A	

Certificate of Analysis

KOVA
Asbestos Consultants

Kova Asbestos Consultants Ltd
Suite 10 Rochester House, 275 Baddow Road
Chelmsford, Essex CM2 7QA
Tel: 01245 929029
Email: enquiries@kovaasbestos.co.uk

UKAS TESTING
7736

CLIENT DETAILS

FAO: Survey Department
Derisk UK Ltd,
Burdett House,
15-16 Buckingham Street,
London,
WC2N 6DU

BULK ANALYSIS REPORT

Report No: - BK 2039
Date Sample Received: 19-Sep-16. Confirmation Date: 20-Sep-16
Job No: - 12210. Survey No (if applicable): -
Order No: -16199
Client Reference: -
Sample Source: - Brought in by Client

Report For : - Horniman Museum And Gardens, 100 London Road, London, SE23 3PQ

Samples analysed on 20 September 2016

Sample No	Sample Location/Description	Material Type (See # Note)	Asbestos Fibre Type
2039-1	02 - 1.01 Corridor, 1st Floor - Clinker From Ceiling	Composite	No Asbestos Detected
2039-2	05 - 1.02 Office, 1st Floor - Access Loft Hatch Insulating Board	Board	Amosite & Chrysotile
2039-3	06 - 1.02 Office, 1st Floor - Clinker From Ceiling	Composite	No Asbestos Detected
2039-4	08 - 1.02 Office, 1st Floor - Clinker From Ceiling	Composite	No Asbestos Detected
2039-5	11 - 1.04 Office, 1st Floorm - Clinker From Ceiling	Composite	No Asbestos Detected
2039-6	14 - 1.05 Kitchen, 1st Floor - Mastic Pads x2	Bitumen Pad	No Asbestos Detected
2039-7	18 - 1.07 Corridor, 1st Floor - Residue Off Low Level Pipe	Residue	No Asbestos Detected
2039-8	21 - 1.08 Office, 1st Floor - Clinker From Ceiling	Composite	No Asbestos Detected
2039-9	23 - 1.09 Office, 1st Floor - Clinker From Ceiling	Composite	No Asbestos Detected
2039-10	26 - 1.10 Office, 1st Floor - Clinker From Ceiling	Composite	No Asbestos Detected
2039-11	29 - 1.11 Office, 1st Floor - Clinker From Ceiling	Composite	No Asbestos Detected
2039-12	31 - 1.12 Office, 1st Floor - Clinker From Ceiling	Composite	No Asbestos Detected
2039-13	32 - 1.12 Office, 1st Floor - Bakerlite Fuse Box At High Level	Resin	No Asbestos Detected
2039-14	34 - 1.13 Office, 1st Floor - Clinker From Ceiling	Composite	No Asbestos Detected
2039-15	38 - G.02 Security Office, Ground Floor - Grey Floor Tile	Floor Tile	No Asbestos Detected
	Analysis Notes No bitumen present.		

Information: Asbestos types come with both common and technical names, listed below are the 3 most common types of asbestos with both their technical and common names. This report uses technical names.
Chrysotile = White Asbestos. Amosite = Brown Asbestos. Crocidolite = Blue Asbestos.

Sample(s) of material referenced above, have been examined with a stereo microscope, polarised light micrscopy and dispersion staining technique as described in the Company's SAS 04 Document that incorporates methods set out in the HSG 248. Opinions/Interpretations are not covered by UKAS Accreditation.

This Company cannot guarantee the quality or the accuracy of the sample details where supplied by a third party. The referenced sample(s) have been tested/examined and certified in accordance with the terms of the contract/order applicable and unless otherwise stated, conform fully to the standards/specifications quoted. This does not however guarantee the balance of production from which the test sample(s) have been taken from, to be of an equal quality.
Note: The Material type associated to each sample is purely a subjective opinion of the analyst based on asbestos content and visual appearance of the sample at the time of analysis. This company cannot be held responsible for inaccuracies based on this subjective opinion which falls out side the scope of our UKAS accreditation.

