

ASBESTOS MANAGEMENT PLAN AND RISK ASSESSMENT
FOR ASBESTOS IMPACTED SOILS
AT
COLLYHURST VILLAGE, MANCHESTER

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1 Risk Assessment of Asbestos Impacted Soils

1.1 Scope of Management Plan

- 1.1.1 Site-specific measures are set out to mitigate risks arising from working with asbestos impacted soils. They should be implemented to reduce risk of exposure to airborne asbestos fibres.
- 1.1.2 This plan has been produced with reference to the following publications:
 - » Control of Asbestos Regulations (CAR), 2012¹.
 - » Asbestos in soil and made ground: a guide to understanding and managing risks, CIRIA C733, 2014².
 - » Hazardous Waste Regulations 2016³.
 - » CL:AIRE, Control of Asbestos Regulations 2012 - Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials: Industry guidance, CAR-SOIL™, 2016⁴.
 - » Asbestos in soil and made ground good practice site guide, CIRIA C765, 2017⁵.
- 1.1.3 The management plan will be implemented to reduce the risk or exposure to airborne asbestos fibres when working with asbestos impacted soils.
- 1.1.4 The asbestos in soils risk register is included in Appendix A. A plan showing location of asbestos impacted soils is included in Appendix B.

1.2 Previous Site Investigation and Remediation Strategy

- 1.2.1 Previous investigations have been undertaken on the site. The following report should be read in conjunction with this Asbestos Management Plan:
 - » Preliminary Risk Assessment (PRA) report, undertaken by LKC (Ref: LKC 20 1120B, dated 4th February 2020).
 - » Updated Preliminary Risk Assessment (PRA) report, undertaken by LKC (Ref: LKC 20 1120, dated August 2020). To incorporate the extended planning boundary.
 - » Phase 2 Environmental Investigation, Risk Assessment and Outline Remediation Strategy undertaken by LKC (Ref: CL-602-LKC 20 1120-02, dated October 2020).
- 1.2.2 One sample of made ground from the site investigation (of 54 samples) reported asbestos fibres (chrysotile fibres/clumps) at <0.001%. In addition, three pieces of suspected ACM were identified and confirmed as fragments of board and cement chrysotile.
- 1.2.3 With regards the future land-use setting it is unlikely that site users would come into contact with soils containing asbestos following works detailed within the remediation strategy.
- 1.2.4 A permit to work should be completed prior to any work being carried out. Completed forms should be retained and included in the Health and Safety File.

¹ HSE No.632 "The Control of Asbestos Regulations 2012". HSE (2012).

² C733 "Asbestos in Soil & Made Ground: A Guide to Understanding and Managing Risks. CIRIA (2014)

³ WM3 v1.1 "Waste Classification – 1st Edition v1.1" (May 2018).

⁴ CAR SOIL Control of Asbestos Regulations 2012 "Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials: Industry Guidance" (2016).

⁵ C765 "Asbestos in Soil & Made Ground Good Practice Site Guide". CIRIA (2017).

2 Risk Assessment of Asbestos Impacted Soils

2.1 Introduction

- 2.1.1 Various regulations have been published detailing the protection of workers and public from risks associated with asbestos, including:
- » Construction (Design and Management) Regulations, 2015⁶.
 - » Control of Asbestos Regulations (CAR), 2006 and subsequently revised in 2012.
 - » Management of Health and Safety at Work Regulations, 1999⁷.
 - » Health and Safety at Work Act, 1974⁸.
- 2.1.2 CIRIA guidance document "Asbestos in Soil and Made Ground: A Guide to Understanding and Managing Risks (Ref: C733, dated 2014), notes there are currently no UK Soil Guideline Values (SGVs) for safe concentrations of asbestos fibres in soils. The Hazardous Waste Regulations indicate that any waste or soil material is classified as 'Special Waste' if greater than 0.1 % w/w of asbestos is present. However, this value has not been set with any recourse to human health.
- 2.1.3 **Source** - Asbestos impacted soils have been identified during the site investigation as described in Section 1.2 and as included in Appendix A and Appendix B.
- 2.1.4 **Pathway** - The primary risk pathway from asbestos in soils is inhalation of fibres when they are released into the air. Fibre dispersal is dependent on several factors including, asbestos type, condition, soil type and soil moisture content. The risk to human health can also be dependent on receptor age and exposure levels.
- 2.1.5 **Receptor** - Receptors most exposed to fibres would be site operatives and visitors during the remediation phase of works. They could be considered as lower sensitivity receptors due to age and the fact that there will be no disturbance of impacted soils without appropriate control measures.
- 2.1.6 There are residences close to the site boundary, therefore an infant under 5 years of age is considered the most sensitive receptor. General members of the public may be impacted, but the exposure period is considered to be short duration and sporadic (associated with use of local amenities and passing the site). However, there will be no disturbance of impacted soils without appropriate control measures so risk to this receptor can be considered as low.
- 2.1.7 The Control of Asbestos Regulations 2012 control limit for the concentration of asbestos fibres in any localised atmosphere, measured and averaged over a continuous period of four hours is 0.1f/ml. The control limit is not a 'safe' level and work activities involving asbestos should be designed to be as far below the control limit as possible.
- 2.1.8 Work involving some lower risk asbestos-containing materials, i.e., litter picking asbestos cement products, can be carried out if a risk assessment demonstrates that the control limit will not be exceeded. Furthermore, any exposure to asbestos must be 'sporadic and of low intensity'. The control limit for this type of non-licensed work is 0.6f/ml, measured over a ten-minute period. Any work which is likely to result in exposures at or above this should only be carried out by a licensed contractor.
- 2.1.9 The UK clearance indicator (UKCI) concentration of 0.01f/ml is used for assessing whether it is safe to take down an enclosure after notifiable asbestos removal has been completed and the area thoroughly cleaned. LK Remediate use this as the threshold value for reassurance air monitoring (refer to Appendix C). Where the threshold is exceeded, further risk assessment, mitigation and monitoring will be required before work can go on.

⁶ HSE "Construction (Design & Management) Regulations 2015" (2015).

⁷ HSE "The Management of Health and Safety at Work Regulations" (1999).

⁸ HSE "Health & Safety at Work Act" (1974).

2.2 Qualitative Assessment of Impacted Material

- 2.2.1 It is probable that the source of free fibres identified in the site investigation were fragments of asbestos cement sheeting. Sporadic occurrences of pieces of intact, good condition bonded asbestos cement sheeting has been identified within made ground and above ground mound and may be expected in localised pockets of made ground. Fibres of asbestos were only detected in soil in one site investigation location.
- 2.2.2 The potential for these types of ACMs to degrade and release concentrated fibres from the made ground soil matrix is considered low. The risk is low where soils are saturated by perched ground water, rain or other means, before any disturbance. AGS interim guidance⁹, based on work by Addison et al¹⁰, notes that the addition of 10% water to soil decreases the risk of potential fibre release by a factor of between 2 and 10 percent. The average moisture content of the soil sampled from site f investigation was 13%, making fibre release unlikely. For prolonged activities, control measures to keep the soils saturated and mitigate the release of fibres may comprise low pressure hosing or misting systems.
- 2.2.3 Based on the source-pathway- receptors above, a moderate risk could remain where asbestos containing materials retained on site following remedial works may be disturbed by construction workers. Construction operatives may be less likely to identify or appropriately manage the risks posed by asbestos fibre release. However, in line with the Remediation Strategy, visible pieces of asbestos containing material shall be hand-picked and asbestos containing materials are to be beneath clean cover systems (incorporating an appropriate break layer), plots or hardstanding,
- 2.2.4 **Mitigation** – Uncontrolled excavation would present a risk to construction workers through inhalation of fibres and a low risk to the adjacent residents. Nevertheless, the remediation works will be managed and controlled during the works. This assessment indicates the risk posed by asbestos in made ground at the site would be low to site operatives, visitors and nearby residents with localised control measures being implemented during the remediation phase.

