BROWNFIELD SOLUTIONS LTD

GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

FG VIVERE MANCHESTER LTD

Cornbrook Residential, Manchester

Piling and Penetrative Works Risk Assessment

NS/C5540/13935

February 2025

PROJECT QUALITY CONTROL DATA SHEET

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Issued By:	**Client:**	**Engineer:**
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DRAWINGS

Drawing Number	Rev	Title
8353-LRW-ZZ-00-DR-A-00-178	-	Proposed Development Layout Plan
C5540/01	-	Site Location Plan
C5540/02		Site Features Plan
C5540/03		Exploratory Hole Location Plan

1.0 INTRODUCTION

1.1 Context and Objective

This report describes a Piling Risk Assessment produced by Brownfield Solutions Limited (BSL) for FG Vivere Manchester Ltd as instructed by Artal Ltd on a site off Dinton Street, Manchester.

This assessment has been completed in general accordance with the following guidance:

- Environment Agency (EA) Document NC/99/73, "Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention".
- Environment Agency (EA) Document, National Groundwater and Contaminated Land Centre, Piling into Contaminated Sites, February 2002.

The objective of this assessment is to determine the suitability of bored pile foundations for the proposed development.

The proposed foundation solution has the potential to create a pathway for contamination to migrate through the made ground and into the natural strata and groundwater. As such, these activities are carried forward only after an assessment of the impact of works in this report have been undertaken.

1.2 Proposed Development

The proposed development is for a residential end use comprising a 24-storey apartment building with associated car park areas, highways, public open space (POS) areas and infrastructure as shown on them proposed development plan, drawing No. 8353-LRW-ZZ-00-DR-A-00-178 P15 provided to BSL by the client.

1.3 Previous Reports

This risk assessment follows the completion of the following reports, which should be read in conjunction with this assessment:

- BSL, Phase I Geo-Environmental Assessment Report, ref: AH/C5540/12504, issued October 2023.
- BSL, Phase II Geo-Environmental Assessment Report, ref: AH/C5540/13714 Rev A, issued February 2025.
- BSL, Remedial Strategy, ref: AH/C5540/13847, issued February 2025.

1.4 Limitations

The findings and opinions conveyed via this assessment are based on information obtained from a number of sources as detailed within this report, BSL have assumed this information is correct and reliable. Nevertheless, BSL cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

BSL have used all reasonable care and skill in the production of this report. There may be other conditions prevailing on the site which are outside the scope of work and have not been highlighted by this assessment and therefore have not been taken into account by this report. Responsibility cannot be accepted for such site conditions not revealed by the assessment.

This report has been prepared for the sole use and reliance of the Client, FG Vivere Manchester Ltd. No other third parties may rely upon or reproduce the contents of this report without the written permission of Brownfield Solutions Ltd (BSL). If any unauthorised third party comes into possession of this report, they rely on it at their own risk and BSL do not owe them any Duty of Care.

Any recommendations made in this report should be confirmed with the Regulatory Authorities prior to implementation to ensure compliance.

This assessment has been based on the proposed planning layouts provided. Any subsequent change to the planning layout may have an impact on the validity of recommendations made within this report. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

2.0 GROUND MODEL SUMMARY

2.1 Description of Site

The site is located off Dinton Street, Manchester, M15 4WB. It is situated approximately, centred on National Grid Reference 382409, 397044 as shown on the Site Location Plan, Drawing No. C5540/01.

The main site features and potential issues identified during the time of the intrusive investigation are detailed below and are shown on the Site Features Plan, Drawing No C5540/02.

Feature	Description
Site Area	The site covers 0.23 hectares.
Site Access	Access to the site is gained off Dinton Street to the north-west.
Current Land Use and Site Features	The site comprises a linear cobbled road trending north-west to south-east, edged with asphalt pavement. Remnants of a red brick wall to the south and wooden and concrete fencing to the north of the cobble road. The north-east part of the site comprises a combination of gravel and concrete slab surfacing and the north part of the site comprises intermittent asphalt surfacing with dense vegetation.
Potential Sources of Gross Contamination	Localised areas of fly tipping were noted across the site, which could contain unknown contaminants, although no visible asbestos or hydrocarbons were noted during the walkover.
Vegetation	Vegetation is present across the majority of the site, including shrubs, grasses and small trees, with denser coverage to the south and east which restricted access to an extent.
Topography	The site is generally flat, although the cobbled road lies approximately 150-200mm below adjacent areas.
Site Boundaries	Wooden hoarding and temporary heras fencing encloses the site.
Surrounding Area	The site is set within a mixed residential and commercial area with residential plots to the east and south-east. The site is bordered by a high-rise apartment building to the north-east. A metro line and canal are within 150m to the north to north-west of the site, beyond which is the Manchester Ship Canal circa 200m away from the site.