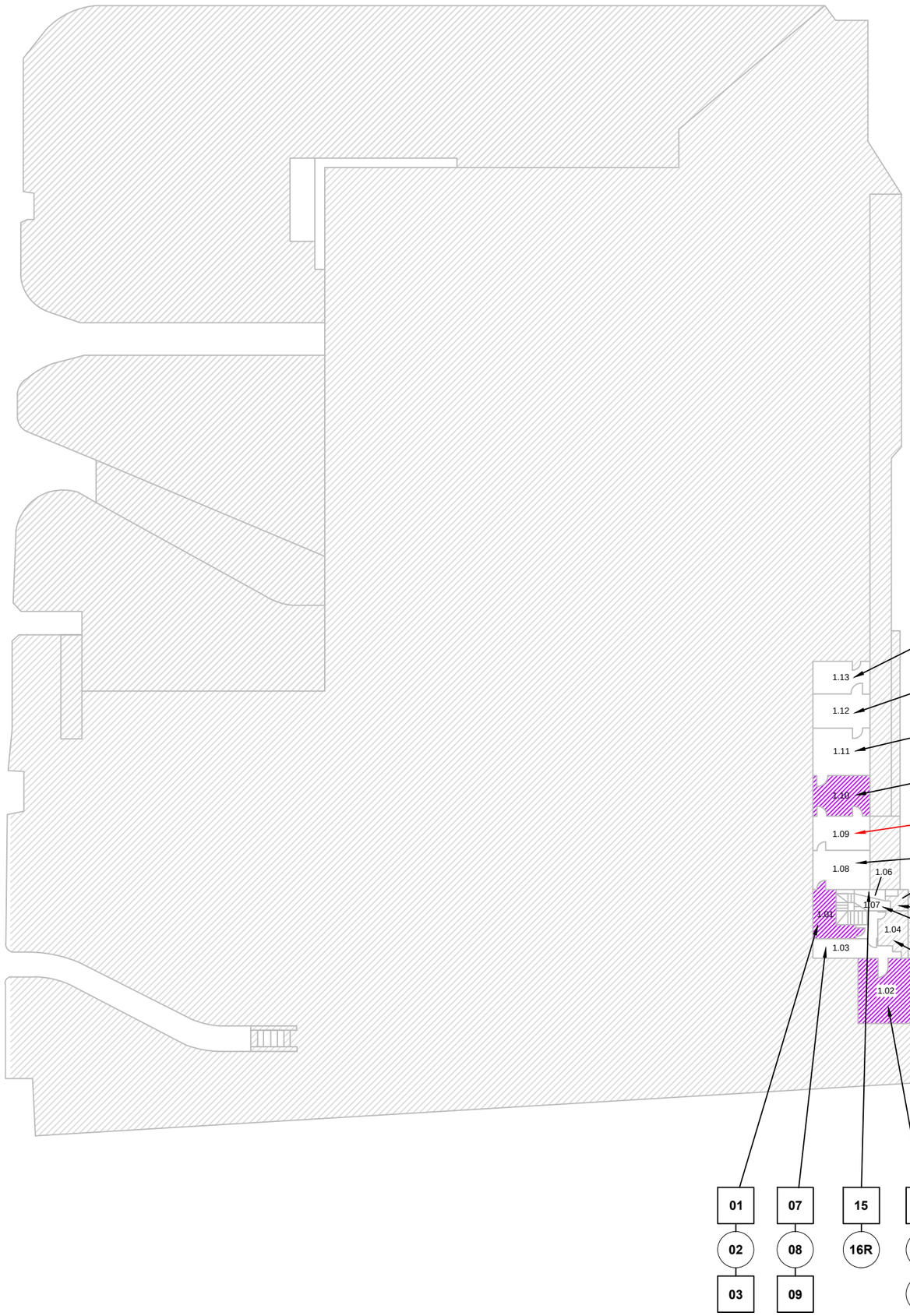
Site Comments: -

Analysts Signature and Reported by:
Nicola Brader (Bulk Analyst)

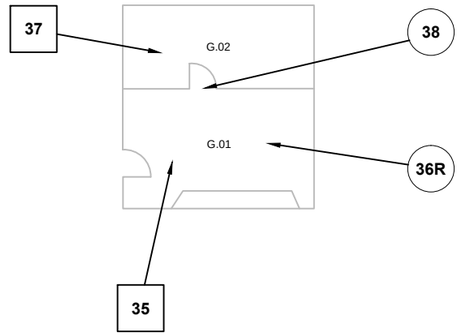
Registered in England No. 09222072

Floor Plans

First Floor



Ground Floor



A DE GROUP COMPANY

SITE DETAILS

The Horniman Museum and Gardens
100 London Road
London SE23 3PQ

EXTENT OF POSITIVE MATERIALS

OUTSIDE SCOPE OF WORKS

NO ACCESS / LIMITED / RESTRICTED ACCESS

000 ASBESTOS IDENTIFIED IN SAMPLE

000 NO ASBESTOS IDENTIFIED IN SAMPLE

IDENTIFIED AS SAMPLE

IDENTIFIED AS INSPECTION

NOT TO SCALE
THIS SITE SKETCH IS INTENDED FOR THE IDENTIFICATION OF AREAS ONLY IN RELATION TO THE ASBESTOS SURVEY
THIS DRAWING SHOULD ONLY BE READ IN COLOUR

deriskuk.com

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Schooner Court
Crossways Business Park
Dartford, Kent DA2 6NW
TEL - **01322 276760**

