EXPLOSIVE ORDNANCE (EO) THREAT MITIGATION STRATEGY

MAYFIELD PHASE 1, MANCHESTER, M1 2QF

This Explosive Ordnance (EO) Threat Mitigation Strategy has been developed from all the reasonably available information with regards to the site of concern regarding the potential for encountering Explosive Ordnance (EO) Contamination. It assigns an Explosive Ordnance Threat Level and proposes options that may form part of an EO Threat Management Strategy to reduce any potential risks that may arise from an EO encounter - It does not detail that strategy, which depends on several factors and should be developed subsequently.

This assessment has been produced in compliance with the Construction Industry Research and Information Association guidelines (Report CIRIA 681, dated Dec 08) for the preparation of detailed Risk Assessments in the management of Unexploded Ordnance (UXO) risks in the construction industry, for which PLANIT was an instrumental driver for improved EO risk management and transparency.

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REFERENCES

1. PLANIT UXB Ltd: Explosive Ordnance Threat Assessment (EOTA) Mayfield, dated 14/07/17.
2. PLANIT UXB Ltd: Explosive Ordnance Threat Assessment (EOTA) Mayfield – Highways, dated 25/09/2020.
3. Email RoC/PLANIT – 'General geological model', dated 29/09/2020.
4. 0343-SEW-ZZ-ZZ-DR-Z-0001000.
5. 4134 RoC Phase 2 SI Plan.
6. Baring Street Office 2 EXISTING_SITE_PLAN-1315087.
7. Phase 1 Initial & Main Works Plans.
8. Phase 1 Park GA Plan 1301400.
9. SEW Multi Storey CP Location Plan.
10. SEW Multi Storey CP GF Plan.

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GLOSSARY OF TERMS

AAA	Anti-Aircraft Ammunition
AP	Anti-Personnel/Armour Piercing (weapon)
ARP	Air-Raid Precautions
BD	Bomb Disposal
BDO	Bomb Disposal Officer
BD Section	Bomb Disposal Section
EO	Explosive Ordnance
EOC	Explosive Ordnance Clearance
EOD	Explosive Ordnance Disposal
EOTA	Explosive Ordnance Threat Assessment
HE	High Explosive
IB	Incendiary Bomb
LSA	Land Service Ammunition
Luftwaffe	German Air Force
MoD	Ministry of Defence
RA	Royal Arsenal
SAA	Small Arms Ammunition
SI	Site Investigation
UXAAA	Unexploded Anti-Aircraft Artillery [projectile]
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
V-1	'Doodlebug' – self-propelled, ground to ground missile deployed against Britain from July 1944. V – "Vergeltungswaffe" (Vengeance)
V-2	Long Range Rocket (first ballistic missile used against London from Sep 1944)
WWI	First World War 1914 – 1918 (The Great War)
WWII	Second World War 1939 - 1945

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SUMMARY

The table below summarises what EO Threat Mitigation activities are appropriate dependent upon the intrusive engineering works and the EO Threat Level:

Intrusive Engineering	Threat Level	Recommended Threat Mitigation Measures
Shallow Excavations by hand/ Above Ground demolitions		
• Removal of vegetation.	LOW	**Explosive Ordnance Safety Awareness Briefings** **Referral Service**
• Demolition of remaining structures.		**Explosive Ordnance Safety Awareness Briefings** **Referral Service** **UXO Engineer in Attendance**
Shallow Excavations by machine/ Below Ground demolitions		
• Demolition of remaining structures. • Grubbing out of relic floor slabs, foundations, and other below ground obstructions. • Excavations to form new drainage networks. • Excavations to support stopping up of existing utilities and required diversions.	MEDIUM	**Explosive Ordnance Safety Awareness Briefings** **Referral Service** **UXO Engineer in Attendance** **Non-Intrusive Magnetometer Survey** **Controlled Excavation**
Deep Excavations > 1mbgl, Energetic compaction/ rolling & Boreholes/ Piling		
• Localised removal of river walls, bridges, and a culvert structure. • Excavation of soils to form foundations (of both piled and traditional construction). • Excavation of soils as part of land reprofiling and cut / fill earthworks operations. • Formation of new river walls and other retaining structures.	MEDIUM	**Explosive Ordnance Safety Awareness Briefings** **Referral Service** **UXO Engineer in Attendance** **Non-Intrusive Magnetometer** **Survey/ Controlled Excavation**