2.2 Environmental Setting

Site History
The site has included various industrial uses from pre- 1891 up until the present day, initially covered with terraced housing and public houses. Runcorn Street was constructed prior to 1891 and remains on site as the cobbled street observed during the walkover. An unspecified works, now demolished, was present in the centre of the site between approximately 1976 and 2020.

Published Geology and Hydrogeology
From the Phase I Geo-Environmental Assessment and published geology, it was anticipated that ground conditions would comprise the following sequence of strata (top down):

- Made Ground; over
- Glaciofluvial Sheet Deposits; over
- Chester Formation.

Hydrogeology
Based on the inferred geology, a summary of the Environment Agency aquifer designations is presented in the table below:

Stratum	Coverage	Aquifer Designation
Glaciofluvial Sheet Deposits	Full Site	Secondary (A) Aquifer. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
Chester Formation	Full Site	Principal Aquifer. This is geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.

A summary of the pertinent hydrogeological features within the Geo-Environmental Data Report are provided below:

Feature	Distance (m) & Direction	Details
Nearest Active Groundwater Abstraction	1253m SW	Licence No: NW/069/0007/017 Details: dewatering Direct Source: Groundwater – North West Region Point: CORNBROOK PUMPS STATION Annual Volume (m3): 63072 Original Start Date: 29/03/2022
Nearest Active Potable Groundwater Abstraction	-	None within 2000m.
Source Protection Zones	-	None within 500m.

Hydrology
The nearest named watercourse and surface water features is Corn Brook, an inland river not influenced by normal tidal action located 55m south-west of the site at its closest approach.

Potential Environmental Constraints
There are no active or recent landfill sites within 500m of the site. There is a recorded waste site onsite described as a vehicle depollution facility; however, this wasn't present during the site works.

Radon
Information from the environmental database report indicates the property is not in a radon affected area and therefore no radon protective measures are necessary in accordance with BRE Report 211 'Radon – Guidance on protective measures for new dwellings' 2015 Edition.

UXO Risk
The desk study (ref. AH/C5540/12504) identified 1949-1954 Historical OS mapping shows areas of "ruins" in the areas surrounding the site, suggesting bomb damage. This is most likely as a result of WWII bombing. Whilst no ruins are shown on site, pre-WWII terraced housing adjacent to Runcorn Street was no longer present on mapping dated 1948, potentially indicative of bomb damage.

As a specialist UXO study identified a medium risk of UXO, and in order to minimise the risk to operatives during the ground investigation works, all exploratory locations were scanned with a hand-held magnetometer and works supervised by a specialist UXO surveyor. No magnetic anomalies were encountered during the works.

2.3 Ground Conditions

Observed Geology and Groundwater
From the investigations carried out, the ground conditions can be summarised as below (top down):

- Made ground generally comprising gravelly sand from ground level to between 0.40m and 2.30m bgl.
- Natural superficial deposits comprising firm to stiff clay, silty sand and sand and gravel proven to depths between 6.80m and 7.30m bgl.
- Solid geology comprising weak sandstone, with some interbedded mudstone, proven to depths ranging between 24.50m and 26.00m bgl.
- Groundwater levels encountered in one location at 12.00m bgl during site works.
- Post site works monitoring shows groundwater levels ranging between 0.87m and 7.00m bgl.

Observations
With the exception of ash observed as a minor constituent in the made ground soil within SA04, no other evidence of contamination was visually observed at the site.

Stability of Excavations/Boreholes
The sides of the trial pits were generally unstable due to the presence of deep granular made ground across the site.

Obstructions
There are numerous obstructions throughout the made ground on site. The obstructions identified are summarised in the table below:

Location	Depth (m bgl)	Comments
SA02	0.70	Concrete basement floor
TP02	2.00	Concrete basement floor
TP03	2.30	Concrete basement floor
TP04	1.80	Concrete basement floor

2.4 Summary of Risk Assessments

The ground investigations have confirmed the following:

- Heavy metal contamination within the made ground at numerous locations.
- Localised PAH contamination within the made ground at one location (SA04).
- Moderate risk of UXO.