2.3 Quantitative Assessment of Impacted Material – Work Category Assessment

- 2.3.1 Version 2.1 (March 2017), of the Joint Industry Working Group (JIWG)/CL:AIRE Decision Support Tool (for the Categorisation of Work Activities Involving Asbestos in Soil and Construction & Demolition Materials), has been used to further assess the risk posed by asbestos impacted materials in relation to planned work at the site. Classification of the probable licensing status along with risk mitigation measures including recommendations for the type of RPE, dust suppression and hygiene/decontamination are generated for each source of potential asbestos contamination.
- 2.3.2 The support tool has been run for the following scenarios, based on the findings of the site investigations:
- Areas of cement and board reported by laboratory analysis of visible pieces encountered during site investigation.
- 2.3.3 The JIWG model Stage inputs were considered based on the site conditions, available data. In instances where no data was available, reasonable worst case conditions. No or minimal deterioration of ACMs is expected, although there is a risk the condition of occasional small pieces of residual ACM could deteriorate. Loose fibres were identified in the made ground soil samples and this material will eventually be subjected to disturbance. The risk assessment outputs are included below and the full JIWG model parameters and outputs are included in Appendix E.

⁹ AGS (2013). "Site Investigation Asbestos Risk Assessment." AGS Interim Guidance, Feb 2013, Ver 2.4.

¹⁰ Addison et al (1988). "The Release of Dispersed Asbestos Fibres from Soils." Institute of Occupational Medicine Report No. TM/88/14.

Visible pieces of asbestos cement and board	
Stage 3 Risk Assessment Outputs	
Probable Licensing Status	Non-Licensed Work
RPE*	EN149 type FFP3 disposable
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities
*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary. **Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground) ***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis	

2.4 Quantitative Assessment of Impacted Material – Receptor Risk Ranking

2.4.1 Version 2 of the Decision Support Tool for the Qualitative Risk Ranking of Work Activities and Receptors Involved in or Exposed to Asbestos in Soil or Construction & Demolition Materials (February 2017), was used to supplement the qualitative assessment. The hazard and risk ranking approaches are based on scoring systems presented in HSG227 and the R&D66 qualitative risk assessment methods. The tool identifies key hazard and risk factors relevant to the management of risk from exposure to asbestos contaminated soils, made ground or construction & demolition materials. The table below suggests actions to be taken based on risk to receptors using this method of assessment.

Risk Descriptor	Required Primary Action	Secondary Action
Very Low Risk	No mitigation measures required	None
Low Risk	Qualitative risk assessment and possible mitigation measures	None
Medium Risk	Qualitative risk assessment and mandatory mitigation measures	Real-time work area reassurance air monitoring
High Risk	Quantitative risk assessment and mandatory mitigation measures	Real-time work area and personal reassurance air monitoring

2.4.2 The JIWG model was run for the following critical receptors.

- Site Operatives Working in the Area of Disturbance.
- Site Operatives Working >10m <50m During Disturbance.
- Residents >10m During Disturbance.

2.4.3 The full JIWG model parameters and outputs are included in Appendix E and summarised below.

Site Operatives Working in the Area of Disturbance - Tasks will include operatives recovering fragments of visible asbestos cement from larger fraction clean material.

Stage 3 Pathway and Receptor Sensitivity		Score
Receptor category	Construction	No score required
Age of Receptor	Adult (>24 and <60)	1
Duration of exposure/site occupancy	> 1hr <10 hr daily exposure (e.g. part-time to full time occupational exposure or extended daily recreational exposure)	3
Receptor ranking		4 Low
Combined hazard, exposure and receptor ranking		Low
Pathway: Distance of Receptor from Source	In or within 10m of area of disturbance	4
Pathway: Depth to impacted material	Material present near the surface, potential to be disturbed during non-construction/routine use of land	D
Pathway ranking		4D Medium
Overall ranking	Low	

Site Operatives Working >10m <50m During Disturbance - Any such tasks are not anticipated and will be restricted

Stage 3 Pathway and Receptor Sensitivity		Score
Receptor category	Construction	No score required
Age of Receptor	Adult (>24 and <60)	1
Duration of exposure/site occupancy	> 1hr <10 hr daily exposure (e.g. part-time to full time occupational exposure or extended daily recreational exposure)	3
Receptor ranking		4 Low
Combined hazard, exposure and receptor ranking		Low
Pathway: Distance of Receptor from Source	>10m of edge of area of disturbance	3
Pathway: Depth to impacted material	Material present near the surface, potential to be disturbed during non-construction/routine use of land	D
Pathway ranking		3D Low
Overall ranking	Very Low	

Residents >10m During Disturbance - Special measures will not be required beyond the site boundary.

Stage 3 Pathway and Receptor Sensitivity		Score
Receptor category	Residential	No score required
Age of Receptor	Infant (under 5)	4
Duration of exposure/site occupancy	>> 10 hours per day (e.g. 24 hour residential exposure)	4
Receptor ranking		8 High
Combined hazard, exposure and receptor ranking		Low
Pathway: Distance of Receptor from Source	>10m of edge of area of disturbance	3
Pathway: Depth to impacted material	Material present near the surface, potential to be disturbed during non-construction/routine use of land	D
Pathway ranking		3D Low
Overall ranking	Very Low	

2.4.4 Validation of the remediation works will ensure there are no significant risks to future users. Build phase contractors will need to ensure appropriate mitigation measures are utilised should there be any requirement to disturb potentially impacted soils during the construction phase of works.

- 2.4.5 A moderate risk could remain where asbestos containing materials retained on site following remedial works may be disturbed by construction workers. Construction operatives may be less likely to identify or appropriately manage the risks posed by asbestos fibre release. However, in line with the Remediation Strategy, asbestos containing materials are to be retained beneath hardstanding or areas of clean cover soils.
- 2.4.6 Uncontrolled excavation would present a risk to construction workers through inhalation of fibres and a low risk to the adjacent receptors. However, the remediation works will be managed and controlled during the works. This assessment indicates the risk posed by asbestos in made ground at the site would be low to site operatives, visitors and nearby residents with localised dust suppression measures being implemented during the remediation phase.

3 Remediation Method Statement

3.1 Summary

3.1.1 Based on the types of ACMs identified above, the proposed remediation strategy is:

- Removal of visible fragments of ACM under appropriate control measures. Re-use of suitable site won materials and soils as engineered fill beneath proposed building footprints, roads and clean cover in soft landscaping.

3.1.2 Arrangements to manage or remove asbestos must be explained to site workers during site inductions and regular 'Toolbox Talks'. The Project Coordinator will make sure site inductions contain relevant information and are updated to reflect changes in project arrangements and asbestos risks.

3.1.3 Example method statements and risk assessment are included in Appendix F. Examples permits to work are included in Appendix G.

3.2 Asbestos in Soils Roles

Role	Company
Project Coordinator	LK Remediate
Asbestos in Soils Consultant	LK Remediate
Asbestos Surveyor	LK Assure
Asbestos Analyst	Chemtest/APEC/NEC
Licensed Asbestos Removal Contractor	TBC

3.3 Asbestos in Soils Action Required

Location	Initial Risk Category	Actions Required	New Risk Category
All locations in Asbestos in Soils Register (Appendix B)	Medium Risk	Removal of visible fragments of ACM under appropriate control measures. Re-use of residual soils as engineering to raise levels as required.	Low Risk

3.4 Asbestos Surveyors and Analysts Requirements

3.4.1 The Project Coordinator will check providers of surveys and analytical services have evidence of:

- Surveying personnel must hold the BOHS P402 qualification and have at least 6 months' practical experience in asbestos surveying.
- Laboratory staff analysing samples for asbestos content must hold BOHS P401 qualification or the Certificate of Competence, and the Laboratory are UKAS registered.
- Analysts undertaking air monitoring, fibre counting & four stage clearance testing must hold the BOHS P403 and P404 qualifications & have had 3 months demonstrated practical experience in this field.
- Adequate public liability insurance cover.
- Adequate professional indemnity insurance cover.
- Adequate training arrangements for its workforce.
- Health & Safety Policy.

» Methods of work and risk assessments.