	It is likely that geology is present across the site area in the form of sandstone which forms an effective *barrier* to UXB penetration. Consequently, the maximum bomb penetration depth for 500kg bombs is estimated at **6.0m bgl** with a maximum offset of some **2.0m**. The required bomb detection depth is well within the capabilities of non-intrusive, magnetometer technology.
THREAT MITIGATION STRATEGY	The following activities should be undertaken prior and/or during intrusive engineering works to form an effective **EO Threat Management Strategy** to reduce the potential threat from EO-related articles to ALARP: • **EO Safety Awareness Briefings** should be included as part of routine site health and safety training and form a key element of the Site Health & Safety Plan. • Site investigation works should be supported by **EO survey** as appropriate. • Obstructions, including existing structures, reinforced pads etc. should be removed to assist the collection of quality survey data. • Where the EO threat is **LOW**: o Vegetation removal works should be supported by a **UXO Referral Service**. o Demolition works that may complete the risk pathway; EO risk mitigation should be supplemented by an **On-Site UXO Engineer**. • Where the EO threat is **MEDIUM**: o A non-intrusive, magnetometer survey is conducted across the area to a depth of some 8m bgl (maximum bomb penetration depth plus a safety factor of 2m) where possible to identify any potential threat items prior to intrusive works. (Survey is not required in areas of Fill as there is no intrusion into potentially at-risk ground volumes.) o Potential threat items should be subject to Controlled Excavation to determine their nature and deal with them accordingly. o Where gross background ferrous contamination renders non-intrusive magnetometry unfeasible, such as in the north eastern part of this area where the 'made ground contains some metal machine parts within gravels of brick, concrete and other fill material to a max depth of 2.5mbgl'. If such areas are identified, then On-site UXO Engineer support will be required to assist in identifying and controlling potentially dangerous articles during intrusive earthworks. The conduct of a shallow, non-intrusive, magnetometer survey across the area followed by Controlled Excavation will negate the need to conduct further survey in support of other shallow engineering such as trenching, utilities etc. since the ground volume would have been effectively cleared prior to these works if the program permits. The implementation of this strategy should be tied into the project program, to avoid any intrusive engineering prior to EO Threat Mitigation measures being effectively completed.

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INTRODUCTION	In response to Reference 1, an Explosive Ordnance (EO) Threat Mitigation Strategy is required in response to an identified potential threat from Explosive Ordnance (EO)-related articles at the site of concern - MAYFIELD PHASE 1, MANCHESTER, M1 2QF. Particularly, the strategy must discharge the planning conditions in relation to plots O & N. Reference 2, which relates to the Highways element of the project, does not require an EO Threat Mitigation Strategy as the potential threat from EO is negligible and may be reasonably ignored.
GEOLOGICAL CONSIDERATIONS	Reference 3 provides a 'general geological model' for the site is as follows: North of Medlock: • Concrete pad (former floor slab) was found not to contain rebar. • Made ground is generally fill material consisting of gravels and sands including brick and concrete to a depth ranging between 2.8 and 4.4mbgl. • Underlying made ground is sand becoming weathered sandstone bedrock. • In the north eastern area, made ground contained some metal machine parts within gravels of brick, concrete and other fill material to a max depth of 2.5mbgl. It is noted there is a contaminated perched water table (0.55m) in this area South of Medlock: • Area to the east of the dirt factory was found to contain a 5m deep basement beneath part of the slab, resting 7m above water level of the river. • In surrounding areas where this was not encountered, made ground extends to a depth of 5.0mbgl and is generally gravels with occasional ash, brick, and concrete. • The area surrounding the dirt factory encounters bedrock ~1mbgl, with limited made ground present. The concrete in the Dirt Factory contains 10mm rebar. • The area of higher elevation Dirt Factory car park / electrical substation area (access from Bond Street) contains substantial demolition fill deposits beneath surface, including large masonry blocks and concrete in the vegetated area south of the substation (unproven depth in this area) Although no BH logs are currently available, it is likely that sandstone bedrock is present across the site area and at relatively shallow depth. (We have assumed an average depth to bedrock of some 6m bgl based on site information).
PLANNED INTRUSIVE ENGINEERING WORKS	There are four main elements to the development which this mitigation strategy addresses: • Conduct of SI within the Zone 3: Baring site. • Re-profiling and landscaping of the area north of the R. Medlock into parkland. • Construction of a multi-storey car park (MSCP) within Zone 3. • Construction of a multi-storey office building (Bennett's building). The client confirms that the planned intrusive engineering works in relation to these elements will likely consist of the following: • Demolition of remaining structures indicated within the planning application for removal. • Removal of vegetation. • Grubbing out of relic floor slabs, foundations, and other below ground obstructions. • Localised removal of river walls, bridges, and a culvert structure. • Excavation of soils to form foundations (of both piled and traditional construction). • Excavation of soils as part of land reprofiling and cut / fill earthworks operations. • Formation of new river walls and other retaining structures. • Excavations to form new drainage networks. • Excavations to support stopping up of existing utilities and required diversions.