Human Health Risks
Elevated lead, hexavalent chromium and mercury were recorded in the made ground across the site. Elevated polycyclic aromatic hydrocarbons were recorded in one location, SA04 between 0.06m and 0.50m. Mitigation measures are required.

Ground Gas
A summary of the ground gas monitoring carried out by BSL is presented below:

- BSL conducted 7 monitoring visits over 3 months, in line with CIRIA C665 guidance.
- Methane concentrations ranged between 0.0% v/v and 0.3% v/v.
- Carbon dioxide concentrations ranged between 0.0% v/v and 3.7% v/v.
- Oxygen concentrations ranged between 0.5% v/v and 23.5% v/v.

- The maximum steady state gas flow rate was 1.3 l/hr.

The main sources of ground gas identified were the made ground.

On the basis of the above and the assessment carried out, the site is classified to fall within Characteristic Situation 1 in accordance with CIRIA 665 and therefore no mitigation measures are required.

Risk to Controlled Waters
Whilst there are elevated concentrations of contaminants within the made ground, based on the investigation works undertaken to date and subject to agreement with the Environment Agency, the site is not considered to pose a significant risk to controlled waters for the following reasons:

- The site does not lie within 500m of an SPZ.
- There are no groundwater abstractions within 1000m.
- There are no potable (sensitive) water abstractions within 2000m.
- Hotspot removal of ashy made ground will reduce potential for leachable substances impacting groundwater.
- Ground conditions encountered revealed low permeability deposits present between low level heavy metals and PAH contamination within the made ground which will subsequently inhibit vertical migration.
- The concentrations of leachable substances that could emanate from the site will be subject to dilution and dispersal during transport and so the risks will reduce with distance from the site and into the identified surrounding water bodies.
- It would be technically challenging and disproportionately costly to remove the contaminants from the water to the pre-input stage at the concentrations identified, particularly for PAH contamination.
  The development will cover the site in hardstanding with a new drainage system, which will reduce rainfall infiltration and therefore reduce the potential for mobile contaminants to migrate from the site. This in itself will be a form of remediation and no specific further remedial measures are considered necessary.

Outcome of Risk Assessments
The outcome of the Phase II Geo-Environmental Assessment report revealed that there are no specific remedial requirements with respect to groundwater at the site. In respect to the other residual risks identified, it was recommended that a Remedial Strategy was prepared that identifies the specific remediation requirements for the site.

2.5 Summary of Remedial Recommendations

Based on the previous investigations at the site and the above remedial options appraisal with the BSL Remedial Strategy, the most appropriate approach to the identified residual risks are listed below:

- Excavation and removal of ashy made ground with heavy metals and PAH contamination localised to former roadway.
- Utilise a cover system / break layer.

Implementation of a Cover System/Break layer
This technique introduces an appropriate barrier, removing the pathway between the made ground and contaminants to the receptor and consequently breaking the linkage. The import of clean materials or on-site management of appropriate materials is required for the construction of the barrier.

The installation of a clean cover system will break the pathway between the asbestos contamination to site end users and act as a growing medium in soft landscaping areas (recommended to be 450mm thick

of topsoil and subsoil over a 100mm break layer). It is recommended the materials are cohesive in nature in order to limit infiltration.

Elsewhere, the placement of hardstanding will break the pathway to site end users. This will also reduce infiltration from a controlled waters perspective, minimising the potential for contaminants to leach and migrate.

Excavation, Sorting and Re-use of Made Ground
Hotspot removal of heavy metal and PAH contaminated ashy made ground associated with the former roadway centrally within the site. Validation of the base and sides to confirm successful removal. Following this, a combination of excavation, screening and sorting techniques will be employed alongside material re-use.

2.6 Proposed Works and Foundation Options

Due to the magnitude of the column loads expected to be imposed by the proposed high-rise multistorey structure, from a geotechnical perspective the most suitable foundation solution for the proposed development is considered to be piles. The piled foundations should extend through the made ground and superficial deposits, and be socketed into the sandstone bedrock which was observed from depths between 6.80 – 7.30m bgl and proven to a maximum depth of 26.00m bgl.

It is understood that a replacement type piled solution will be required, such as continuous flight auger piles. These are considered to be penetrative works for the purpose of this Risk Assessment.

As part of the development, approximately 1m of cut is proposed to facilitate finished floor levels and the emplacement of a working platform for the piling rig. This will effectively remove the majority of the heavy metal contamination, alongside the localised hotspot removal of ashy made discussed previously, limited contamination is anticipated to remain within the made ground onsite.

