

Our ref: **TD/2230804RSRev00**

Date: **28th July 2022**

Logik Developments (Arundel Street) Ltd.
c/o Deloitte LLP
2 Hardman Street
Spinningfields
Manchester
M3 3HF

Dear Sirs

Ref: Arundel Street, Manchester. M15 4JZ
Planning Application 123261/FO/2019 refers

REMEDIATION STRATEGY

1. This Remediation Strategy has been prepared in relation to risks to end users of the proposed development. This document does not constitute a detailed Remediation Method Statement. A detailed Remediation Method Statement will be prepared in conjunction with site clearance and construction method statements.
2. A new residential led development scheme is proposed for the site. The scheme will comprise a U-shaped building that will step 8 to 9 storeys from Arundel Street to Worsley Street, and 11 to 23 storeys along Mancunian Way. Development will also include the refurbishment and conversion of the existing 4 storey DOT building on the south side of the site. A plan of the proposed development is attached, Figure A1.1.
3. In relation to the proposed development of the above site, it has been necessary to investigate the ground conditions to satisfy environmental planning conditions.
4. The site is situated approximately 1.5km to the southwest of Manchester City centre and comprised an area of about 0.5Ha bound by Mancunian Way to the northeast, Ellesmere Street to the southeast, Arundel Street to the southwest and Worsley Street (pedestrianised) to the northwest.
5. During 2017 Ian Farmer Associates (IFA) carried out a Preliminary Risk Assessment (PRA) and Ground Investigation (GI) at a site at Arundel Street, Manchester. These reports have been updated as the design and planning process has proceeded. The latest versions of these reports are as follows:
 - Ian Farmer Associates. Preliminary Risk Assessment reference 42028; Arundel Street, Manchester, M15 4JZ dated October 2017
 - Ian Farmer Associates. Ground Investigation Report reference 42028v4; Arundel Street, Manchester dated July 2022

6. Published geological mapping indicates superficial deposits to be absent beneath most the site. The southern part of the site is underlain by Glaciofluvial Sheet Deposits comprised of Sand and Gravel. Bedrock comprises sandstone; part of the Chester Pebble Beds Formation of Triassic age.
7. Historical maps indicate the following:
 - a. On site: Terraced housing partly covered the site by 1848, predominantly covering the site by 1891. A sand pit may have occupied part of the site about 1848. An engineering works occupied the southern part of the site by 1891, later occupied by DOT Motorcycles. This building currently remains on site. Terraced housing remained on site through the 1950's. By 1969 the site had been cleared of housing and was occupied by commercial units. The DOT Motorcycle building remained on site.
 - b. Off site: The site has been bound to the north by Worsley Street since 1848, bound to the south by Ellesmere Street and to the west by Arundel Street since 1891. The site was surrounded by a variety of industrial buildings including engineering works, dye works, cotton works and corn mills reflecting the intense industrialisation of the area from the mid 1800's to the mid 1900's. These industrial sites were developed in tandem with extensive areas of terraced housing. The Mancunian Way was built adjacent to the site in the early 1960's and has remained until the present day.
8. A walkover survey at the time of investigation found the site to comprise a sensibly level area occupied by light industrial / commercial premises with associated access roads, service and parking areas.
9. The intrusive investigation comprised exploratory holes at eight locations by cable percussion, rotary and dynamic drilling methods. Exploratory holes extended to depths up to 17.00m.
10. The ground conditions encountered generally confirmed the anticipated geological sequence and may be summarised as follows:

Strata	Top (mbgl)	Base (mbgl)
Made ground	GL	0.30 to 3.00
Superficial strata (locally absent)	0.30 to 3.00	1.60 to 5.20
Sandstone bedrock	1.60 to 5.20	not proven

11. Groundwater was encountered at depths about 7.50m during the investigation. On return visits to monitor the standpipe installations, groundwater was recorded at depths between 6.39 and 7.26m in sandstone and between 2.55 and 2.85m in superficial strata.
12. Thirteen soil samples, representative of Made Ground and natural soils, were analysed for a suite of potential contaminants based on the conceptual site model produced in the preliminary investigation, including metals, speciated PAH, speciated TPH, total phenols, and asbestos (visual screen).
13. The results of the soil analyses, with the exception of lead, were compared to published Suitable 4 Use Levels (S4ULs) determined by LQM and CIEH. As no S4UL has been produced for lead, the Category 4 Screening Level (C4SL) produced by DEFRA was adopted. The Generic Assessment Criteria (GAC) for an end use of residential without homegrown

produce was adopted although these values may be quite conservative due to the low percentage of soft landscaping proposed.