3.5 Training & Communication

- 3.5.1 All operatives will be given a full site induction highlighting the risks associated with asbestos in soils. All LK Remediate operatives working in areas where asbestos impacted soils have been identified will be trained in the identification of ACM and the risk associated with impacted soils (asbestos awareness training).
- 3.5.2 Operatives that are required to wear nonstandard PPE/RPE will be trained on how to wear it correctly and how to identify and replace worn or defective parts.
- 3.5.3 The relevant site-specific details of ACMs and asbestos impacted soils, including the arrangements made to manage or remove asbestos shall be explained to site workers during site inductions and 'Toolbox Talks'.
- 3.5.4 The Project Coordinator will make sure site inductions contain relevant information and are updated to reflect changes in project arrangements and asbestos risks.
- 3.5.5 For people working on sites where asbestos in soils is an issue, evidence of training is required as below:

Role	Training	Requirement	Role
Where the Project Coordinator deems necessary (in line with risk) training should be provided to anyone who may come into contact with ACMs or asbestos impacted soils	Asbestos awareness – Cat A	Initial session in classroom then annual refresher	Where the Project Coordinator deems necessary (in line with risk) training should be provided to anyone who may come into contact with ACMs or asbestos impacted soils
Workers who are required to remove or otherwise disturb asbestos containing materials as a part of their duties	Non licensed works – Cat B	Initial qualification followed by yearly refresher to maintain qualification	Workers who are required to remove or otherwise disturb asbestos containing materials as a part of their duties

3.6 Remediation of Impacted Materials

- 3.6.1 The Remediation Strategy has been prepared to reduce off-site disposal, by recovering bricks and concrete etc. In dry conditions, made ground materials will be regularly damped. For prolonged activities, control measures to keep the soils saturated and mitigate the release of fibres will be implemented.
- 3.6.2 As far as reasonably practicable, visible fragments of ACMs will be removed accordingly. Upon receipt of confirmatory chemical analysis, recycled aggregates will be reused as construction materials on site.
- 3.6.3 All excavations and work with potentially impacted materials will be supervised by an experienced brownfield remediation site manager, supervisor or and/or geo-environmental engineer. On discovery of unexpected potential ACMs works will stop, the area will be made safe and further assessment of the material will be carried out. The Project Coordinator will assess the planned work and undertake additional risk assessments if required. An updated or alternative remediation strategy may be required pending the outcome of risk assessment has been done.
- 3.6.4 During remedial work, further laboratory asbestos identification and quantification testing, in line with "Asbestos in soils and made ground: a guide to understanding and managing risks" (CIRIA C733), will be carried out on made ground to determine its suitability for re-use at the site compliant with site specific assessment criteria for fill beneath hardstanding or any proposed clean cover system.

3.7 Assessment of Asbestos Risk

- 3.7.1 When ACM, or soils impacted with asbestos fibres are identified, the Project Coordinator will assess the planned work, considering location and condition of the ACM and the potential of whether ACM will be disturbed or damaged.
- 3.7.2 If the planned work poses a risk of damage to, disturbance of ACMs or the release of loose fibres from the soils, the Project Coordinator shall arrange for the removal of the ACM (or asbestos impacted soils) or for an alternative remediation option to be implemented.

3.8 Unknown Material

- 3.8.1 Following notification of suspect materials all work must stop in the area and the Asbestos in Soils Consultant should be notified immediately. The Project Coordinator will arrange sampling and analysis of the suspect material by the Asbestos Consultant or Surveyor.
- 3.8.2 If found to be present, appropriate action is to be arranged by the Project Coordinator i.e., removal by a licensed or non-licensed contractor (as appropriate) or protection of the material.

3.9 Control Measures

- 3.9.1 The risk of fibre release is low where soils are saturated by perched ground water, rain or other control measures, before any disturbance. In dry conditions, soils will be regularly damped down using water to control the generation of dust. For prolonged activities, control measures to keep the soils saturated and mitigate the release of fibres may comprise low pressure hosing or misting systems. CIRIA C733 suggests the risk of release of fibres is low where soil moisture content is above 15%. It also suggests the release of fibres decreases exponentially with increased soil moisture content to almost 0% fibre release at 25% soil moisture content.
- 3.9.2 The existing moisture content of in-situ soils is approximately 13%. Soils will be damped down during works as required.
- 3.9.3 Dust will be kept to a minimum by:
 - » Where necessary, haul road, work areas and stockpiles will be damped down with water spray.
 - » The application of water to haul roads, work areas and stockpiles will be monitored by the resident engineer and/or site manager to ensure that soils are not over saturated to prevent run-off.
 - » Stockpiles will be sealed by compacting at the surface at regular intervals and at the end of the day.
 - » Where necessary, stockpiles can be sheeted.
 - » A site speed limit of 5mph will be imposed in dry weather to minimise dust creation.
 - » Where concrete that is contaminated with small volumes of asbestos is broken up by excavators, localised dust suppression will be undertaken.
 - » Where off-site disposal of asbestos impacted soils is required, only sheeted road wagons will be used to transport soils. If necessary, soils will be damped down during loading.
 - » Excavations will be managed to minimise the area of contaminated soils exposed at any one time.
- 3.9.4 Levels of dust will be assessed throughout the works. In the event of dust, damping down and/or covering stockpiles will be undertaken. Monitoring will be carried out at a minimum of four points around the exclusion zone and site boundary three times per day. For each round of monitoring the engineer/site manager will keep a record of the activities being undertaken on site and meteorological conditions in the Daily Site Records. A record of wind speed (Calm, Moderate or Strong) wind direction and precipitation will be made. If dust is noticed, the engineer/site manager will immediately stop the process causing dust and implement further control measures before work commences.
- 3.9.5 A hose, bowser, mobile power washer or similar can be used, for damping down of soils. This equipment can also be used to damp down stockpiles where required. If, during excavation and/or placement of soils, this

method of damping down is ineffective, consideration should be given to the use of a specialist trailer mounted water misting system.

- 3.9.6 For low risk non-licenced activities, excavators used to excavate asbestos impacted soils must have an enclosed cabin for the operator. The operator must remain in the cab while working in impacted areas with reverse cycle air conditioning running and all windows and doors closed. Decontamination of the machine must be carried out at the end of the work as detailed in HSE EM7.
- 3.9.7 Appropriate PPE and RPE should be utilised where risk assessments identify higher risks or for notifiable work, full PPE and RPE must be used by the operator as well as operatives in working in the area. This will be determined by the outcome of Joint Industry Working Group (JIWG)/CL:AIRE Decision Support Tool outputs for each site and scenario, included in Appendix E.
- 3.9.8 Reassurance air testing carried out by LKR on recent projects where remediation of similar or higher risk materials were encountered has demonstrated that damping down of soils is an extremely effective control measure. Further inspection of any unexpected potentially impacted soils will be carried out by a suitably qualified (P402) Asbestos Surveyor before any movement of those materials will be allowed.
- 3.9.9 Should background levels be recorded prior to the commencement of remediation of impacted soils, or if required upon the further inspection by the P402 Asbestos Surveyor, reassurance air testing in accordance with HSG 248 will be carried out. A typical methodology that will be used for selecting the frequency and duration of reassurance air testing is presented in Appendix C.
- 3.9.10 If deemed necessary, reassurance air monitoring will be carried out on site to establish background concentrations of asbestos fibres in the air. Additional real-time air monitoring will be carried out during any significant disturbance of impacted materials. Air monitoring is not considered necessary for short duration (<1 hour one for any one person in a week), low intensity work such as sampling where no or minimal disturbance and/or deterioration is expected.
- 3.9.11 Background air monitoring of airborne respirable fibres must not exceed the UK clearance indicator concentration of 0.01 f/ml (used for assessing whether it is safe to take down an enclosure after notifiable asbestos removal has been completed and the area thoroughly cleaned). If the air clearance threshold is exceeded all excavations and disturbance in the impacted area must stop. Fibre release will be minimised once disturbance has ceased. However, dust suppression and air monitoring will be maintained, and the Asbestos Consultant and/or Surveyor will carry out a situation specific risk assessment. The risk assessment will determine the work category and RPE/PPE requirements. Additional control measures may be required at this point (such as additional dust suppression, additional suppression additives or enclosures).
- 3.9.12 There is currently a low risk for the release of asbestos fibres from made ground at the site. Furthermore, given the prevalence of damp conditions and the fact potentially impacted soil will not be disturbed unless it is saturated, it is proposed that full time air monitoring will not be necessary.
- 3.9.13 If notifiable licenced asbestos removal works are required, a specialist contractor will be utilised to manage and complete these works.