As part of the development, much of the surrounding area will also be transformed from either vegetated or exposed made ground and covered with hardstanding / building footprint and a new drainage system. This will significantly reduce the amount of infiltration available and the propensity for the generation of contaminated leachate from the site.

3.0 PILING RISK ASSESSMENT

3.1 Introduction

The risks associated with piling and ground improvement works must be considered on a site-specific basis and the potential receptors are defined by the hydrogeological properties of the strata underlying the site, the proximity of other receptors along with the site history, current use and surroundings. The Environment Agency indicate that concerns about water protection are likely to be most severe when:

- Contaminants are present on the site and ground works could allow them to migrate.
- Piling would breach an aquitard or connect two previously discrete aquifers.
- The site overlies a Principal or a Secondary A Aquifer.
- The site is located within a Source Protection Zone (SPZ).
- Groundwater is currently of good quality.
- The water table is shallow or likely to be intersected by piles.
- The geological strata are fractured or fissured.
- Works are close to a surface water body and run-off from arisings could pollute those waters.

This risk assessment takes into consideration the current guidance on Pollution Prevention and the source-pathway-receptor (S-P-R) approach. There are six possible generic pollution linkages considered by the Environment Agency to be created by piling and these are:

1. Creation of permeable pathways through a low permeability layer to allow potential contamination of an underlying aquifer.
2. Creation of preferential pathways, through a low permeability surface layer, to allow upward migration of land gas, soil gas or contaminant vapours to the surface.
3. Direct contact of site workers or others with contaminated soil arisings which have been brought to the surface.
4. Direct contact of the piles or engineered structures with contaminated soil or leachate causing degradation of pile materials (where the secondary effects are to increase the potential for contaminant migration).
5. The driving down of contaminants down into the aquifer during pile driving.
6. Contamination of groundwater, and subsequently surface waters, by concrete, cement paste or grout.

3.2 Sources of Contamination

Elevated heavy metals have been identified within the made ground across the site. Elevated PAHs were noted local to one area of the site.

No specific remedial action with respect to controlled waters was recommended for these contaminants based on the rationale summarised in Section 2.3.

3.3 Ground Gas

Based on the ground gas monitoring and the ground gas risk assessment, the site is classified as CS1 and no mitigation measures are required.

3.4 Pathways

The contaminants identified above are considered to present potential risks to controlled waters through the following pathways:

- Leaching of mobile contamination into groundwater.
- Migration of perched groundwater in any permeable soils or along existing or proposed service runs.
- Saturated zone flow through the made ground underlying the site.
- The installation of piles resulting in the creation of a preferential pathway.

3.5 Receptors

The relevant sensitive receptors include:

- Corn Brook located 55m to the southwest of the site.
- Groundwater within the superficial Glacifluvial Sheet Deposits - Secondary A Aquifer.
- Groundwater within the Principal Aquifer of the Chester Formation.
- Construction workers.
- Site end-users.
- The fabric of the piles.

3.6 Risk Assessment

Each of the relationships described above are qualitatively assessed with relation to the six specific scenarios detailed in the table overleaf. Any assessed risk that is above moderate/low will possibly require further action.

Pollution Scenario	Activity	Source	Pathway	Receptor	Likelihood	Consequence	Risk	Justification
Scenario 1 Creation of permeable pathways through a low permeability layer to allow potential contamination of an underlying aquifer	Installation of deep foundations (piles)	Heavy metals and PAHs within made ground	Migration via disturbed zone adjacent to installed piles	Groundwater beneath the site / Corn Brook (via base flow)	Unlikely	Medium	Low	Elevated contaminants have been identified within the made ground underlying the site, however, after the development has taken place the made ground will no longer be considered to be impacting the Brook due to the presence of hardstanding and building footprint It will also be necessary to remove made ground soils in the vicinity of the structure in order to accommodate a working platform for the piling rig and finished floor levels, thus removing part of the source of potential contamination. The ashy made ground attributing to elevated PAH contamination will be removed in its entirety in accordance with the Remedial Strategy for the site. If the creation of pathways was occurring, then the pile would not be working correctly from a geotechnical perspective, causing potential structural issues for the store, since the piles will rely on skin friction in combination with end bearing resistance. Furthermore, the location of the piles will be within the footprint of the proposed building, with a large concrete slab which will also benefit from newly installed drainage, drastically reducing the amount of water infiltrating the made ground and reducing the possibility of contaminated water reaching the piles.