Email : enquiries@deriskuk.com
Web : www.deriskuk.com

CLIENT

The Horniman Museum and Gardens
100 London Road
London SE23 3PQ

THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE ASBESTOS SURVEY REPORT FOR SURVEY NUMBER
16199

DRAWING TITLE

Ground & First Floor

SURVEY NO.		
16199	Drawn By	M.Forsyth
	Drawing Date	14/09/2016
	Surveyor 1	Warren Green
	Surveyor 2	Sion Henson
	Survey Date	13/09/2016

PAGE NO. 38 of 43

Management Information and Assessment Scoring

Asbestos Management

This survey should be used to form part of, or provide information for, inclusion into a specific management system. This report alone does not provide the client with a compliant Asbestos Management Plan. Derisk can provide further details on how to ensure compliance in either the building or within the organisation in which the Duty Holder may work (the definition of the Duty Holder for a building or organisation is given in Regulation 4 of Control of Asbestos Regulations 2012.)

The Duty Holder shall also be responsible for preparing appropriate Management Recommendations until such time as the ACMs are removed. Their responsibility extends also to preparing an Action Plan to manage those ACMs and to nominate a competent person who will hold the responsibility for that management.

Derisk UK Ltd can assist in the preparation of these assessments and advise on how to incorporate into a management system.

The recommendations given by the surveyor are based upon the condition and surface treatment recorded as part of the survey. The Duty Holder or client should ensure that the recommendations made adequately cover the future use, repair or maintenance of the ACMs.

Where remedial or removal works are required by the planned works or recommended by the survey, the Duty Holder or client shall ensure that a suitable and sufficient assessment is carried out before a competent contractor is appointed. This may involve the preparation of a project specific specification for these works. The information contained within this survey may be used as part of or in the preparation of such a specification, but this survey alone shall not be used as a specification document. In addition, the survey shall be read as a whole and shall not be reproduced in part or without the permission of the designated client.

Derisk UK Ltd can assist and advise on the specification of work and the selection, appointment and management of a competent contractor during any associated asbestos work.

Material and Priority Assessments

The following tables are extracts from HSG 264 and shows the values upon which the Material and Priority Assessments are based. The latter is used to assess the Human Exposure Potential by allocation risk values based on normal use and occupation.

Refer to the published guidance HSG227 for full description of calculation of all assessments and for the preparation of the necessary action plans and recommendations for management.

The combination of the Material and Priority Assessments provides data for the overall ACM Risk Assessment and it is this value on which the Duty Holder shall base decisions and recommendations for action, remedial work and planned project works.

As part of the management process, the Duty Holder shall ensure that all information is suitably disseminated to those persons who may be affected by the presence of ACMs during their normal work activities.

Material Assessment Parameters

Sample Variable	Score	Examples of scores (see notes for more detail)
Product type (or debris from product)	1	Asbestos-reinforced composites (plastics, resins, mastics, roofing felts, vinyl floor tiles, semi-rigid or decorative finishes, asbestos cement etc).
	2	AIB, millboards, other low-density insulation boards, asbestos textiles, gaskets, ropes and woven textiles, asbestos paper and felt.
	3	Thermal insulation (eg pipe and boiler lagging), sprayed asbestos, loose asbestos, asbestos mattresses and packing.
Extent of damage/deterioration	0	Good condition: no visible damage.
	1	Low damage: a few scratches or surface marks, broken edges on boards, tiles etc.
	2	Medium damage: significant breakage of materials or several small areas where material has been damaged revealing loose asbestos fibres.
	3	High damage or delamination of materials, spays and thermal insulation. Visible asbestos debris.
Surface treatment	0	Composite materials containing asbestos: reinforced plastic, resins, vinyl tiles.
	1	Enclosed sprays and lagging, AIB (with exposed face painted or encapsulated) asbestos cement sheets etc.
	2	Unsealed AIB, or encapsulated lagging and sprays.
	3	Unsealed lagging and sprays.
Asbestos type	1	Chrysotile.
	2	Amphibole asbestos excluding Crocidolite.
	3	Crocidolite.
Total		