3.10 Personal Protective Equipment (PPE), Hygiene and Decontamination

- 3.10.1 In addition to standard PPE, where the Work Category Risk Assessment requires it, operatives working directly in areas where asbestos impacted soils are to be disturbed (0m to 10m) will be equipped with the following PPE:
- Disposable oversize overalls (Type 5 BS EN ISO 13982-1), to prevent ripping at the seams.
 - Tape to seal loose cuffs.
 - Avoid wearing a long-sleeved shirt - these are difficult to cover properly.
 - Wear the overall legs over footwear – tucking them in lets dust into footwear.
 - Wear the hood over the RPE straps.
 - Disposable work gloves.
 - Respiratory Protective Equipment (RPE) with an Assigned Protection Factor of 20 or more.
 - One of these suitable types of RPE:
 - Disposable respirator to standards EN149 (type FFP3) or EN1827 (type FMP3).
 - Half mask respirator (to standard EN140) with FFP3 filter (if specified by the Decision Tool).
- 3.10.2 Operatives that are required to wear RPE will be trained on the limitations of the RPE, how to wear it correctly and how to identify and replace worn or defective parts.
- 3.10.3 Failure to correctly use PPE/RPE will result in immediate cessation of works. Works will not be permitted to recommence until the individual has undergone further training in the use of PPE or the individual removed from works area.
- 3.10.4 Where the Work Category Risk Assessment requires it, localised and basic personal decontamination facilities will be provided for plant and operatives working in areas of asbestos impacted soils (0m to 10m). At the end of each shift the excavator and its attachments will be washed down before leaving the impacted area. Any rags used to clean the equipment will be placed into double sealed asbestos waste bags before being placed in the lockable sealed skip for disposal to a suitably licenced landfill facility. Worn PPE/RPE will be double bagged (red asbestos waste bags), sealed and placed in a lockable sealed skip for disposal to a suitably licenced landfill facility. Washing facilities for site operatives will be provided. The suitability of selected personal hygiene measures may be reviewed on a contamination-specific basis. Decontamination will be carried out in accordance with the HSE information sheet EM8, included in Appendix I.
- 3.10.5 With consideration to the type, condition and concentration of asbestos identified in soils at the site and of the receptor risk assessments, the above PPE will not be required for all site personnel during the entire management of these soils.

3.11 Asbestos Surveyors and Analysts

- 3.11.1 The Project Coordinator will check providers of surveys and analytical services have:
- Surveying staff – BOHS P402 qualification and 6 months' practical experience in asbestos surveying.
 - Laboratory staff – BOHS P401 qualification/Certificate of Competence, Lab – UKAS.
 - Air Monitoring Analysts – BOHS P403 and P404 qualifications and 3 months experience in the field.
 - Adequate public liability and professional indemnity insurance cover.
 - Adequate training arrangements for its workforce.
 - Health & Safety Policy, methods of work and risk assessments.

3.12 Asbestos Impacted Soils – Non-Licensed Work

3.12.1 Visible fragments of ACMs have been identified on site in above ground stockpiles. No visible pieces were identified in investigation locations, but there remains potential that regions of ACM made ground have not been identified. Asbestos cement products are a mixture predominantly of cement with asbestos and include corrugated and flat sheet, rainwater gutters and down pipes etc.

3.12.2 For all people working on sites where asbestos in soils is an issue, evidence of training is required as below:

Role	Training	Requirement
Where the Project Coordinator deems necessary (in line with risk) training should be provided to anyone who may encounter ACMs or asbestos impacted soils	Asbestos awareness – Cat A	Initial session in classroom then annual refresher
Workers who are required to remove or otherwise disturb asbestos containing materials as a part of their duties	Non-licensed works – Cat B	Initial qualification followed by yearly refresher to maintain qualification

3.12.3 All excavations and work with potentially impacted soils will be supervised by an experienced brownfield remediation Site Manager, Site Supervisor or Geoenvironmental Consultant. On discovery of other potential ACMs works will stop, the area will be made safe for further assessment of the material.

3.13 Waste from Non-Licensed Asbestos Removal Work

3.13.1 Waste arising from non-licensed asbestos removal works shall be packaged in accordance with HSE's Asbestos Essentials Task Manual (HSG210), Equipment & Method Sheet EM9. All asbestos waste must double wrapped or double bagged in plastic, with the correct hazard warning label/sign.

3.13.2 If asbestos waste is to be transported within a vehicle for onward disposal, it must be carried within a segregated compartment that is easily cleanable and lockable. All asbestos waste must be accompanied by a completed Hazardous Waste Consignment Note prior to being transported.

3.13.3 Where asbestos waste is stored at a depot prior to disposal, the waste shall be stored within a covered lockable container that is in a secure area, labelled as asbestos waste.

3.14 Licensed Asbestos Removal Contractors (LARCS)

3.14.1 A Licensed Asbestos Removal Contractor will be appointed to deal with any high risk, notifiable asbestos materials.

3.14.2 The removal of licensed materials as designated by the Health and Safety Executive (HSE) will be carried out by an HSE licensed removal contractor. All licensed contractors will be required to show evidence of:

- » A valid HSE issued license to carry out such works.
- » All relevant insurance for this type of work.
- » Proof of training and health monitoring of all operatives employed by the removal contractor during the removal project on this organisation's site/sites.
- » Membership to a recognised trade organisation.

3.14.3 A LARC will deal with notifiable ACMs including Asbestos Insulation Board (AIB), asbestos pipe lagging, asbestos sprayed laggings or coatings etc. Prior to starting works LARCS must provide evidence of:

- » A current HSE licence to undertake asbestos removal work.
- » Adequate public liability insurance cover.
- » Adequate training arrangements for its workforce.

» Health & Safety policy.

3.15 Waste from Licensed Asbestos Removal Work

- 3.15.1 Where necessary, the LARC's Plan of Work will include the agreed waste disposal arrangements.
- 3.15.2 Asbestos impacted soils with an asbestos content greater than 0.1% by weight that cannot be retained on site will be disposed of as hazardous waste in accordance with the Hazardous Waste Regulations 2016.
- 3.15.3 All disposed waste will be recorded by volume and content. Transfer notes must be retained in the site records.

3.16 Monitoring

- 3.16.1 To ensure non-licensed and licensed asbestos work are being carried out in accordance with the approved plan, the Project Coordinator will inspect the works daily. The content of this plan and the implementation of the plan's arrangements will be updated when necessary.

3.17 Further Assessment, Handling and Disposal of Asbestos

- 3.17.1 Additional samples will be obtained from made ground and subjected to further asbestos identification and quantification, as required. Disturbance of suspected asbestos impacted soils will be kept to a minimum and such soils will be kept in-situ until further assessment and a destination for the material has been prepared.
- 3.17.2 There will be occasions where supervised movement of potentially asbestos impacted material and localised stockpiling will be required. Before and during movement of asbestos impacted site soils, damping down will be undertaken. Stockpiles will always be kept damp to mitigate the release of potential fibres.
- 3.17.3 Supervision, further assessment and record keeping will be carried out by a suitably qualified (P402) Asbestos Surveyor. Any visible pieces of ACM such as chrysotile board, rope and sheeting will be handpicked by appropriately trained staff with appropriate PPE/RPE and the material stored in covered skips for disposal or retention on site.

3.18 Emergency Plan

- 3.18.1 Site-specific arrangements for emergencies and the arrangements for decontamination:
 - » On discovery of other potential ACMs works will stop, the area will be made safe and further assessment of the material will be carried out by a suitably qualified asbestos surveyor.
 - » In case of emergency stop all work immediately inform all others to vacate the area immediately and report to the Project Coordinator.
 - » Dust control measures should be in place for dealing with known asbestos impacted soils. Providing appropriately trained personnel are available with the correct types of PPE, control measures should be implemented to minimise the risk of the release of fibres.
 - » Following notification of suspect materials all work must stop in the area and the Asbestos in Soils Consultant should be notified immediately. The Project Coordinator will arrange sampling and analysis of the suspect material by the Asbestos Consultant or Surveyor.
- 3.18.2 If found to be present, appropriate action is to be arranged by the Project Coordinator i.e., removal by a licensed or non-licensed contractor (as appropriate) or remediation of the material.

3.19 Review

- 3.19.1 The AMP will be updated upon the discovery of ACMs outside the scope of the original asbestos surveys.