Pollution Scenario	Activity	Source	Pathway	Receptor	Likelihood	Consequence	Risk	Justification
Scenario 2 Migration of vapours	CFA piles / bored piles without casing	Ground gas generated from degradable matter within the made ground	No pathway present as no source	N/A	N/A	N/A	Negligible	Based on the ground gas monitoring and ground gas risk assessment, the site is classified as CS1 and no mitigation measures are required.
Scenario 3 Contact (dermal contact, dust inhalation, accidental ingestion) between Site Workers and contaminants in pile arisings	CFA piles / bored piles without casing	Heavy metals and PAHs within made ground	Potential contact via dermal pathways	Construction Workers	Unlikely	Medium	Low	In regard to risks to human health and construction workers, limited elevated contaminants of concern were identified. Low level heavy metal contamination may remain in place following earthworks. However, any residual risks from made ground will be mitigated by standard PPE including gloves. Welfare facilities should be made available to wash before hand to mouth activities. General guidance on these matters is given in the Health and Safety Executive (HSE) document "Protection of Workers and the General Public during the Redevelopment of Contaminated Land".
Scenario 4 Degradation of pile materials via sulphate attack thereby increasing contaminant mobility	Installation of deep foundations (piles)	Heavy metals, PAHs, and sulphates within made ground and sulphates within natural strata	Via zone of degradation next to pile	Groundwater beneath the site / Corn Brook (via base flow)	Unlikely	Medium	Low	Degradation of pile materials via sulphate attack would likely increase contaminant mobility, leading to increased contaminant migration. However, the appropriate design concrete class will be adopted in accordance with BRE Special Digest 1 to mitigate against this, minimising the risk of degradation of pile materials.

Pollution Scenario	Activity	Source	Pathway	Receptor	Likelihood	Consequence	Risk	Justification
Scenario 5 Driving down solid Contaminants	CFA piles / bored piles without casing	Heavy metals and PAHs within made ground	Leaching of contaminants in soils driven down during installation of piles	Groundwater beneath the site / Corn Brook (via base flow)	Unlikely	Medium	Low	Unlikely that this would occur given soils are being removed from the pile shaft during installation, with all arising brough to the surface.
Scenario 6 Contamination of groundwater by concrete, cement paste or grout	CFA piles / bored piles without casing	'Dry' cured concrete used – pre-cast concrete tubes and tubular steel piles	Contact with groundwater and off-site flow in aquifer	Groundwater beneath the site / Corn Brook (via base flow)	Unlikely	Medium	Low	These techniques employ the use of wet concrete; however, this will likely go off within a very short duration of time, thereafter inhibiting groundwater flow. In addition to this, concrete will likely be poured within casing which reduces the ability for concrete to migrate and therefore not considered to pose a significant risk to controlled waters

4.0 CONCLUSIONS

The proposed method at the site is replacement type bored pile solution. The risk assessment carried out demonstrates overall risks to the identified receptors associated with the chosen methods are considered to be negligible to low in accordance with the Environment Agency's Piling Risk Assessment methodology.

Pollution Scenario	Level of Risk
Scenario 1	Low
Scenario 2	Negligible
Scenario 3	Low
Scenario 4	Low
Scenario 5	Low
Scenario 6	Low

Due to the negligible to low risk at the site the use of specific mitigation measures are not considered necessary in respect of controlled waters, site end users and construction workers. The evidence in this assessment should be provided to satisfy the regulatory authorities. The evidence in this assessment should be provided to satisfy the regulatory authorities. Should a change in piling methodology be proposed then this risk assessment would need to be revised accordingly.

DRAWINGS



NOTE: ALL LAYOUTS ARE SUBJECT TO DETAIL DESIGN AND STAGE 3 CO-ORDINATION WITH CONSULTANT DESIGN TEAM. ALL AREAS AND DIMENSIONS ARE SUBJECT TO A TOLERANCE OF +/- 5%

GENERAL NOTES:

ALL DIMENSIONS ARE TO BE CHECKED ON SITE WITH ANY DISCREPANCIES REPORTED TO THE ARCHITECT PRIOR TO THE WORKS BEING CARRIED OUT.

ALL WORKS ARE TO BE IN ACCORDANCE WITH THE PLANNING APPROVAL AND ANY SUBSEQUENT APPROVED LOCAL AUTHORITY PLANNING CORRESPONDENCE INCLUDING DRAWINGS, DOCUMENTS AND REPORTS.