14. The assessment identified asbestos in one location. GAC exceedances for lead, mercury and some PAH compounds were locally recorded in made ground.
15. Gas monitoring were undertaken on six occasions. A peak methane concentration, CH₄, of 0.1%v/v was recorded with a maximum carbon dioxide concentration, CO₂, of 6.8%v/v. A maximum gas flow rate of 0.2l/hr was recorded. Based on the gas screening value for CO₂ the site is consistent with Characteristic Situation 1 (CS1) – very low risk gas regime. However, an upper limit of 5% CO₂ is normally applied to this classification. An increase to Characteristic Situation 2 (CS2) should be considered. The source of elevated CO₂ is most likely to be made ground on site however an off site source cannot be discounted.
16. The removal of made ground will be required as part of preparation for construction. Although potential pollution pathways have been identified relating to made ground the removal of this material will mitigate these risks and residual risks to end users will be very low.
17. Provided that the Local Authority is satisfied with the investigations and reports undertaken to date, the following Strategy is recommended to ensure a very low risk regime for end users of the site.

Remediation Strategy

Aim

To remediate the site in accordance with the guidance provided in relation to Part IIA of the Environmental Protection Act 1990 by:

- (i) Removing or treating the pollutant;
- (ii) Breaking or removing the pathway; or
- (iii) Protecting or removing the receptor(s).

Method

The following strategy is proposed to address the potential pollutant linkages identified at the site in relation to the proposed development. A plan of the proposed development is attached, Figure A1.1.

Step	Action
1.	Made ground to be removed from all areas of the site footprint.
2.	During ground works for removal of made ground, appropriate health and safety measures will be implemented to mitigate the risk of any known or previously unidentified contamination affecting the site workers and the environs, particularly potential exposure to asbestos fibres locally identified within the Made Ground. These include: • Informing the site workers of the contamination on the site and the potential health effects from exposure. • The provision of suitable Personal Protective Equipment (PPE), such as masks, gloves and overalls, for workers who may be potentially impacted by working in areas of the contamination. • Ensuring good hygiene is enforced and washing facilities are maintained on the site. Workers are discouraged from smoking, eating or drinking without washing their hands first. • Dust monitoring, and if necessary, suppression measures, such as wheel washing of construction vehicles and damping down of dry soil during excavations through the Made Ground, to prevent contamination becoming airborne. • Advice will be sought from a specialist asbestos contractor during removal of made ground from the site.

Step	Action
3.	In accordance with standard duty of care, a watching brief will be undertaken by the developer, comprising the visual and olfactory assessment of all exposed soils during removal of made ground. Should any previously unidentified contamination or deleterious materials be encountered during ground works, further assessment and remedial action will be undertaken as appropriate. Where contamination is identified or suspected, consultation will be undertaken with a suitably experienced engineer to decide the most appropriate action, which may include: • Short-term storage of the suspected material while undertaking verification testing to determine appropriate disposal route. The material would need to be stored in a contained area to ensure that contamination does not migrate and affect other areas of the site. Depending upon the amounts of material under consideration, this could be either a skip or a lined area. • Following removal of any suspected or contaminated soil, validation sampling will be undertaken around the base and sides of any excavation to ensure no contamination is present in the remaining soils.
4.	In accordance with standard duty of care, all material removed from site will be disposed of to an appropriately licensed site. The chemical testing and assessments previously carried out may be used to aid classification of any soil that is to be disposed of though further testing may be required to confirm the waste classification for soils that are being disposed of. Copies of the waste consignment documentation will be retained by the developer.
5.	Site levels to be re-established before import of clean fill. Certificates confirming contaminant concentrations for all imported fill will be obtained from the supplier prior to importation, to ensure that it is suitable for its intended use and that contaminant concentrations do not exceed relevant human health screening criteria.
6.	Minor areas of landscaping are proposed on the site. Landscaping will be placed over clean imported fill (as per Step 1 to 5 above). Topsoil thicknesses in areas of landscaping will therefore be dictated by root depth requirements for proposed planting.
7.	Certificates confirming contaminant concentrations for all imported landscaping soils will be obtained from the supplier prior to importation, to ensure that it is suitable for its intended use and that contaminant concentrations do not exceed relevant human health screening criteria.