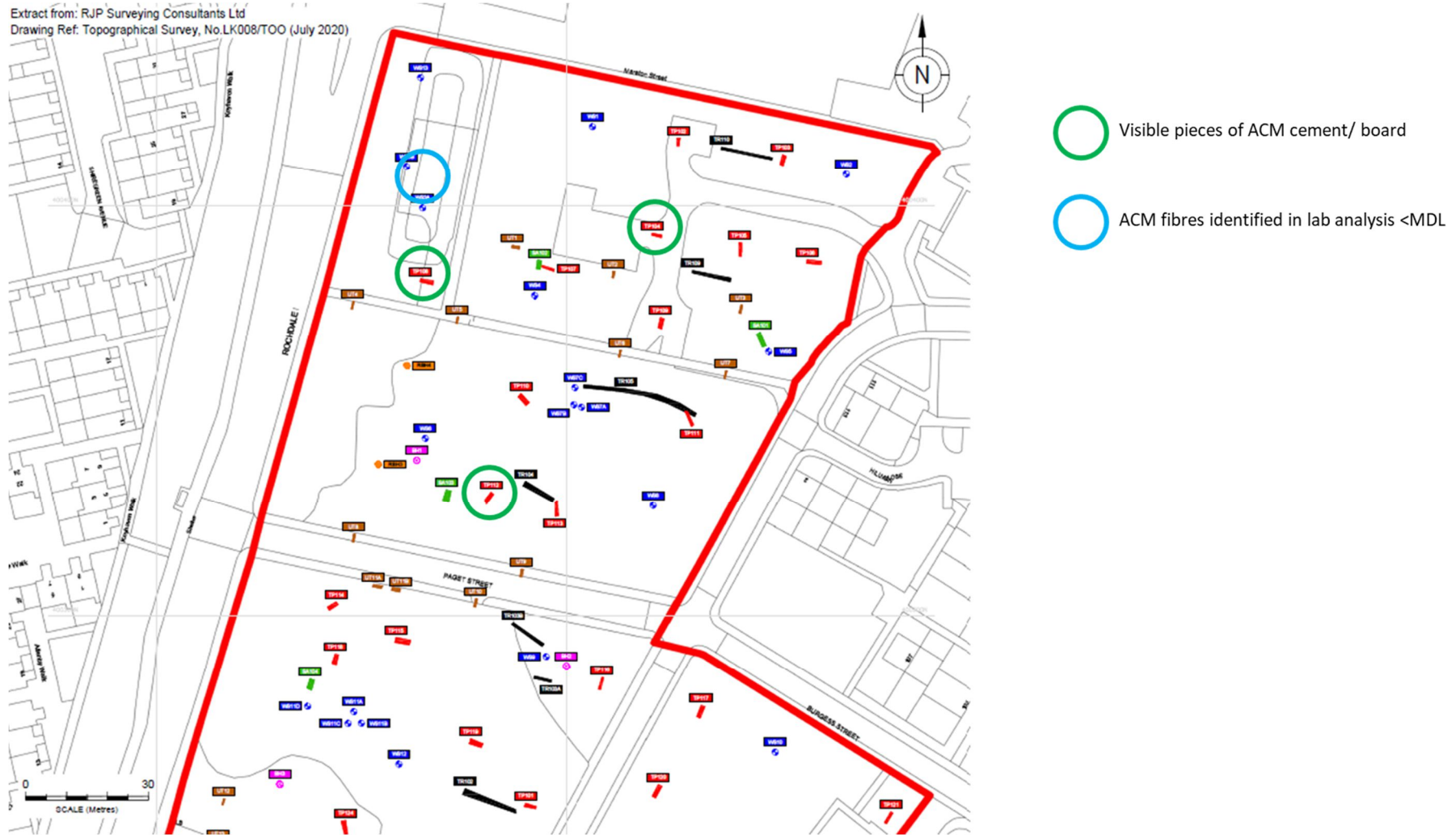
- 3.19.2 Reviews will be undertaken where there is a change in personnel or a change to the works being undertaken. A record of each review must be made and retained on site. Following the review, records must be updated.

Appendix A Asbestos in Soils Risk Register

Sample Location	ID	Type	Total Asbestos (% wt/wt)
WS3 (0.10-0.40m)	Chrysotile	Fibres/Clumps	<0.001
TP104 (0.2-0.6m)	Chrysotile	Board fragment	-
TP108 (0.8m)	Chrysotile	Cement fragment	-
TP112 (0.5m)	Chrysotile	Cement fragment	-

Appendix B Plan Showing Location of Asbestos Impacted Soils

Extract from: RJP Surveying Consultants Ltd
Drawing Ref: Topographical Survey, No LK008/TOO (July 2020)



Appendix C Typical Methodology for Reassurance Air Monitoring

A site specific qualitative risk assessment has concluded the asbestos in made ground soils at the site poses a low risk to site operatives and residents. However, there is potential that other sources of asbestos containing materials (ACMs) could be encountered during the remediation works.

On discovery of other potential ACMs works will stop, the area will be made safe and further assessment of the material will be carried out by a suitably qualified asbestos consultant. Any recommendations made by the asbestos consultant will be recorded in the daily site records and followed accordingly. If the risk from fibres being released increases to a moderate risk, work in that area will stop until real-time onsite air monitoring and onsite microscope analysis of airborne fibres can be carried out to assess the dispersal, if any, of fibres.

Until, classification analysis can be carried out, it should be assumed that any fibres detected are asbestos fibres. Where fibre concentrations are approaching the HSE clearance indicator of 0.01f/ml, appropriate additional mitigation measures will be implemented (comprising; extra damping down, PVA additives, surfactant or utilisation of misting systems). Where fibres are detected, further laboratory analysis will be carried out to retrospectively classify the types of fibres detected. If unsafe levels of fibres are detected above 0.01f/ml, all works in that area will be stopped until revised mitigation procedures and monitoring procedures are agreed with the asbestos consultant, Client and the local authority. Work in these areas will only commence upon further risk assessment and confirmation that real-time monitoring demonstrates control measures are adequate.

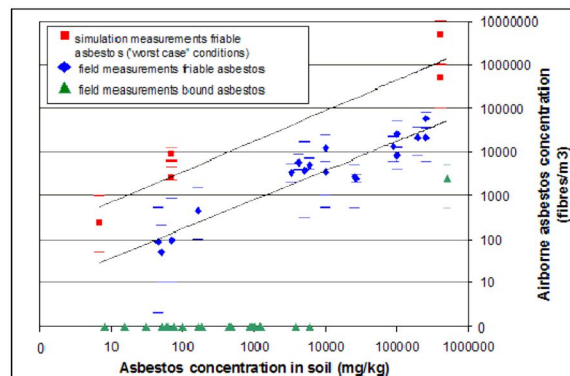
If the risk from fibres being released increases to a moderate risk or when planned disturbance of potentially impacted materials activities is expected to take several days, daily air monitoring will be carried out by an appropriately qualified and accredited asbestos consultant in accordance with HSG248 (HSE, 2005). Detailed records will be maintained during and after the works have been completed. For prolonged activities, i.e., where large areas of potentially moderate to high risk impacted soils are encountered, or upon discovery of unknown materials, the following air monitoring procedures will be adopted:

Situation	Monitoring Frequency	Monitoring Duration	Monitoring Requirements
Discovery of unknown potential ACM or small area of moderate to high risk material.	Once	Once before and once during disturbance (only allowed with control measures).	Monitoring to be carried out at the site boundary, and immediately upwind and downwind of working area. Wind direction to be recorded.
Sporadic small areas of moderate to high risk material.	Weekly	Once before and once during disturbance.	Monitoring to be carried out at the site boundary, and immediately upwind and downwind of working area. Wind direction to be recorded.
Site wide low risk materials.	Fortnightly	Once before and during initial disturbance then once every two weeks.	Immediately downwind to working area and at the site boundary. Wind direction to be recorded.
Work in large area of moderate to high risk material (Stage 1).	Daily	Daily during the first week of disturbance.	Immediately downwind to working area and at the site boundary. Wind direction to be recorded.
Work in large area of moderate to high risk material (Stage 2).	Weekly	Once per week for Weeks 2 and 3 if no fibres above safe levels are detected during Week 1.	Immediately downwind to working area and at the site boundary. Wind direction to be recorded.
Work in large area of moderate to high risk material (Stage 3).	Fortnightly	Once every two weeks from Week 4 onwards 3 if no fibres above safe levels are previously detected.	Immediately downwind to working area and at the site boundary. Wind direction to be recorded.

This methodology may need to be revised if higher fibre concentrations or other ACMs are identified during the works. Likewise, the above monitoring frequencies may be reduced depending on monitoring results.