ALL WORKS ARE TO COMPLY WITH THE BUILDING REGULATIONS, BRITISH STANDARDS, CODE OF PRACTICE, AND ANY LOCAL STATUTORY REQUIREMENTS.

ALL WORKS ARE TO COMPLY WITH CURRENT HEALTH AND SAFETY LEGISLATION, H.S.E. RECOMMENDATIONS/GUIDANCE AND THE CURRENT C.D.M. REGULATIONS.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH LEACH RHODES WALKER ARCHITECTS GENERAL ARRANGEMENT (L CODE) DRAWINGS, TOGETHER WITH RELEVANT DETAILED (A CODE) DRAWINGS AND SPECIFICATIONS.

FOR ALL STRUCTURAL WORKS REFER TO THE STRUCTURAL ENGINEERS INFORMATION.

FOR ALL MECHANICAL AND ELECTRICAL WORKS REFER TO THE MECHANICAL AND ELECTRICAL ENGINEERS INFORMATION.

FOR ALL ABOVE GROUND DRAINAGE WORKS REFER TO THE PUBLIC HEALTH ENGINEERS INFORMATION.

ALL PRODUCTS SPECIFIED ARE TO BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS, SPECIFICATION AND DETAILS.

rev	description	drwn	auth	date
P15	MINOR LAYOUT AMENDS.	JDC	CJG	02.10.24
P14	HOTEL STAIRS ADDED. GENERAL UPDATES.	JDC	CJG	25.09.24
P13	ROOM AREA NOTES UPDATED.	JDC	CJG	23.05.24
P12	UPDATED LANDSCAPING & MINOR LAYOUT CHANGES	JDC	CJG	17.05.24
P11	AMENDED WITH HIGHWAYS COMMENTS	JDC	CJG	11.03.24
P10	LANDSCAPING UPDATED	JDC	CJG	25.01.24
P09	GENERATOR & SUBSTATION POSITIONS AMENDED. PARKING ADJUSTED.	JDC	CJG	19.01.24
P08	BOUNDARY FENCE ADDED TO PARKING AREA.	JDC	CJG	17.01.24
P07	COMMERCIAL UNIT ADDED & ENTRANCE LOBBIES/ BoH RECONFIGURED.	JDC	CJG	09.01.24
P06	RED LINE UPDATED. ISSUED FOR PLANNING	JDC	CJG	19.12.23
P05	BREAKERS YARD SHOWN AS EXISTING	JDC	CJG	13.12.23
P04	CYCLES & BoH LAYOUT AMENDED. EXTERNAL & FFL LEVELS ADDED.	JDC	CJG	05.12.23
P03	UPDATED STRUCTURE & LAYOUT	EB	CJG	10.11.23
P02	CYCLE STORE AMENDMENT	EB	CJG	02.11.23
P01	FIRST ISSUED	EB	CJG	26.10.23

DO NOT SCALE OFF THIS DRAWING
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CLIENT: FORSHAW GROUP
PROJECT: CORNBROOK RESIDENTIAL
DOCUMENT NAME: 8353-LRW-ZZ-00-DR-A-00-178
DESCRIPTION: PROPOSED GROUND FLOOR PLAN

REVISION	SCALE
P15	1:250@ A3

LRW PROJECT No.	DATE CREATED	CREATED BY	AUTHORISED BY
8353	26.10.23	EB	DL

File:I:\8353\Comms\Issued\Drawings\Dwg\Dwgs\Issued\8353-LRW-ZZ-00-DR-A-00-178_Proposed Ground Floor Plan.dwg



SITE LOCATION

NEAREST POSTCODE: M15 4WB

SITE ENTRANCE WHAT3WORDS: ///HERO.ANKLE.FITS



REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD
CEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