Score	Potential to release asbestos fibres
10 or more	High
7-9	Medium
5-6	Low
4 or less	Very low

Priority Assessment Parameters

Assessment factor	Score	Examples of score variables
Normal occupant activity		
Main type of activity in area	0	Rare disturbance activity (eg little used store room)
	1	Low disturbance activities (eg office type activities)
	2	Periodic disturbance (eg industrial or vehicular activity which may contact ACMs)
	3	High levels of disturbance (eg fire door with asbestos insulating board sheet in constant use)
Secondary activities for area	As above	As above
Likelihood of disturbance		
Location	0	Outdoors
	1	Large rooms or well-ventilated areas
	2	Rooms up to $100m^2$
	3	Confined spaces
Accessibility	0	Usually inaccessible or unlikely to be disturbed
	1	Occasionally likely to be disturbed
	2	Easily disturbed
	3	Routinely disturbed
Extent/amount	0	Small amounts or items (eg strings, gaskets)
	1	$10m^2$ or <10m pipe run
	2	$>10m^2$ to $=<50m^2$ or >10m to =<50m pipe run
	3	$>50m^2$ or >50m pipe run
Human exposure potential		
Number of occupants	0	None
	1	1 to 3
	2	4 to 10
	3	>10
Frequency of use in area	0	Infrequent
	1	Monthly
	2	Weekly
	3	Daily
Average time area is in use	0	<1 hour
	1	>1 to <3 hours
	2	>3 to <6 hours
	3	>6 hours
Maintenance activity		
Type of maintenance activity	0	Minor disturbance (eg possibility of contact when gaining access)
	1	Low disturbance (eg changing light bulbs in asbestos insulating board ceiling)
	2	Medium disturbance (eg lifting one or two asbestos insulating board ceiling tiles to access a valve)
	3	High levels of disturbance (eg removing a number of asbestos insulating board ceiling tiles to replace a valve or recabling)
Frequency of maintenance activity	0	ACM unlikely to be disturbed for maintenance
	1	≤1 per year
	2	>1 per year
	3	>1 per month

Additional Information Available for Download

HSG 264 – Asbestos: The Survey Guide - hsg264.pdf

HSG 248 - Asbestos: The analysts' guide for sampling, analysis and clearance procedures - hsg248.pdf

HSG 227 - A comprehensive guide to Managing Asbestos in premises - hsg227.pdf

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THE **DE GROUP**

APPENDIX D

MUSEUM RULES FOR VISITING CONTRACTORS

Museum Rules for Visiting Contractors

This sheet sets out the Museum rules for all visiting contractors, and should be issued to all relevant person for information.

We are required under the Health and Safety at Work etc. Act 1974 to ensure that a safe place of work exists for all those who have cause to use the premises. This duty extends to not only staff and visitors but other users, including contractors.

It is the responsibility of every contractor to ensure that his site supervisor receives a copy of these rules and that his employees are informed of those rules which affect them.

These rules are not negotiable and the Museum requires, as part of the work contract, that they are strictly adhered to.

Any willful ignoring of these rules will result in the person being banned from the Museum site and any further breach may result in the company being barred from any further work for the Museum.

Parking

As there is limited space onsite the Museum cannot guarantee to provide contractor parking and staff attending site should be informed of this and advised that they may need to park offsite. If there is equipment to unload, the Museum should be informed in advance and arrangements can be made for short term parking on site. Vehicles should then be removed from the site unless tools and equipment, that is essential to their operation, are kept and accessed in the vehicle.

Vehicle Access

All means of access must be agreed in advance by the Facilities Manager or Deputy Facilities Manager. The normal vehicle access route is via the Horniman Drive gate. Contractors should be reminded of the rules while driving a vehicle on site which must be observed. Mobile telephones must not be used whilst driving. The speed limit is 5mph with hazard lights on.

Identification badges work permits and keys

Every person must wear the prescribed Museum identification badge/work permit in a prominent position at all times when in the Museum. Museum identification badges/work permits may be removed **temporarily** if it is identified that they will interfere with the safe use of tools or equipment. The badge/permit/key/swipe card will be issued at the security desk on arrival and must be returned on departure. The badges/permits/keys/ swipe cards must not be taken 'off site' and must be handed in whenever leaving the Museum. Failure to comply may result in permission to work on site being refused.