Appendix D The Netherland Organisation of Applied Scientific Research

Research undertaken by The Netherlands Organisation for Applied Scientific Research (TNO), involved testing on 20 sites with varying levels of contamination. Highly friable materials under dry soil conditions were used to maximise asbestos fibre generation. Dispersion modelling and stationary air monitoring was undertaken and a correlation between soil and air concentrations was derived. A correlation plot of the studies is shown below.



Results showing the relationship developed between soil and air concentrations of asbestos (Swartjes & Tromp, 2008; Swartjes *et al.*, 2003).

The plot shows field measurements from 0.1% w/w of friable asbestos in soil gave rise to approximately 0.001f/ml in the air. In comparison, a concentration of 0.03f/ml in the air was detected based on worst-case scenario simulations in the lab. The Netherlands published an interim threshold value for asbestos in soil of 0.01% w/w. This is extrapolated from a negligible risk of respirable fibres in air concentration of 0.001f/ml. It appears to be conservative as the soil value is taken from the mid-point between the field and worst-case trend lines for an airborne concentration of 0.001f/ml.

This method can be used to anticipate the airborne fibre concentrations for known soil concentrations. For example, the mid-point for a soil concentration of 0.1% w/w, would give an anticipated airborne fibre concentration of approximately 0.005f/ml. A soil concentration of 0.3% w/w would correspond to approximately 0.01f/ml.

Even at very low soil concentrations, an initial round of asbestos reassurance air monitoring is always recommended for large excavations and those that are to be left open for more than a short duration. However, on-going reassurance air monitoring may not be necessary on all sites or where there is only a low risk of fibre release.

Appendix E JIWG Decision Support Tools



Joint Industry **Working Group**

Asbestos in Soil and Construction & Demolition Materials

Project Reference	LKC 20 1120
Site Name	Collyhurst Village
Client	Far East Consortium
Run by	HM
Date	27th August 2020
Scenario details	

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

Score

Select ACM type (run model for each type to generate 'Worst Case' output)
Extent of degradation of ACMs at outset of work
Friability and degree of bonding by matrix (ACM matrix, not ground materials)
Distribution of Visible Asbestos Across Affected Area
Amount of asbestos fibre in selected ACM/fibre type as % of host material

Clearly identifiable insulating board	2
Intact (Very good condition ACM/ACM fragments	1
Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Occasional/random occurrences of visible contamination by ACMs	1
Large quantities - >0.1 %wt/wt	4

Sub-total

8

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking

Low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.

It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2

Exposure Factors

Score

Anticipated airborne fibre concentration - Control Limit or SALI?

<0.001 fibres/ml

0

Anticipated duration of exposure to asbestos

< 2 hours in a 7 day period for all persons involved (e.g. Short Duration Work)

1

Activity type and effect on deterioration of ACMs during work

Sampling, manual or mechanical (no or minimal deterioration expected)

0

Best description of primary host material matrix (soil/made ground)

Coarse to Fine Sand

2

Respirable fibre index for ACM - RIVM report 711701034 (2003)

Low

2

Sub-total

5

Exposure ranking

Very low

Combined hazard and exposure ranking

13

Low

Stage 3

Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN149 type FFP3 disposable
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.

**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)

***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

Decision Support Tool for Receptor Risk Ranking

Stage 1		Score
Hazard Identification		
Select ACM type (run model for each type to generate 'Worst Case' output)	Bonded ACMs: cement, vinyl, composites, textured decorative coatings, bitumen products	0
Extent of degradation of ACMs	Intact (Very good condition ACM/ACM fragments)	1
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Asbestos fibre type	Chrysotile alone	0
Sub-total		2
Hazard ranking		Very Low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2		Score
Emission Factors		
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - ≥ 0.1 %wt/wt	4
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Low	2
Activity type and effect on deterioration of ACMs	Minimal disturbance, no deterioration expected	1
Best description of primary host material matrix	Coarse to Fine Sand	2
Sub-total		9
Exposure ranking		Low

Stage 3		Score	
Pathway and Receptor Sensitivity			
Receptor category	Construction	No score required	
Age of Receptor	Adult (>24 and <60)	1	
Duration of exposure/site occupancy	> 1hr <10 hr daily exposure (e.g. part-time to full time occupational exposure or extended daily recreational exposure)	3	
Receptor ranking		4	Low
Combined hazard, exposure and receptor ranking			Low
Pathway: Distance of Receptor from Source	In or within 10m of area of disturbance	4	
Pathway: Depth to impacted material	Material present near the surface, potential to be disturbed during non-construction/routine use of land	D	
Pathway ranking		4D	Medium
Overall ranking			Low

Project Reference	LKR201044
Site Name	Collyhurst Village
Client	Far East Consortium International Ltd
Run by	PD
Date	23-Mar-21
Reviewed by	DA
Characterisation of scenario being evaluated	Site operative in area of disturbance.
Interpretation of scenario ranking by DST	Low risk due to type of ACM and LOD concentrations.

Decision Support Tool for Receptor Risk Ranking

Stage 1		Score
Hazard Identification		
Select ACM type (run model for each type to generate 'Worst Case' output)	Bonded ACMs: cement, vinyl, composites, textured decorative coatings, bitumen products	0
Extent of degradation of ACMs	Intact (Very good condition ACM/ACM fragments)	1
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Asbestos fibre type	Chrysotile alone	0
Sub-total		2
Hazard ranking		Very Low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.

It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2		
Emission Factors		Score
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - ≥ 0.1 %wt/wt	4
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Low	2
Activity type and effect on deterioration of ACMs	Minimal disturbance, no deterioration expected	1
Best description of primary host material matrix	Coarse to Fine Sand	2
Sub-total		9
Exposure ranking		Low

Stage 3		Score	
Pathway and Receptor Sensitivity			
Receptor category	Residential	No score required	
Age of Receptor	Infant (under 5)	4	
Duration of exposure/site occupancy	>> 10 hours per day (e.g. 24 hour residential exposure)	4	
Receptor ranking		8	High
Combined hazard, exposure and receptor ranking			Low
Pathway: Distance of Receptor from Source	>10m of edge of area of disturbance	3	
Pathway: Depth to impacted material	Material present near the surface, potential to be disturbed during non-construction/routine use of land	D	
Pathway ranking		3D	Low
Overall ranking			Very Low

Project Reference	LKR201044
Site Name	Collyhurst Village
Client	Far East Consortium International Ltd
Run by	PD
Date	23-Mar-21
Reviewed by	DA
Characterisation of scenario being evaluated	Infant in residential exposure setting outside site boundary
Interpretation of scenario ranking by DST	Low risk due to type of ACM and LOD concentrations.

Decision Support Tool for Receptor Risk Ranking

Stage 1		Score
Hazard Identification		
Select ACM type (run model for each type to generate 'Worst Case' output)	Bonded ACMs: cement, vinyl, composites, textured decorative coatings, bitumen products	0
Extent of degradation of ACMs	Intact (Very good condition ACM/ACM fragments)	1
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Non-friable ACM or ACM with fibres firmly linked in a matrix	0
Distribution of Visible Asbestos Across Affected Area	Occasional/random occurrences of visible contamination by ACMs	1
Asbestos fibre type	Chrysotile alone	0
Sub-total		2
Hazard ranking		Very Low

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.

It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

Stage 2		
Emission Factors		Score
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Large quantities - ≥ 0.1 %wt/wt	4
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Low	2
Activity type and effect on deterioration of ACMs	Minimal disturbance, no deterioration expected	1
Best description of primary host material matrix	Coarse to Fine Sand	2
Sub-total		9
Exposure ranking		Low

Stage 3		Score	
Pathway and Receptor Sensitivity			
Receptor category	Construction	No score required	
Age of Receptor	Adult (>24 and <60)	1	
Duration of exposure/site occupancy	> 1hr <10 hr daily exposure (e.g. part-time to full time occupational exposure or extended daily recreational exposure)	3	
Receptor ranking		4	Low
Combined hazard, exposure and receptor ranking			Low
Pathway: Distance of Receptor from Source	>10m of edge of area of disturbance	3	
Pathway: Depth to impacted material	Material present near the surface, potential to be disturbed during non-construction/routine use of land	D	
Pathway ranking		3D	Low
Overall ranking			Very Low

Project Reference	LKR201044
Site Name	Collyhurst Village
Client	Far East Consortium International Ltd
Run by	PD
Date	23-Mar-21
Reviewed by	DA
Characterisation of scenario being evaluated	Site operative 10-15m from area of disturbance
Interpretation of scenario ranking by DST	Low risk due to type of ACM and LOD concentrations.