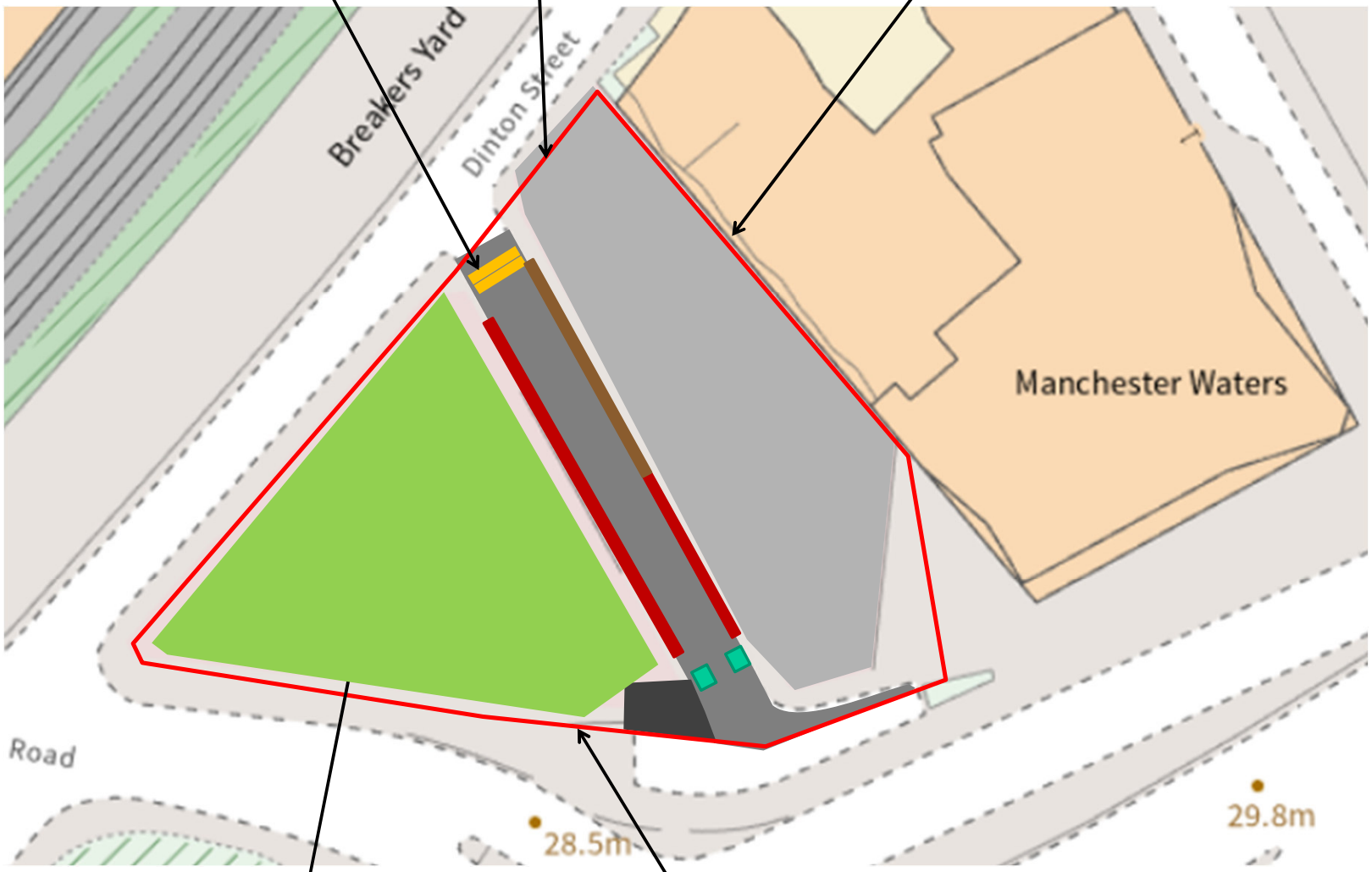
CLIENT
RENAISSANCE ASSOCIATES LTD

PROJECT TITLE
CORNBROOK RESIDENTIAL, MANCHESTER

DRAWING TITLE
SITE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
C5540/01	-	NTS	02/10/23

DRAWN BY	CHECKED BY
SD	TM



KEY

- APPROXIMATE SITE BOUNDARY
- GATE
- CONCRET SLAB / GRAVEL
- COBBLED ROAD
- ASPHALT SURFACING
- BRICK WALL
- CONCRETE POST WOOD PANNEL FENCING
- DRAINAGE COVERS
- DENSE VEGETATION