Smoking

No smoking except in the designated location is permitted anywhere in the Museum at any time, including courtyard areas.

Hot Works, Working at Height (at any height where there is a risk of a fall), Electrical Work

All works which have any element as above must be agreed in advance with the Facilities Manager or Deputy Facilities Manager and a Permit to Work obtained from the security desk. This may also require the authorized isolation of the fire alarm system prior to the commencement of any hot 'work'. Any work activity which creates flame, sparks, smoke or dust must take into account the smoke and heat fire detection units. Any deactivation of alarms should be authorized by the Facilities Manager or deputy Facilities Manager and logged in the security log book. Work may not commence until this precaution has been confirmed by Security. Those persons carrying out 'hot works' are required to supply their own fire extinguishers which are appropriate to the risk identified in the risk assessment.

Suitable risk assessments should be completed as required by the Management of Health and Safety at Work Regulations 1999 before the work begins.

Any contractor refusing to complete a work permit will not be permitted to work on site.

Equipment brought on site

All equipment used by a Contractor or Supplier must be in good working order, comply with appropriate safety and electrical legislation, should be PAT tested and visually inspected before use.

Equipment left on site shall be kept in a safe and secure manner ideally in a locked cupboard and at the risk of the Contractor or Supplier.

All portable appliances used outside of buildings and on construction sites should, where possible, be battery operated or be suitable for use with 110 volt power supply with additional consideration given to the positioning of the trailing leads to avoid slip and trip hazards.

Personal protection

Contractors should ensure they wear appropriate personal protective clothing as specified in the risk assessment to include, safety footwear, head protection, ear protection, eye protection, suitable gloves and face protection as required by the activity risk assessment.

Competence

All those persons employed to carry out work at the Horniman Museum must be competent. They must have the required skills, knowledge, ability, training and experience to complete their work safely and effectively.

Construction (Design and Management) Regulations 2015, Contractors and the self-employed

The Horniman Museum has strict controls in place to comply with the Construction (Design and Management) Regulations 2015 (CDM 2015). Work classed as construction within CDM 2015 (e.g. building maintenance and repair, redecoration, high pressure water jetting, installation of electrical or IT cabling), which involves more than one contractor, requires one of the contractors to be appointed in writing as the Principal Contractor and Principal Designer where necessary, by the Museum. All such work, whether or not involving one contractor, will require a written Construction Phase Plan in place prior to work commencing.

Under the CDM 2015 Regulations, the Horniman Museum will be the 'client' in respect of any relevant works undertaken. The 'client' is required to inform the Health and Safety Executive (HSE) about certain construction projects. A project becomes notifiable to the HSE if the construction work is expected to last longer than 30 working days and have more than 20 workers working at the same time at any point on the project or if the work will exceed 500 person days. The client for the construction work is required to send the notification to HSE, either on-line (on form F10) or in writing.

It is a requirement under the CDM 2015 Regulations that the Principal Contractor manages the Construction Phase Plan and ensures contractors and self-employed people working on the site are made aware of their duties accordingly. All contractors must ensure that full induction of his/her own staff, sub-contractors and the self-employed is carried out and that these site rules are documented and signed by all inductees to demonstrate full understanding by all persons working on site.

The Principal Contractor is required to check the competence of any domestic named or nominated contractor for the purposes of complying with the Construction (Design and Management) Regulations 2015.

Food and drink

No food or drink of any type may be taken into, or consumed within the Museum galleries, plant rooms or in areas where work is being undertaken.

Radios

No music devices, radio headphones or MP3 players may be used within the Museum or Gardens at any time.

Language

Foul, offensive or immoderate language is not acceptable within the Museum and Gardens at any time. Any willful ignoring of this rule will result in the person being banned from the Museum site and any further breach may result in the company being barred from any further work for the Museum. In hot weather, shirts must be kept on at all time across the site.

Fire alarms and evacuations

Fire alarms are tested every Thursday morning between 07.00 and 09.00. They will sound for a few seconds only and then stop. This activation is repeated several times.

At all other times when the fire alarm sounds, all contractors must make safe any equipment being used and must evacuate the building immediately by the nearest exit and gather in front of the clock tower.

The contractor must nominate a member of staff to be responsible for checking that all of the staff are clear of the building and report such to the nearest Visitor Services Assistant who will relay the information to Incident Controller. Contractors must not re-enter the building without permission from the Incident Controller.

Accidents and work related illness

All accidents and work related illness should be reported to the Security Desk and the relevant forms filled in.