For the purposes of this assessment, it is assumed that some engineering works may include energetic intrusion into previously undisturbed WW2 ground volumes. Consequently, key equipment and personnel may complete the risk pathway during intrusive engineering works that may bring them into physical contact with potential threat items.

EXPLOSIVE ORDNANCE THREAT LEVELS

Reference 1, identified the following EO-related items potentially remaining under the site as threat items:

- German, air-dropped, High Explosive (HE) Bombs – 50-500kg.
- British AAA returning to earth unexploded.

The geological profile (TBC) establishes an effective barrier to bomb penetration which may be reasonably estimated at 5.0m plus an appropriate safety factor of 1m – This combined depth provides an effective maximum bomb penetration depth beyond which even large UXBs would not likely penetrate. The age of the made ground is not known and it must be assumed that the current site level is essentially as it was during WW2.

Given the assumed geological profile, the following EO encounter depths and offsets from WW2 ground levels are estimated:

Type of Ordnance	Av. Penetration Depth (m bgl)	Geology Multiplication Factor	Barrier Geology Depth (m)	Adjusted Av. Penetration Depth (m bgl) to 1sf	Offset (m)
British AAA projectiles	2.0	1	6.0	**2.0**	**0.7**
Air-dropped Bombs: 50kg	4.0	1	6.0	**4.0**	**1.3**
Air-dropped Bombs: 250kg	6.0	1	6.0	**6.0**	**2.0**
Air-dropped Bombs: 500kg	9.0	1	6.0	**6.0**	**2.0**
Air-dropped Bombs: 1000kg	11.0	1	6.0	**6.0**	**2.0**

The maximum bomb penetration depth is estimated at 6.0m bgl with a maximum offset of some 2.0m.

Within the ground volumes of the site not previously occupied by large, built structures, the potential for EO encounter from large, air-dropped, HE bombs and large calibre British AAA remains as it did immediately Post-War and the maximum Bomb Penetration Depths detailed above are the extents to which these threats may persist - This potential extends underneath pre-War building foundations/ basements to the extent described above i.e. some 3.0m in from the pre-War foundation footprints.

The EO Threat Levels for the site of concern (for ground volumes not previously occupied by significant built structures/ foundations) in relation to various energetic works are detailed below:

Site Activity	Explosive Ordnance Type	Threat Level
No Excavations, no energetic engineering, Controlled Public Access	**All types**	**NEGLIGIBLE**
Shallow Excavations by hand/ Uncontrolled Public	**British AAA**	**NEGLIGIBLE**

	Access/Above Ground demolitions	50-1000kg HE Bombs	LOW
	Shallow Excavations by machine/ Controlled Public Access/Below ground demolitions	British AAA	LOW
		50-1000kg HE bombs	MEDIUM
	Deep Excavations > 1mbgl, Energetic compaction/ rolling & Boreholes/ Piling	British AAA	LOW
		50-1000kg HE bombs	MEDIUM

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EXPLOSIVE ORDNANCE (EO) THREAT MITIGATION

GENERAL

An appropriate EO Threat Mitigation Strategy must be implemented in line with the planned intrusive engineering. The table below summarises what mitigation activities are appropriate dependant upon the intrusive engineering works:

Intrusive Engineering	Threat Level	Recommended Threat Mitigation Measures
Shallow Excavations by hand/ Above Ground demolitions		
• Removal of vegetation.	LOW	**Explosive Ordnance Safety Awareness Briefings** **Referral Service**
• Demolition of remaining structures.		**Explosive Ordnance Safety Awareness Briefings** **Referral Service** **UXO Engineer in Attendance**
Shallow Excavations by machine/ Below Ground demolitions		
• Demolition of remaining structures. • Grubbing out of relic floor slabs, foundations, and other below ground obstructions. • Excavations to form new drainage networks. • Excavations to support stopping up of existing utilities and required diversions.	MEDIUM	**Explosive Ordnance Safety Awareness Briefings** **Referral Service** **UXO Engineer in Attendance** **Non-Intrusive Magnetometer Survey** **Controlled Excavation**
Deep Excavations > 1mbgl, Energetic compaction/ rolling & Boreholes/ Piling		
• Localised removal of river walls, bridges, and a culvert structure. • Excavation of soils to form foundations (of both piled and traditional construction). • Excavation of soils as part of land reprofiling and cut / fill earthworks operations.	MEDIUM	**Explosive Ordnance Safety Awareness Briefings** **Referral Service** **UXO Engineer in Attendance** **Non-Intrusive Magnetometer** **Survey/ Controlled Excavation**

	• Formation of new river walls and other retaining structures.		

ACTIVITY	THREAT MITIGATION MEASURES	FINAL THREAT LEVEL
ALL ACTIVITIES	The following activities are recommended *before* any intrusive engineering proceeds across the site: **Explosive Ordnance Safety Awareness Briefings**. An explosive ordnance Safety Briefing should be included as part of routine site health and safety training and form a key element of the Site Health & Safety Plan. This should be conducted by a trained specialist and would assist conformance with the CDM Regulations 2017. The briefing will instruct all personnel on the identification of EO hazards, actions to take in the event of an EO incident to protect personnel, key equipment, property and the public. **Explosive Ordnance Site Safety Instructions**. Explosive Ordnance Site Safety Instructions should be drafted for inclusion in the site-specific health and safety manual and would include information on dealing with an EO incident safely and appropriately. These instructions would form part of the permanent site documentation and will be an aide memoire for identifying potential EO hazards, making a preliminary threat assessment as well as specific guidelines on what to do in the event of a confirmed incident. A competent person should draft these instructions.	AS LOW AS REASONABLY PRACTICABLE (ALARP)
SITE INVESTIGATION WORKS	Site investigation works should be supported by EO survey as appropriate. Consideration should be given to whether the works are shallow or deep from the perspective of EO Survey. 'Shallow' Survey is survey of the ground from 0.0m bgl to 6.0m bgl and 'Deep' Survey is that beyond 6.0mbgl. • **Boreholes.** A non-intrusive survey of a 5m x 5m box to accurately allow boreholes to proceed into a volume of ground under which there are no ferrous obstructions should be completed. Several locations may be provided within a survey box, allowing maximum flexibility for positioning and preventing any boreholes being terminated because of encountering a potential threat item at depth. • **Trial Pits.** Using shallow non-intrusive survey, the area for your trial pit can quickly be surveyed and confirmed as free from ferrous anomalies/EO. Data is interpreted on-site and therefore locations can be changed very efficiently in the event of a potential obstacle. **Window Sampling.** Using shallow non-intrusive survey, the area for your window sample can quickly be surveyed and confirmed as free from ferrous anomalies/EO. Data is interpreted on-site and therefore locations can be changed very efficiently in the event of a potential obstacle.	AS LOW AS REASONABLY PRACTICABLE (ALARP)
NORTH OF R. MEDLOCK	Where planned works present a **LOW** EO Threat access to quick, expert UXO advice is essential if a suspicious item is discovered. This should take the form of a UXO Referral Service throughout the works. **UXO Referral Service**. A UXO Referral Service should be implemented to provide quick access to expert advice in the event of a potential threat item being discovered. This service should be delivered by a qualified Explosive Ordnance	AS LOW AS REASONABLY PRACTICABLE (ALARP)

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(EOD) professional via telephone/ email, 24/7, to which the client may refer information about suspected EO finds/ incidents for the expert advisor to determine an appropriate course of action. A dedicated telephone number should be assigned.