Appendix F Example Risk Assessments & Method Statements

Task	Location	Assessor	Last Reviewed		
POTENTIALLY CONTAMINATED SOILS	All Sites	DMA	07/01/19		
Risk Matrix	L – Possible minor injury	M – Requires medical attention	H – Death or serious injury		
H – Very likely and frequently	MODERATE (M)	HIGH (H)	HIGH		
M – Could occur at some time	LOW (L)	MODERATE	HIGH		
L – May occur but rarely	LOW	LOW	MODERATE		
Hazard	Causes	Likelihood	Severity	Risk	At Risk
III Health	Inhalation of vapours	M	H	H	
III Health	Inhalation/ingestion of dust	M	M	M	Workers Visitors
III Health	Inhalation of asbestos fibres	L	H	M	General Public
Irritation	Skin/eye contact with soils	M	M	M	Property Plant
Cancer	Inhalation of asbestos fibres	L	H	M	Equipment

Method Statement

- Soil contamination occurs through the deliberate or accidental release of chemicals, or by historical events. - Soil contamination does not only result from anthropogenic sources (e.g., industrial activity, road traffic). Many chemicals found in soils come from the underlying geology (e.g. naturally occurring arsenic in Jurassic Ironstones) or from other natural events (e.g., fires or the release of PAH's in the form of Humic Acid from the decaying of vegetation). - It must be ascertained at an early stage whether potential soil contamination in any form is likely to be present on site. The Client should provide Site Investigation Reports that provide details of potential soil contaminants and plans of where they may be encountered. - Commonly occurring soil contamination found on brownfield sites can include heavy metals, hydrocarbons, asbestos and ground gasses such as carbon dioxide and methane. - Impacted soils may be retained within remediated sites although conditions such as placement beneath proposed hard covered areas or beneath clean cover systems usually apply. - Potential contaminants at these concentrations can pose a risk to workers involved in the remediation of brownfield land where they can be inhaled, ingested or absorbed through the skin. - Care should be taken when workers are exposed to soils containing potential contaminants at concentrations above the guidance threshold values for a domestic garden end use.	- Although workers will only be exposed to the potentially contaminated soil for a relatively short time, the contaminants represent a risk, and simple precautionary measures are required for heavy metals, i.e., good personal hygiene and basic personnel protective equipment. - Damping down of soils may be required to mitigate the release of potential airborne contaminants. - In addition to the above, the atmosphere in shored trenches in excess of 1.2m should be monitored for oxygen and hazardous gas (methane & carbon dioxide), prior to personnel entering such excavations. Monitoring should continue whilst personnel are working in deep excavations. - Further reference should be made to the Method Statements and Risk Assessments for Hydrocarbons in Soils and Asbestos in Soils.
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Notes

- A Site Specific Risk Assessment should be completed should any unusual site features or circumstances be identified.
- This Risk Assessment should be reviewed following any accident/incident involving the task.
- This Risk Assessment should be reviewed following any change of legislation or equipment.

Task	Location	Assessor	Last Reviewed
ASBESTOS CONTAINING MATERIALS	All Sites	DMA	07/01/19

Risk Matrix L – Possible minor injury M – Requires medical attention H – Death or serious injury

H – Very likely and frequently	MODERATE (M)	HIGH (H)	HIGH
M – Could occur at some time	LOW (L)	MODERATE	HIGH
L – May occur but rarely	LOW	LOW	MODERATE

Hazard	Causes	Likelihood	Severity	Risk	At Risk
Cancer	Inhalation of fibres	L	H	M	
Ill Health	Inhalation of fibres	L	H	M	Workers Visitors
Irritation	Skin/eye contact with fibres	L	M	L	General Public Property Plant Equipment

Method Statement

- » It must be ascertained at an early stage whether asbestos in any form is likely to be present on site. The Client must provide all known details of asbestos containing materials and any plans of where they may be encountered.
- » There should be at least one member of site personnel who has an asbestos awareness certificate. Where non-licensed asbestos is found to be present, asbestos awareness courses will be arranged for all site personnel working on the site.
- » If information provided by the Client is inconclusive, an approved and competent specialist must be contracted to undertake the appropriate kind of survey to determine the type and quantity and location of asbestos, by taking sufficient samples for analysis and produce a full survey report.
- » The contracted asbestos removal (licensed) subcontractor must supply a written specific risk assessment and method statement, based on the asbestos survey report, for review and approval before works commence.
- » The planning and organisation for the removal of asbestos will be in accordance with HSE ACOP L143 'Working with Materials containing Asbestos'.
- » The HSE Area Office must be informed 14 days before the commencement of licensed asbestos removal by a Licensed Asbestos Remover and non-licensed asbestos must be reported to the HSE prior to removal, in accordance with the Control of Asbestos Regulations 2012.
- » All those working with asbestos must be supervised by a qualified person.
- » Access to work areas will be strictly controlled as determined in the method statement.
- » Asbestos products removed will be double bagged or placed in sealed containers for disposal to a licensed tip by a registered carrier and transfer notes obtained to identify disposal as special waste. Asbestos containing materials must never be disposed of in site skips.
- » Contractors carrying out asbestos removal are to provide a copy of the licence and proof of the competence training of operatives.
- » All operatives working with asbestos shall be fully trained and competent and conversant with the hazards associated with removal techniques, the method statement and use of PPE/RPE and hygiene requirements.
- » All site personnel who may come into contact with asbestos must be informed of the locations and type of asbestos and informed and instructed on the necessary control measures.
- » Ensure that when asbestos removal operations have been completed, no unauthorised person enters the area until final clearance samples have been taken and confirmation received that the results are satisfactory.

Notes

- » A Site Specific Risk Assessment should be completed should any unusual site features or circumstances be identified.
- » This Risk Assessment should be reviewed following any accident/incident involving the task.
- » This Risk Assessment should be reviewed following any change of legislation or equipment.

Task	Location		Assessor	Last Reviewed	
ASBESTOS IN SOILS	All Sites		DMA	07/01/19	
Risk Matrix	L – Possible minor injury	M – Requires medical attention	H – Death or serious injury		
H – Very likely and frequently	MODERATE (M)	HIGH (H)	HIGH		
M – Could occur at some time	LOW (L)	MODERATE	HIGH		
L – May occur but rarely	LOW	LOW	MODERATE		
Hazard	Causes	Likelihood	Severity	Risk	At Risk
Cancer	Inhalation of fibres	L	H	M	
Ill health	Inhalation of fibres	L	H	M	Workers Visitors
Irritation	Skin/eye contact with fibres	L	M	L	General Public
					Property
					Plant
					Equipment

Method Statement

- ▶▶ It must be ascertained at an early stage whether asbestos in any form is likely to be present on site. The Client must provide all known details of asbestos containing materials and any plans of where they may be encountered.
- ▶▶ There should be at least one member of site personnel who has an asbestos awareness certificate. Where non-licensed asbestos is found to be present, asbestos awareness courses will be arranged for all site personnel working on the site. Asbestos awareness training should cover; the types of asbestos and its hazards; how to wear personal protective equipment (PPE) specific to the risks of asbestos including masks and disposable suits; and how to handle asbestos.
- ▶▶ All site personnel who may come into contact with asbestos must be informed of the locations and type of asbestos and informed and instructed on the necessary control measures.
- ▶▶ For a small amount of cement bonded chrysotile asbestos, hand sorting of the material to remove asbestos will be undertaken. The asbestos fragments will be segregated into double-lined asbestos bags and soil will be dampened then placed in sealed stockpiles for validation sampling and eventually reuse on site.
- ▶▶ If asbestos containing materials are encountered in soils during the earthworks, all personnel working in that area will leave immediately and will not return until wearing the appropriate PPE. The area will be segregated with hazard warning signs prominently displayed. The asbestos contaminated material will be dampened then placed in sealed stockpiles for validation sampling and eventually reuse on site.
- ▶▶ If fibrous asbestos is identified free from the soil matrix, no treatment will be attempted. Only a licensed asbestos contractor can carry out removal, in accordance with the latest HSE asbestos guidance and codes of practice. Where encountered, this material should be covered over and the area fenced off until a licensed contractor can remove the asbestos.
- ▶▶ All those working with asbestos must be trained and supervised by a qualified person.
- ▶▶ Asbestos products to be removed from site will be double bagged or placed in sealed containers for disposal to a licensed tip by a registered carrier and transfer notes obtained to identify disposal as special waste. Asbestos containing materials must never be disposed of in site skips.
- ▶▶ Contractors carrying out asbestos removal are to provide a copy of the licence and proof of the competence training of operatives.
- ▶▶ All contractors working with asbestos shall be fully trained and competent and familiar with the hazards associated with removal techniques. They shall provide detailed method statements, use adequate PPE/RPE and comply with hygiene requirements.
- ▶▶ When asbestos removal operations have been completed, no unauthorised person enters the area until final clearance samples have been taken and confirmation received that the results are satisfactory.
- ▶▶ Further reference should be made to the Method Statements and Risk Assessment for Asbestos Containing Materials.

