
Gore Street - Manchester

Site Investigation Outline Scope

Prepared by:	Anna Wai MEng CEng MStructE
Reviewed by:	-
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1 The Site & Proposed Building

The site is 0.07 ha and bounded by Piccadilly, Gore Street and Chatham Street with the Waldorf Pub and Indemnity House, 7 Chatham St, immediately to the rear. It is occupied by the vacant 4 storey Grade II Listed former Union Bank building at 12 Piccadilly and a cleared site bounded by temporary fencing. It forms part of a larger site bounded by Piccadilly, Gore Street, Roby Street and Chatham Street.



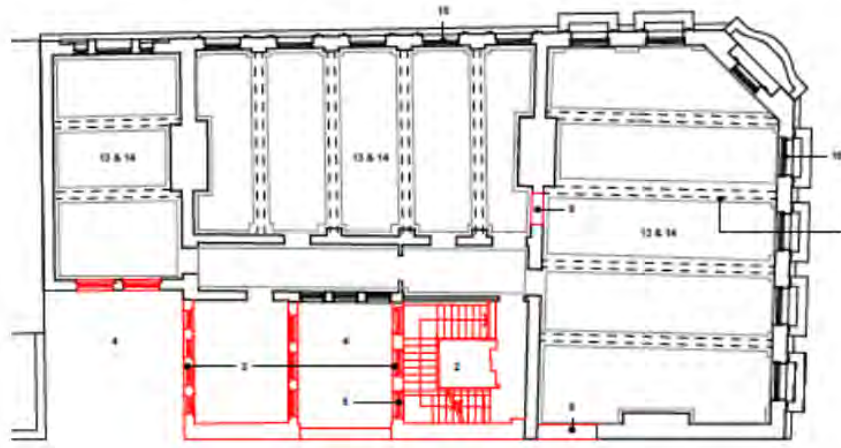
Figure 1: Existing site.

The new scheme is for a 34-storey building (107m above ground level) adjacent to the conversion of the listed Union Bank, to create a 251 bed apart hotel with additional facilities on the ground floor and mezzanine level. Such as a reception area off Piccadilly and a café area would be on the ground floor with further back of house services such as a refuse store, bike store, kitchen, offices and a linen store. The mezzanine level would have a net museum/ exhibition space, an auditorium/conference room and meeting rooms, and staff rooms, maintenance store, and switch rooms. A gym, meeting rooms, staff rooms and switch room would be at first floor. There is a partial basement proposed to would be constructed below the new building footprint.



Figure 2: Proposed elevations.

The new 34-Storey tower will be partially carved into the listed footprint building. Differential settlement will need to be carefully considered against the proposed excavation.



Plan showing level of core removal to facilitate construction of new build and core

Figure 3: Demolition extent within the listed building to allow for the new core.

2 Investigation Work

The investigation is required to provide factual information on the subsoil and interpretation of the site ground conditions for use in the design of the substructure for the proposed construction works and to determine any contamination remediation work requirements. The investigation work should be planned in accordance with this specification. A site location plan and a plan showing specific limits on or requirements for the investigation are given in Appendix A and B respectively.

An initial desk study has been undertaken previously by Resource & Environmental Consultants (REC) in March 2016 (PHASE_I_GROUND_SURVEY-969768) with a follow up land contamination report by Card Geotechnical Ltd in May 2024 (CGE17149_Gore Street_SGR_May24_R2).

The investigation shall consist of the following:

- Desk Study Review of previous reports
- Physical Investigation
- Soils and groundwater testing: geotechnical and environmental
- CBR testing
- Factual report
- Interpretive report with design guidance to both the British Standards and Eurocodes.

The tender should identify:

- The cost of the desk study
- The extent and cost of the physical investigation, with reasons given for the selection of the proposed methods. Confirm which method is proposed to obtain CBR results. Costs are to include for any standing time
- The cost of additional protective measures for excavating in Unexploded Ordnance (UXO) high risk areas including the provision for additional supervision
- The extent of site supervision and should allow for logging of trial pits by a geotechnical engineer
- The cost of reinstatement after the investigation & proposals
- The extent of the site and laboratory testing proposed with costs for each test identified
- The timescale for carrying out the work and producing the report
- The cost for return monitoring visits
- Rates for extending boreholes or additional boreholes if required due to findings during the investigation.

The report should be prepared following the “AGS Guidelines for Good Practice in Site Investigation”; it should be issued in an electronic format.

The report is expected to be assigned to the client’s Design and Build contractor; include details of any costs associated with this as a separate item.

3 Co-ordination with Clients Activities

During the investigation work the site will continue to be used by the Client. The contractor is to ensure that the investigation work does not adversely affect the clients' use of the site and is to liaise with the client to ensure the work is co-ordinated with the clients' activities and any user of the site for fire escapes etc.

To arrange access to the site contact Mike Liverman, client, on email address m.liverman@lamingtongroup.com.

4 Requirements for Field Work

General

Fieldwork is to be undertaken under the supervision of an engineering geologist/geotechnical engineer with a minimum 5 years relevant practical experience who is to log or check all borehole and trial pit logs.