REV	DATE	DESCRIPTION	BY	CKD

BROWNFIELD SOLUTIONS LTD
GEO-ENVIRONMENTAL ENGINEERING EXCELLENCE

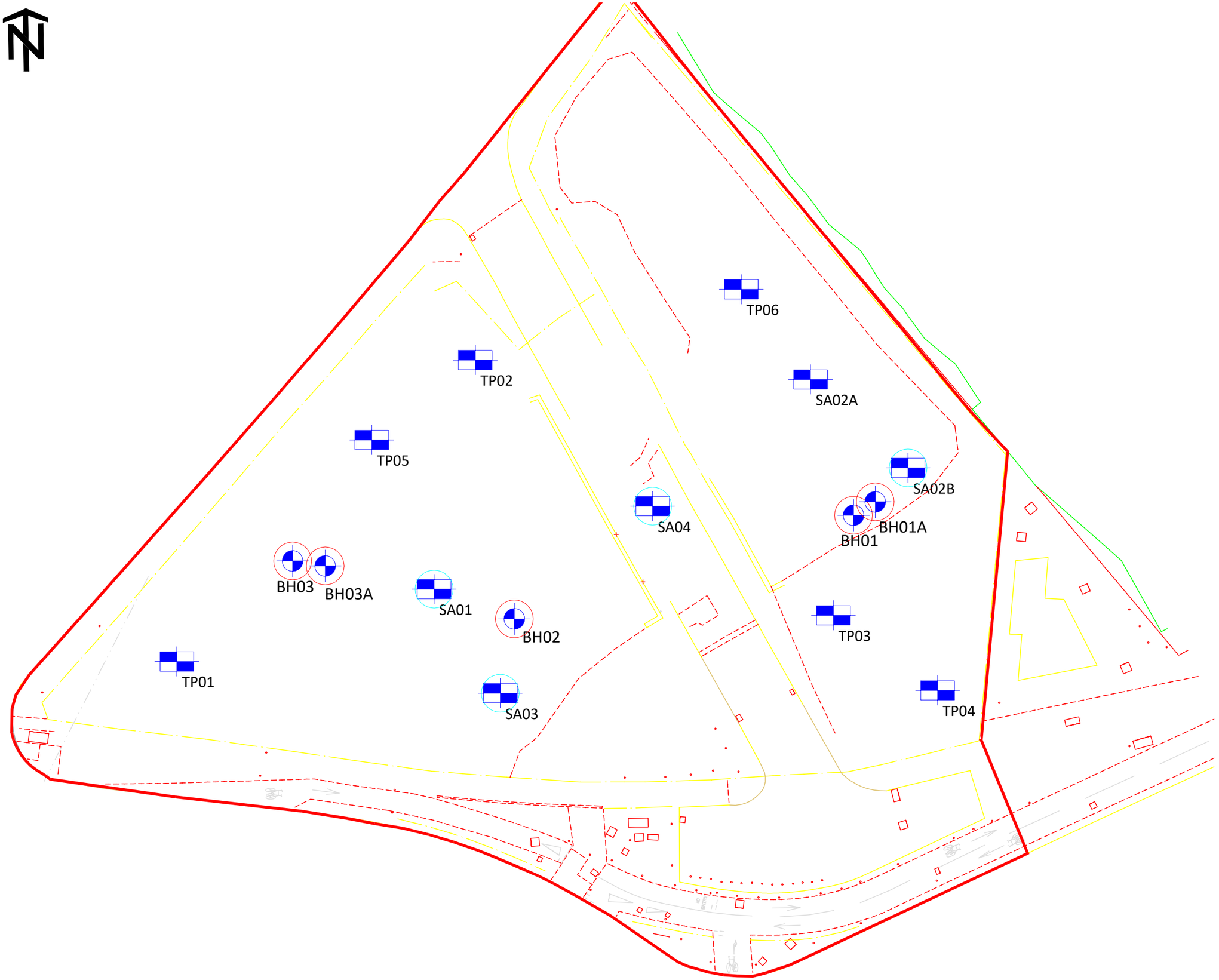
CLIENT
RENAISSANCE ASSOCIATES LTD

PROJECT TITLE
CORNBROOK RESIDENTIAL, MANCHESTER

DRAWING TITLE
SITE FEATURES PLAN

DRAWING No.	REVISION	SCALE	DATE
C5540/02	-	NTS	05/10/23

DRAWN BY	CHECKED BY
AH	TM



KEY	
	APPROXIMATE SITE BOUNDARY
TPXX	TRIAL PIT
BHXX	BOREHOLE
	SOAKAWAY INFILTRATION TEST
	BOREHOLE INSTALLATION

NOTES

1. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT & ENGINEER FOR VERIFICATION. FIGURED DIMENSIONS ONLY ARE TO BE TAKEN FROM THIS DRAWING.
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PROJECT TITLE

CORNBROOK RESIDENTIAL, MANCHESTER

DRAWING TITLE

EXPLORATORY HOLE LOCATION PLAN

DRAWING No.	REVISION	SCALE	DATE
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