Contractors should notify the museum of any known disability (e.g. hearing impairment, colour blindness), health condition (including allergies) or language difficulty which could affect their safety and/or the safety of others whilst undertaking work at the museum.

Toilets

Contractors may use only the toilets designated by the Museum.

Materials

The delivery and storage of materials and the routes and times of entry into the Museum must be agreed with the Facilities Manager or Deputy Facilities Manager in advance.

Waste

The Contractor is responsible for removing all unused materials and/or waste and recyclable materials by the completion of the works and at the end of each work period.

Work Site

Contractors should restrict their movements to the designated work site and agreed access routes.

Works

No work shall be carried out without the prior knowledge and agreement of the Facilities Manager or Deputy Facilities Manager.

Telephones

The Museum phone system is not to be used by Contractors except when it is crucial to the completion or continuation of works or in cases of emergency. It should also be noted that the use of mobile phones within the Museum building should not cause nuisance or annoyance to staff or visitors.

Late/Lone Working

Whilst every effort is made to ensure that works are carried out during the normal working day it is recognised that on occasion it may be necessary to undertake work out of hours. Any contractor working outside normal hours will be required to make use of the Museum's lone worker protection system and carry a Museum radio to stay in contact with Museum Security staff whilst onsite. Any failure to comply with this request will be refused permission to work onsite.

Any contractor or delivery person failing to take reasonable Health, Safety, and Operational Instruction from security staff or management will be told to leave the premises, their superiors will be informed and they will be banned from accessing or working on the Horniman sites in future.

Declaration

I declare that I have fully read and understand this document. I agree to comply with the Rules and acquaint all persons employed by the Company (including sub-contracted staff) with these Safety Rules.

Signed:

Date:

Name (Block Capitals) Position (Block Capitals)

Company Name (Block Capitals)

Document Reviewed April 2016

APPENDIX E

SAFE WORK IN CONFINED SPACES

Safe work in confined spaces

This is a web-friendly version of leaflet INDG258

This document is aimed at employers and the self-employed who carry out work in confined spaces, and forms part of HSE's commitment to make simple and practical guidance available for small firms. It will help them take the necessary action to meet the requirements of the Confined Spaces Regulations 1997. It will also be a useful source of information to anyone involved in carrying out work in confined spaces.

Confined spaces can be deadly

A number of people are killed or seriously injured in confined spaces each year in the UK. This happens in a wide range of industries, from those involving complex plant to simple storage vessels. Those killed include not only people working in the confined space but those who try to rescue them without proper training and equipment.

What is a confined space?

It can be any space of an enclosed nature where there is a risk of death or serious injury from hazardous substances or dangerous conditions (eg lack of oxygen). Some confined spaces are fairly easy to identify, eg enclosures with limited openings:

- storage tanks;
- silos;
- reaction vessels;
- enclosed drains;
- sewers.

Others may be less obvious, but can be equally dangerous, for example:

- open-topped chambers;
- vats;
- combustion chambers in furnaces etc;
- ductwork;
- unventilated or poorly ventilated rooms.

It is not possible to provide a comprehensive list of confined spaces. Some places may become confined spaces when work is carried out, or during their construction, fabrication or subsequent modification.

What are the dangers from confined spaces?

Dangers can arise in confined spaces because of:

- A lack of oxygen.
  This can occur:
  - where there is a reaction between some soils and the oxygen in the atmosphere;
  - following the action of groundwater on chalk and limestone which can produce carbon dioxide and displace normal air;
  - in ships' holds, freight containers, lorries etc as a result of the cargo reacting with oxygen inside the space;
  - inside steel tanks and vessels when rust forms.

- Poisonous gas, fume or vapour.
  These can:
  - build-up in sewers and manholes and in pits connected to the system;
  - enter tanks or vessels from connecting pipes;
  - leak into trenches and pits in contaminated land, such as old refuse tips and old gas works.
- Liquids and solids which can suddenly fill the space, or release gases into it, when disturbed. Free flowing solids such as grain can also partially solidify or 'bridge' in silos causing blockages which can collapse unexpectedly.
- Fire and explosions (eg from flammable vapours, excess oxygen etc).
- Residues left in tanks, vessels etc, or remaining on internal surfaces which can give off gas, fume or vapour.
- Dust may be present in high concentrations, eg in flour silos.
- Hot conditions leading to a dangerous increase in body temperature.