When the demolition of existing structures presents a **LOW** EO threat, especially below ground level, the potential for completing the risk pathway should be mitigated further by providing **On-Site UXO Engineer (Watching Brief).**

On-Site UXO Engineer. On-site EO Support for shallow ground works would involve the presence of an appropriately trained and experienced UXO Engineer during this phase of construction. The role of the UXO Engineer is to:

- Conduct EO Safety Awareness Briefings as required.
- Monitor all intrusive ground works using visual and instrument aided means to locate any EO that may be uncovered during site works.
- Provide an immediate and expert assessment of any EO that may be discovered.
- Assist in implementing an appropriate and safe response to an EO incident.
- Design and emplace protective works as an immediate response to protect personnel, key equipment, property and the public as may be required.
- Advise on best safe working practice considering the perceived EO Threat.
- Act as the liaison with the Authorities on behalf of the Client in the event of an EO incident.

Where the EO Threat is **MEDIUM** and where *shallow* engineering may complete the risk-receptor pathway, there are two options available to effectively deal with the EO Threat when conducting shallow intrusive works. The first is the provision of an **On-Site UXO Engineer** and the second is magnetometer survey.

Shallow Non-Intrusive Magnetometer Survey/ Clearance. Where possible and once obstructions have been removed, non-intrusive magnetometer survey should be conducted (if ground conditions permit) to identify potential EO Threat Items. Non-intrusive, magnetometer survey should be capable of locating 500kg bombs to a depth of some 8.0m in homogenous ground - There is nothing detailed at Ref 3 that would suggest that this approach would not be effective in terms of achieving the required survey depth (with the exceptions regarding reinforced concrete and gross, background ferrous contamination noted).

Controlled Excavation. Any potential threat items identified following the non-intrusive survey that may be EO should then be subject to Controlled Excavation to confirm them as EO and remove the threat or discount them. Once the non-intrusive survey and controlled excavation are complete, there is no further requirement for UXO Support at the site of concern since all EO Threats would have been identified and dealt with. A UXO Engineer should undertake controlled excavations of all anomalies of interest, under a strict set of controls. The Engineer will identify any potentially dangerous items of EO through a visual and instrument assisted search during the excavations. If a potentially dangerous item of EO is identified, and it is safe to handle, the Engineer may relocate the item to a secure area to assist in maintaining the safety of your personnel and key assets. The engineer can act as the liaison between you and the Emergency Services if they attend site.

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	RECOMMENDATIONS. It is recommended that: 1. Obstructions, including existing structures, reinforced pads etc. be removed. 2. Where the EO threat is **LOW**: a. Vegetation removal works should be supported by **a UXO Referral Service.** b. Demolition works that may complete the risk pathway; EO risk mitigation should be supplemented by an **On-Site UXO Engineer**. 3. Where the EO threat is **MEDIUM**: a. A **shallow, non-intrusive, magnetometer survey** is conducted across the area to a depth of some 8m bgl (maximum bomb penetration depth plus a safety factor of 2m) where possible to identify any potential threat items prior to intrusive works. (Survey is not required in areas of Fill as there is no intrusion into potentially at-risk ground volumes.) b. Potential threat items should be subject to **Controlled Excavation** to determine their nature and deal with them accordingly. c. Where gross background ferrous contamination renders non-intrusive magnetometry unfeasible, such as in the north eastern part of this area where the 'made ground contains some metal machine parts within gravels of brick, concrete and other fill material to a max depth of 2.5mbgl'. If such areas are identified, then **On-site UXO Engineer** support will be required to assist in identifying and controlling potentially dangerous articles during intrusive earthworks. The conduct of a shallow, non-intrusive, magnetometer survey across the area followed by Controlled Excavation will negate the need to conduct further survey in support of other shallow engineering such as trenching, utilities etc. since the ground volume would have been effectively cleared prior to these works if the program permits.	
SOUTH OF R. MEDLOCK – MSCP & BENNETT'S BUILDING	Where planned works present a **LOW** EO Threat the implementation of a **UXO Referral Service** and bolstered by **On-Site UXO Engineer** where necessary. The construction of the MSCP and Bennett's Building will involve *shallow* engineering works when addressing utilities etc. and *deep* engineering when installing foundations/ basements, both of which will involve the intrusive engineering into *at risk* ground volumes, which may complete the risk-receptor pathway. The area to the east of the *dirt factory* contains a 5m deep basement beneath part of the slab. This ground volume cannot present a potential EO-related risk and may be reasonably discounted from a EO threat perspective. Where planned works present a **MEDIUM** EO Threat, there are two options available: **On-Site EO Support** and/or **Shallow Non-Intrusive Magnetometer Survey/ Clearance**.	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**