CVs for all supervisory staff to be submitted with tender.

A method statement is to be provided with tender.

The fieldwork is likely to include

Trial pits - to investigate shallow strata, sampling for contamination and inspection of shallow buried features such as foundations.

Window sampling – to investigate geology to around 5-7m.

Boreholes – to determine geology, groundwater and ground gas conditions to a greater depth. Borehole data will inform pile design parameters and should extend to at least 5m below the anticipated pile length. Please provide pricing breakdown for different depths. Positions to be agreed.

CBR testing – to determine soil properties for pavement design.

Infiltration testing – to determine viability of soakaways.

In-situ testing within trial pits and boreholes.

Ground gas and groundwater monitoring, within boreholes, including return visits wherever time permits.

Site Access

The Contractor shall be deemed to have visited site and satisfied themselves that access is adequate and that the works proposed are possible.

Sequence & Programme

The contractor is to submit a minimum of 2 week in advance a programme of works incorporating full details of & sequence of works including details of dealing with contamination.

A detailed method statement is to be provided 2 week in advance of commencement of works. Any changes to methodology proposed at tender to be highlighted.

All site and reporting works are to be completed by as soon as possible.

Disposal and Making Good

The Contractor shall dispose of all excavated material to comply with all relevant legislation and to the satisfaction of the Engineer. The site when vacated shall be in a similar condition to its condition prior to commencement of work.

Boreholes are to be backfilled with cement/bentonite grout, arisings are not to be used for backfilling boreholes. The contractor is to take measures to provide aquifer protection during boring.

All making good shall be agreed with the client and Engineer.

Protection

The Contractor shall be responsible for providing protection around boreholes and pits as necessary and for backfilling boreholes and pits on completion of the survey.

The Contractor shall meet any expense arising from damage to person or property caused by the Contractor's negligence in complying with this clause.

Existing Services

It is the responsibility of the Contractor to determine the location of all services. If live services prevent the excavation of the pit or bore where shown contact the Engineer to agree where the pit or bore can be relocated.

Any damage to services or drains shall be the responsibility of the Contractor and they shall ensure at the time of tendering that, should precautions be necessary for protection, they are included in the lump sum fee.

Trial Pits

Where required by Health and Safety Regulations and/or as requested by the Engineer the Contractor shall supply, fix and remove on completion, if required, sufficient support to the sides of the observation pits to protect anyone entering and working in the pit. The materials and installation shall be in accordance with the relevant regulations to the approval of the Engineer.

Where dug next to existing footings the pits are to be dug to a depth 150mm lower than the existing footings.

Where digging pits next to existing brick footings care is to be taken to ensure that the brick corbels are not damaged during excavation.

Upon satisfactory completion of each pit each pit is to be backfilled with arisings placed in even layers not greater than 200mm and well compacted. Contaminated material is not to be used as backfill. Re-instatement of the surface to match existing surfacing, unless agreed with the Engineer.

Where archaeological remains are found works are to halt and the Engineer notified. Works are not to re-commence until instructed.

Notification for Inspection by the Engineer

The contractor is to give the Engineer 24 hours' notice of when the fieldwork will be carried out to allow arrangements to be made for the Engineer to inspect all or part of the fieldwork.

Site Security, Safety and Nuisance

The Contractor will be responsible for ensuring that the site and the clients' adjoining property, affected by the fieldwork, are secure during the works. The work must not cause a safety hazard to users of the site, adjoining owners or the public. The contractor must ensure noise, dust etc. are controlled and do not cause a nuisance to neighbours or the public.

Excavation Near Trees

Not applicable.

Rotary Drilling

All drilling operatives shall hold a valid BDA Audit card of competence applicable to the drilling work undertaken. Names & qualifications to be submitted with tender.

Drilling shall produce continuous cylindrical cores of at least 100mm diameter throughout the length of each core run. Drilling equipment shall be selected so as to obtain the fullest possible recovery & highest possible quality of core.

Where less than 95% recovery the geotechnical engineer is to be consulted and measures put into place to optimise recovery.

Drill runs shall not exceed 1.5m, where recovery is less than 95% subsequent drill runs are to be reduced in length by half.

Types, sequence, depths & variations in consistency of each stratum shall be recorded as drilling proceeds.

Appropriate drilling fluids shall be used, and shall comprise of either foam, polymer mud, bentonite mud or air flush, without affecting local groundwater supplies and preventing migration of contaminated soil or water. Details to be provided within method statement.

Drilling equipment shall be capable of providing cores of Class 1 standard to BS EN 22475-1:2006. It should be capable of undertaking SPTs.

Sections of cores shall be stored in suitable core boxes for inspection. Labelled both ends internally and externally with; contract reference, borehole number & depth of core. Core spacers shall be used to fill section where undisturbed samples taken. The cores should be carefully split, logged and photographed by the geotechnical engineer whilst in fresh condition

Samples shall be protected from direct sunlight, heat or cold, and disturbance until fully logged. And sampling is complete.