Notes

- ▶▶ A Site Specific Risk Assessment should be completed should any unusual site features or circumstances be identified.
- ▶▶ This Risk Assessment should be reviewed following any accident/incident involving the task.
- ▶▶ This Risk Assessment should be reviewed following any change of legislation or equipment.

Task	Location	Assessor	Last Reviewed
CONTROL OF DUST AND FUMES	All Sites	DMA	07/01/19

Hazard	Causes	Likelihood	Severity	Risk	At Risk
Ill Health	Inhalation of dust or fumes	H	M	H	
Ill Health	Ingestion of dust	H	M	H	Workers Visitors
Ill Health	Absorption of dust	L	M	L	General Public
Ill Health	Poor hygiene	H	M	H	Property Plant
Eye Injuries	Dust particles	H	L	M	Equipment
Eye Injuries	Chemical burns	M	M	M	
Asphyxia	Lack of oxygen	L	H	M	

Control Measures

- » Subcontractors must provide site-specific risk assessments/method statements identifying activities/processes that may produce significant dusts that may be considered harmful to health. COSHH assessments will also be required detailing the method of controlling the dust.
- » Where deemed necessary, operatives may be required to wear face masks and be face fit tested for the type of mask; they must also be trained in the use.
- » Dust emissions to be eliminated or reduced, so far as is reasonably practicable and contained within the boundaries of the site.
- » Dust extraction, collection, exhaust-ventilation systems and dampening down techniques shall be employed when using handheld/portable cutting and grinding tools and equipment that creates dust during the working process. For labourers or trades sweeping out and creating dust must wear P3 masks.
- » Dust created by vehicle traffic and winds are to be reduced by dampening down the road surface and reducing the speed of vehicles in such areas.
- » Adequate and suitable dampening down systems to employed, during demolition or earth works activities.
- » Washing facilities, appropriate to the assessed dust hazards must be provided on site and may require showers to be provided.
- » Operatives whose health may be affected by the hazards from dust must be instructed and informed of the hazards to their health and necessary control measures required, which will include correct use of PPE, personal hygiene requirements and prohibition of smoking and eating in dust atmospheres.
- » Appropriate respiratory protective equipment i.e. Face fit tested/recorded, the correct P3 dust masks provided, eye protection shall be provided and worn correctly, as required by the work activity risk assessment/method statement. In addition to the sites mandatory PPE consisting of safety helmets, safety footwear, Hi Vis vests and appropriate gloves.
- » Where health risks from dust remain significant, arrangements will be made to carry out appropriate measuring of dust against work exposure levels (WEL).

Notes

- » A Site Specific Risk Assessment should be completed should any unusual site features or circumstances be identified.
- » This Risk Assessment should be reviewed following any accident/incident involving the task.
- » This Risk Assessment should be reviewed following any change of legislation or equipment.

Appendix G Example Permit to Work

Site Name	Job Number	Site Manager
Operative Company Name	Operative Name	Work Supervisor
Permit Valid From	Permit Valid To	Permit Cancelled

Location of Work

Description of Work and Work Area

Pre-Commencement Checklist

Y N Action Required

A) Has the building, structure or area where the work is planned been inspected or surveyed for Asbestos Containing Materials (ACM)

If Yes – Go to B
If No an inspections or survey must be carried out prior to the work commencing

B) Is the proposed work being carried out on or within building, structure or area identified in the survey/ inspection report as containing ACM's

If Yes – Go to C
If No – The proposed work may be carried out

C) Has the operative or supervisor viewed the asbestos report covering the working area?

If Yes – Go to D
If No – the named Operative/Supervisor must view the asbestos survey report. After reading the report go to D)

D) Does the asbestos survey report identify any asbestos containing materials within this area?

If Yes – Go to E
If No – The proposed work may be carried out.

E) Is the proposed work liable to disturb this material?

If Yes – Go to F
If No – The proposed work may be carried out.

F) Can the asbestos containing material be protected from the work so that any damage/disturbance will be prevented

If Yes, the work may be carried out after a detailed method statement for the protection of the material has been created and approved.
If No – Go to G

G) Are the asbestos containing materials classed as HSE licensed materials?

If Yes – Contact AMP manager. The work must not be carried out without the permission of this person.
If No – Go to H

H) Will or is the damage/disturbance of the non-licensed ACM's likely to produce debris or give rise to airborne asbestos fibres

If Yes – Go to I
If No – The work may be carried out, but proof will be required. Background air testing during the work is advised or the results of air tests conducted during previous work carried out on a similar material using the same method of work should be referred to.

I) If Yes – Has the operative received guidance on working with these types of material, including methods of dust suppression, use of Personal Protective Equipment (PPE) & Respiratory Protective Equipment (RPE) and the disposal of Hazardous waste materials.
I) If Yes – Has the operative received guidance on working with these types of material, including methods of dust suppression, use of Personal Protective Equipment (PPE) & Respiratory Protective Equipment (RPE) and the disposal of Hazardous waste materials.

If Yes – The proposed work may be carried out using appropriate control measures
If No – guidance/training must be carried out prior to this work being carried out. Referral should be made to the "Working with asbestos containing materials which do not require a license"

Supervisor Signature

Site Manager Signature

Date

Appendix H Declaration of Understanding

By signing below, you are confirming you have had a Site Induction, understand the Site Rules, Risk Assessments and Method Statements and that you are trained and competent for the tasks you will carry out.

Date	Name	Company	Induction No	Signature

em8

asbestos
essentials

Personal decontamination

Equipment and method sheet

Non-licensed tasks

This information will help employers and the self-employed to comply with the Control of Asbestos Regulations 2012.

It is also useful for trade union and employee safety representatives.

Only carry out work if you are properly trained and have the right equipment.

Remember:

- Asbestos fibres can cause fatal lung disease and lung cancer.
- Check what you're working on before you start.
- Read the safety checklist and sheet a0.
- You must be trained to work safely with asbestos materials.

What this sheet covers

This sheet describes how to decontaminate yourself after work with asbestos materials.

Personal decontamination is easier when you wear the correct personal protective equipment (PPE).

You need to decontaminate yourself properly, otherwise you may take asbestos fibres home on your clothing and expose your family and friends.

Procedures

Removing and decontaminating PPE

- Clean your boots with damp rags – see sheet em7.
- Where available, clean your overalls with the brush attachment on a Class H vacuum cleaner. Vacuum off the brush.
- Otherwise, use damp rags in a gentle 'patting' action. Rubbing can disturb fibres.
- Where there are two workers, they can help to clean each other.
- Peel off disposable overalls. They should be inside out when they have been removed. Put them in a suitable asbestos waste bag.
- Bag up reusable overalls for a specialist laundry.
- Finally, remove your respiratory protective equipment (RPE) in accordance with em6.
- Tape the bag closed.



'Buddy' cleaning using a Class H vacuum cleaner



Make sure you restrict access



Cleaning with damp rag using patting action

Personal decontamination

- A suitable location for personal decontamination should be considered as part of the planning before the job commences.
- Can you use site washing facilities? If so, they must be for your use only.
- Keep other people out during personal decontamination, and until you have cleaned the facilities.
- Wash every time you leave the work area.
- Use damp rags to clean the washing facilities at the end of the job.
- Clean the facilities daily if the job lasts more than one day.
- Inspect the facilities visually once the job is finished.
- Clearance air sampling is not normally needed for washing facilities.
- See sheet em9 for disposal of asbestos waste.

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

This document is available at: www.hse.gov.uk/asbestos/essentials/

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