Some of the above conditions may already be present in the confined space. However, some may arise through the work being carried out, or because of ineffective isolation of plant nearby, eg leakage from a pipe connected to the confined space. The enclosure and working space may increase other dangers arising through the work being carried out, for example:

- machinery being used may require special precautions, such as provision of dust extraction for a portable grinder, or special precautions against electric shock;
- gas, fume or vapour can arise from welding, or by use of volatile and often flammable solvents, adhesives etc;
- if access to the space is through a restricted entrance, such as a manhole, escape or rescue in an emergency will be more difficult (see *Emergency procedures*).

What the law says

You must carry out a suitable and sufficient assessment of the risks for all work activities for the purpose of deciding what measures are necessary for safety **(The Management of Health and Safety at Work Regulations 1999, regulation 3).** For work in confined spaces this means identifying the hazards present, assessing the risks and determining what precautions to take. In most cases the assessment will include consideration of:

- the task;
- the working environment;
- working materials and tools;
- the suitability of those carrying out the task;
- arrangements for emergency rescue.

HSE's free leaflet *Five steps to risk assessment* will help you further. You may need to appoint competent people to help manage the risks and ensure that employees are adequately trained and instructed **(The Management of Health and Safety at Work Regulations 1999, regulation 7).** Of course, you may be the best person to do this, however, you may need to train someone else or engage the services of a competent person for additional help.

If your assessment identifies risks of serious injury from work in confined spaces, such as the dangers highlighted above, the **Confined Spaces Regulations 1997** apply. These regulations contain the following key duties:

- avoid entry to confined spaces, eg by doing the work from outside;
- if entry to a confined space is unavoidable, follow a safe system of work; and
- put in place adequate emergency arrangements before the work starts.

These duties, and what you need to do, are further described in this document.

Avoid entering confined spaces

You need to check if the work can be done another way so that entry or work in confined spaces is avoided. Better work-planning or a different approach can reduce the need for confined space working.

Ask yourself if the intended work is really necessary, or could you:

- modify the confined space itself so that entry is not necessary;
- have the work done from outside, for example:
- blockages can be cleared in silos by use of remotely operated rotating flail devices, vibrators or air purgers;
- inspection, sampling and cleaning operations can often be done from outside the space using appropriate equipment and tools;
- remote cameras can be used for internal inspection of vessels.

Safe systems of work

If you cannot avoid entry into a confined space make sure you have a safe system for working inside the space.

Use the results of your risk assessment to help identify the necessary precautions to reduce the risk of injury. These will depend on the nature of the confined space, the associated risk and the work involved.

Make sure that the safe system of work, including the precautions identified, is developed and put into practice. Everyone involved will need to be properly trained and instructed to make sure they know what to do and how to do it safely.

The following checklist is not intended to be exhaustive but includes many of the essential elements to help prepare a safe system of work.

Appointment of a supervisor

Supervisors should be given responsibility to ensure that the necessary precautions are taken, to check safety at each stage and may need to remain present while work is underway.

Are persons suitable for the work?

Do they have sufficient experience of the type of work to be carried out, and what training have they received? Where risk assessment highlights exceptional constraints as a result of the physical layout, are individuals of suitable build? The competent person may need to consider other factors, eg concerning claustrophobia or fitness to wear breathing apparatus, and medical advice on an individual's suitability may be needed.

Isolation

Mechanical and electrical isolation of equipment is essential if it could otherwise operate, or be operated, inadvertently. If gas, fume or vapour could enter the confined space, physical isolation of pipework etc needs to be made. In all cases a check should be made to ensure isolation is effective.

Cleaning before entry

This may be necessary to ensure fumes do not develop from residues etc while the work is being done.

Check the size of the entrance

Is it big enough to allow workers wearing all the necessary equipment to climb in and out easily, and provide ready access and egress in an emergency? For example, the size of the opening may mean choosing air-line breathing apparatus in place of self-contained equipment which is more bulky and therefore likely to restrict ready passage.

Provision of ventilation

You may be able to increase the number of openings and therefore improve ventilation. Mechanical ventilation may be necessary to ensure an adequate supply of fresh air. This is essential where portable gas cylinders and diesel-fuelled equipment are used inside the space because of the dangers from build-up of engine exhaust. **Warning: carbon monoxide in the exhaust from petrol-fuelled engines is so dangerous that use of such equipment in confined spaces should never be allowed.**

Testing the air

This may be necessary to check that it is free from both toxic and flammable vapours and that it is fit to breathe. Testing should be carried out by a competent person using a suitable gas detector which is correctly calibrated. Where the risk assessment indicates that conditions may change, or as a further precaution, continuous monitoring of the air may be necessary.