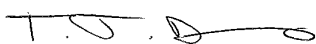
Step	Action
8.	On the basis of the monitoring undertaken, basic gas protection measures may be required for the proposed structures, in accordance with CS2, which indicates that a gas protection score of 3.5 should be achieved for the proposed development. In accordance with BS 8485, a combination of two or more of the following should be used: • The structural barrier of the floor slab, or of the basement slab and walls if a basement is present; • Ventilation measures; • Gas resistant membrane. The guidance should be referred to for examples of the specific measures that may be used. Ground gas protection measures, if required should be approved and validated directly by the Local Authority Building Control. The removal of made ground from beneath the site may remove the source of ground gas. If proven the ground gas regime may then be reduced to CS1 and no ground gas protection measures may be required.

On completion of the steps above, a Final Validation Report will be produced, which may include, but not be limited to, the following:-

- Confirmation that the development was undertaken in accordance with the Remediation Strategy.
- Certification for all materials imported to the site.
- Details of independent sampling and testing of imported soils.
- Details of any further sampling and testing of soils, either in situ, imported, or prior to exportation from the site.
- Certificate confirming the installation of gas protection measures (dependent on final assessment of ground gas requirements subsequent to removal of made ground)
- Waste documentation for any materials removed from the site.
- Details of any observations made during the watching brief and further action taken, if required.
- Any further information relevant to the remediation or management of ground conditions at the site in relation to the development.

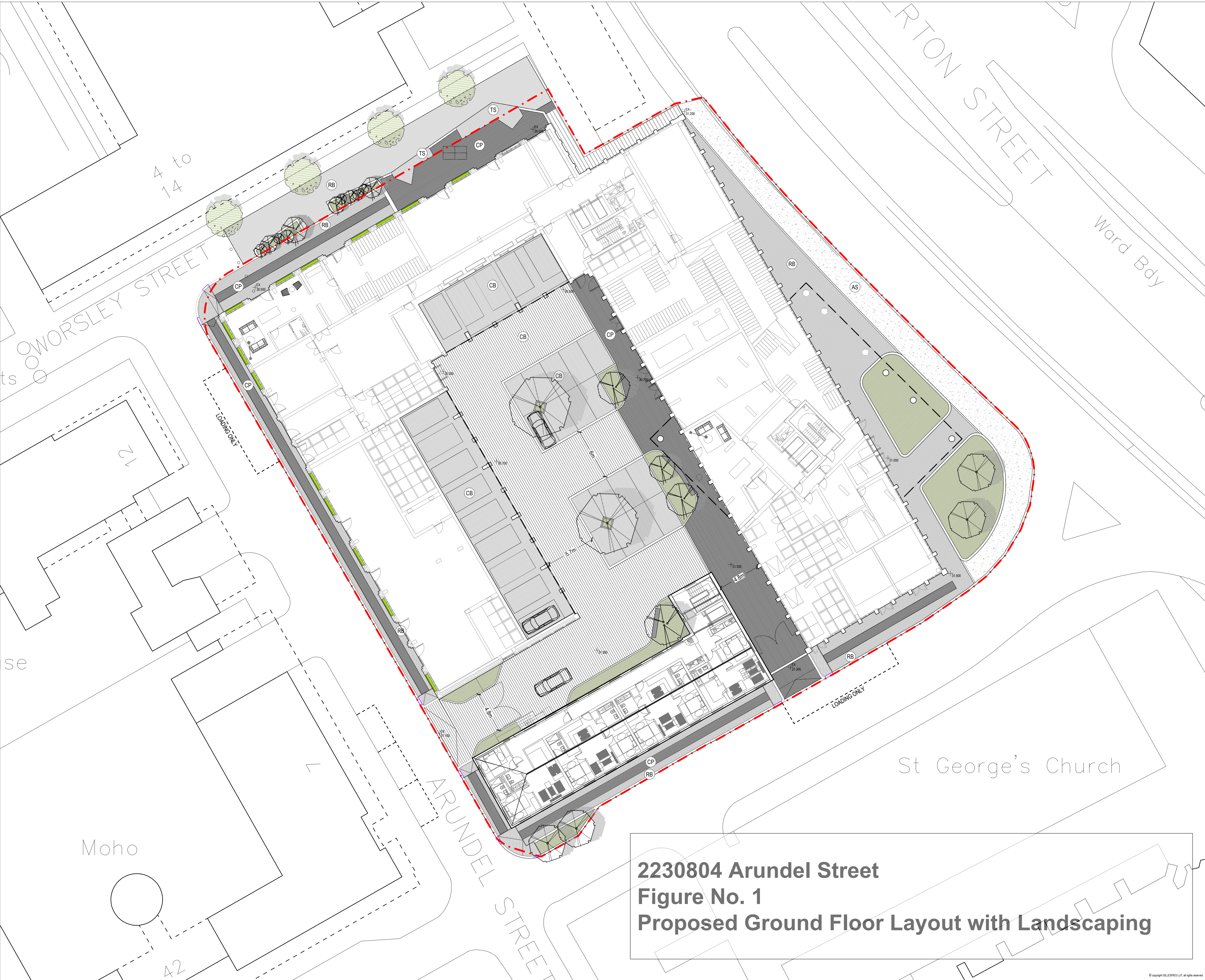
We trust that the above meets with your approval, but should you have any queries, please do not hesitate to contact us.