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	RECOMMENDATIONS. It is recommended that: 1. Obstructions, including existing structures, reinforced pads etc. be removed. 2. Where the EO threat is **LOW**: a. Vegetation removal works should be supported by a **UXO Referral Service**. b. Demolition works that may complete the risk pathway; EO risk mitigation should be supplemented by an **On-Site UXO Engineer**. 3. Where the EO threat is **MEDIUM**: a. A **shallow, non-intrusive, magnetometer survey** is conducted across the area to a depth of some 8m bgl (maximum bomb penetration depth plus a safety factor of 2m) where possible to identify any potential threat items prior to intrusive works. (Survey is not required in areas of Fill as there is no intrusion into potentially at-risk ground volumes.) b. Potential threat items should be subject to **Controlled Excavation** to determine their nature and deal with them accordingly. c. Where gross background ferrous contamination renders non-intrusive magnetometry unfeasible, such as the *reinforced concrete 'in the Dirt Factory and the area of higher elevation (Dirt Factory car park / electrical substation area) which contains substantial demolition fill deposits beneath the surface of unproven depth'*. If such areas are identified, then **On-site UXO Engineer** support will be required to assist in identifying and controlling potentially dangerous articles during intrusive earthworks. The conduct of a shallow, non-intrusive, magnetometer survey across the site area followed by Controlled Excavation will negate the need to conduct further survey in support of other shallow engineering such as trenching, utilities etc. since the ground volume would have been effectively cleared prior to these works if the program permits.	
SOUTH OF R. MEDLOCK – ALL OTHER AREAS	Where planned works present a **LOW** EO Threat the implementation of a **UXO Referral Service** and bolstered by **On-Site UXO Engineer** where necessary. The development of the remaining site area outside of the building footprints will likely involve *shallow* engineering works when addressing utilities etc. but may involve *deep* engineering when installing river walls, bridges, culverts etc. Where planned works present a **MEDIUM** EO Threat, there are two options available: **On-Site EO Support** and/or **Shallow Non-Intrusive Magnetometer Survey/ Clearance**.	**AS LOW AS REASONABLY PRACTICABLE (ALARP)**

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	RECOMMENDATIONS. It is recommended that: 1. Obstructions, including existing structures, reinforced pads etc. be removed. 2. Where the EO threat is **LOW**: a. Vegetation removal works should be supported by a **UXO Referral Service**. b. Demolition works that may complete the risk pathway; EO risk mitigation should be supplemented by an **On-Site UXO Engineer**. 3. Where the EO threat is **MEDIUM**: a. A **shallow, non-intrusive, magnetometer survey** is conducted across the area to a depth of some 8m bgl (maximum bomb penetration depth plus a safety factor of 2m) where possible to identify any potential threat items prior to intrusive works. (Survey is not required in areas of Fill as there is no intrusion into potentially at-risk ground volumes.) b. Potential threat items should be subject to **Controlled Excavation** to determine their nature and deal with them accordingly. c. Where gross background ferrous contamination renders non-intrusive magnetometry unfeasible, **On-site UXO Engineer** support will be required to assist in identifying and controlling potentially dangerous articles during intrusive earthworks.	
RISKS/ LIMITATIONS OF MAGNETOMETER SURVEY	It is recommended that, if possible, all live services are decommissioned prior to any magnetometer survey being undertaken. **Reinforced Concrete**. Due to the concentrated presence of ferrous metal within reinforced concrete, non-intrusive magnetometer survey is rendered ineffective over this material. Intrusive magnetometer survey may be conducted beneath this material if the physical barrier is breached with the important limitation that discrete ferrous objects are impossible to identify immediately below a reinforced concrete structure (such as a foundation pad) for some 1.5m below the obstacle. All reinforced structures should ideally be removed prior to magnetometer survey – If such features are to remain this may have to either be accepted as a limitation of the EO Survey (in so far as such ground volumes cannot be effectively cleared of potential threat items) or an alternative method implemented. **False Positives**. Ref 3 confirms made ground which is of significant depth - The presence of metal contamination is noted. It must be assumed that there will be a significant degree of ferrous contamination within this ground. These ferro-magnetic objects will be located by any non-intrusive magnetometer survey and as the potential EO threat items includes British AAA, the number of small ferro-magnetic anomalies that would then be subjected to	

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	controlled excavation to determine their nature, will increase - This is an inevitable consequence of conducting magnetometer survey on brownfield sites.	

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