Provision of special tools and lighting

Non-sparking tools and specially protected lighting are essential where flammable or potentially explosive atmospheres are likely. In certain confined spaces (eg inside metal tanks) suitable precautions to prevent electric shock include use of extra low voltage equipment (typically less than 25 V) and, where necessary, residual current devices.

Provision of breathing apparatus

This is essential if the air inside the space cannot be made fit to breathe because of gas, fume or vapour present, or lack of oxygen. Never try to 'sweeten' the air in a confined space with oxygen as this can greatly increase the risk of a fire or explosion.

Preparation of emergency arrangements

This will need to cover the necessary equipment, training and practice drills.

Provision of rescue harnesses

Lifelines attached to harnesses should run back to a point outside the confined space.

Communications

An adequate communications system is needed to enable communication between people inside and outside the confined space and to summon help in an emergency.

Check how the alarm is raised

Is it necessary to station someone outside to keep watch and to communicate with anyone inside, raise the alarm quickly in an emergency, and take charge of the rescue procedures?

Is a 'permit-to-work' necessary?

A permit-to-work ensures a formal check is undertaken to ensure all the elements of a safe system of work are in place before people are allowed to enter or work in the confined space. It is also a means of communication between site management, supervisors, and those carrying out the hazardous work. Essential features of a permit-to-work are:

- clear identification of who may authorise particular jobs (and any limits to their authority) and who is responsible for specifying the necessary precautions (eg isolation, air testing, emergency arrangements etc);
- provision for ensuring that contractors engaged to carry out work are included;
- training and instruction in the issue of permits;
- monitoring and auditing to ensure that the system works as intended.

Emergency procedures

When things go wrong, people may be exposed to serious and immediate danger. Effective arrangements for raising the alarm and carrying out rescue operations in an emergency are essential.

Contingency plans will depend on the nature of the confined space, the risks identified and consequently the likely nature of an emergency rescue.

Emergency arrangements will depend on the risks. You should consider:

Communications

How can an emergency be communicated from inside the confined space to people outside so that rescue procedures can start? Don't forget night and shift work, weekends and times when the premises are closed, eg holidays. Also, consider what might happen and how the alarm can be raised.

Rescue and resuscitation equipment

Provision of suitable rescue and resuscitation equipment will depend on the likely emergencies identified. Where such equipment is provided for use by rescuers, training in correct operation is essential.

Capabilities of rescuers

They need to be properly trained people, sufficiently fit to carry out their task, ready at hand, and capable of using any equipment provided for rescue, eg breathing apparatus, lifelines and fire-fighting equipment. Rescuers also need to be protected against the cause of the emergency.

Shut down

It may be necessary to shut down adjacent plant before attempting emergency rescue.

First-aid procedures

Trained first aiders need to be available to make proper use of any necessary first-aid equipment provided.

Local emergency services

How are the local emergency services (eg, fire brigade) made aware of an incident? What information about the particular dangers in the confined space is given to them on their arrival?

Relevant law

- The Confined Spaces Regulations 1997;
- The Management of Health and Safety at Work Regulations 1999;
- The Control of Substances Hazardous to Health Regulations 2002 (as amended);
- The Personal Protective Equipment at Work Regulations 1992 (as amended);
- The Provision and Use of Work Equipment Regulations 1998;
- Electricity at Work Regulations 1989;
- Workplace (Health, Safety and Welfare) Regulations 1992.

Some of the above law is relevant because of the nature of the work to be carried out inside a confined space, eg where there are risks from machinery, electricity or from hazardous substances.

Further guidance

Safe work in confined spaces. Confined Spaces Regulations 1997. Approved Code of Practice, Regulations and guidance L101 HSE Books 1997 ISBN 0 7176 1405 0

Guidance on permit-to-work systems: A guide for the petroleum, chemical and allied industries HSG250 HSE Books 2005 ISBN 0 7176 2943 0. The relevance of this guidance is not restricted to the petroleum industry. It will be helpful in any industry or work activity where the preparation and application of permits-to-work are being considered.

5 steps to risk assessment Leaflet INDG163(rev2) HSE Books 2006 (single copy free or priced packs of 10 ISBN 0 7176 6189 X)

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For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Fax: 0845 408 9566 Textphone: 0845 408 9577 e-mail: hse.infoline@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

This document is available in priced packs of 20 from HSE Books, ISBN 0 7176 1442 5. Single free copies are also available from HSE Books.

This document contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.