Yours faithfully
For Ian Farmer Associates (1998) Limited



Tim Downes
BSc (Hons) MSc CGeol.
Technical Manager

Encl. Arundel Street – Landscape Master Plan Ground Floor

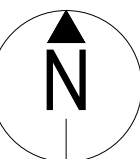


2230804 Arundel Street
Figure No. 1
Proposed Ground Floor Layout with Landscaping

rev	details	by	date
00	FIRST ISSUE FOR COMMENT - DRAFT	RB	07.03.2019
01	PLANNING ISSUE	RB	14.03.2019

LEGEND //

- PLANNING BOUNDARY
- BUILDING LINE
- BUILDING OVERHANG
- CLAY BRICK PAVERS
Narrow unit black brick paving units to match existing highway material
- RESIN BOUND
Buff beige resin bound gravel surfacing to match existing highway material
- CONCRETE BLOCK PAVING
Internal courtyard circulation surface
- CONCRETE BLOCK PAVING
Internal courtyard circulation surface
- ASPHALT
To public highway
- TIMBER SEATING
Timber slat seating
- KERB
Kerb edge treatment
- FLUSH KERB
Flush Kerb edge treatment
- DROP KERB
Drop Kerb edge treatment
- TACTILE PAVING
Tactile paving with drop kerbs
- WALL TYPE 1
Low feature brick wall with timber seating top
- PROPOSED TREES
Proposed trees: Approx. 5m height with 3-4m spread
- PROPOSED MULTI-STEM TREES
Proposed trees: Approx. 5m height with 3-4m spread
- EXISTING RETAINED TREES
- SHRUB/ ORNAMENTAL PLANTING
Proposed shrub and ornamental planting
- RAISED PLANTER
Proposed shrub and ornamental planting
- EXISTING LEVEL
+100.00
- PROPOSED LEVEL
+100.00



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- Notes
- Do not scale from drawing, use figured dimensions only.
 - All dimensions to be checked onsite.
 - This drawing to be read in conjunction with all other Gillespies drawings and specifications.

Project title
ARUNDEL STREET
Stage 2

Drawing title
LANDSCAPE MASTERPLAN
GROUND FLOOR

Drawing status	Scale	Date
PLANNING	1:200 @ A1	19.02.2019
Drawing number	Drwn	Chk'd
P11747-00-001-0101	RB	RS
	Rev	
	01	

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