Upon completion of works the cores are to be retained by the contractor of a minimum of 3 months. Thereafter obtaining instruction to dispose.

Photography

Core photography shall include reference number, colour and grey scales & length scales. The core box should reasonably fill the frame and show the core as clearly as possible.

Pit & trench photography shall include one set of photographs of the observation pits/trenches, including appropriate scale mark. Photographs are to clearly record the relevant features within the pit/trench, additional lighting should be supplied if required to obtain clear photographic records.

Sampling

The contractor is to provide detailed proposals for handling core sub-samples for laboratory testing.

CP Borehole sampling

All strata - small disturbed sampling at 0.5m intervals unless coincides with other sampling. Coarse grained soils - bulk sampling at 1.5m intervals & should be sized to allow for shear box testing & particle size testing.

Fine grained soils – UT100 at 1.5m intervals.

Rotary cored borehole sampling

100mm and 300mm sampling at 0.5m below the top of the soil layer and 1.5m intervals thereafter, unless alternatively agreed with the Engineer. Sample depths are to be varied if ground conditions require closer sampling to ensure all strata are sampled. Bulk samples should be sufficiently large to enable particle size distribution.

If aggressive ground conditions encountered the contractor is to propose a suitable sampling regime with the Engineer, samples should be taken in each strata and spacing not to exceed 10m.

Where a mix of boring techniques are used on the same borehole, the relevant sampling regime is to apply for each section of the borehole.

Open Tube Sampling

A method statement should be submitted 1 week in advance of work.

Prior to commencement of work. Steel or alloy sampling tubes to be used, min length 700mm, circular in section for full length. Tubes are to be clean, straight, rust free and free from dents & pitting. Tubes are to be lightly greased with petroleum jelly both internally and externally. The cutting edge shall be tapered and sharp with a concentrically machined face 15-20°. The internal diameter shall be between 100-105mm and shall be circular, maximum difference in diameter (measured at three points) 0.5mm.

Tubes should be pushed in to not less than total tube length less 100mm at a rate of approx. 10mm per second. Rods should be straight and centrally aligned, the base of the borehole should be clean and horizontal. The tube should remain in place for 5 minutes before withdrawn. Withdrawn to be steady. A sample of 175mm long shall be extruded this should be trimmed by 75mm, the remaining sample is to be trimmed then sealed. The remaining material is to be preserved in the tube for lab extrusion. Checks on tube damage and circularity (as earlier) should be carried out and the results recorded.

Chemical Sampling

The sampling regime is to be proposed as part of the detailed method statement to be submitted at least 1 week prior to works commencing. Where potential contamination found a minimum of 3 samples are to be taken at approximately 1m intervals from ground level.

One WAC test should be taken at each borehole.

Groundwater sampling to be undertaken on the last day of fieldwork. Samples are to be taken from each permeable horizon. Date & time of sampling to be recorded. Groundwater to be tested on site for pH, conductivity, temperature, dissolved oxygen, redox potential. The contractor is to state detection limits and accuracy within the detailed method statement. Test locations are to be purged of three well volumes (or less for low re-charge rates) of standing water before undertaking sampling, standing water levels are to be recorded before and after purging. pH, conductivity, temperature, dissolved oxygen, redox potential are to be recorded from each well volume, if parameters are not stable further purging may be required. Visual & olfactory observations should be recorded and insitu testing undertaken. Where VOCs are found above detection levels, separate samples are to be taken and monitoring using headspace analysis.

Probing

Cone Penetration testing: The contractor carrying out the fieldwork should be UKAS accredited for cone testing. A detailed method statement should be provided 1 week prior to commencement, procedures should be in accordance with the International Reference Test Procedure in Appendix A of "Cone Penetration Testing In Geotechnical Practice by T Lunne, PK Robertson & JJM Powell (pub: Blackie 1997).

Measurements should be presented at depth intervals of 50mm.

Insitu Testing

All insitu testing to be undertaken in accordance with EC7 & BSEN ISO 22476-2:2005.

SPT testing to be carried out at all changes of strata and at 1.5m interval;

In coarse grained soils a bulk disturbed sample taken from the zone of each SPT.

In fine grained soils samples are to be taken between locations of U100 samples.

Falling/rising head tests may be required in piezometers in accordance with BS5930:2015 & BSEN ISO 22282-2:2012.

Menard pressuremeter tests to be carried out in accordance with Pressuremeters in Geotechnical Design, BG Clarke, (pub: Blackie 1995).

Geophysical Testing

If the contractor considers geophysical testing is appropriate, details of the proposed methods of testing & anticipated results are to be provided with tender. If approach is agreed a detailed method statement is to be provided 1 week prior to commencement.

Groundwater

At groundwater strike boring is to be suspended and depth of strike measured from ground level at 5 minute intervals for 20 minutes. If groundwater is rising then monitoring should continue for a further 20 minutes. If groundwater continues to rise, notify the Engineer.

Ground Gas

The following parameters are to be recorded; methane, carbon dioxide, oxygen, flow rate barometric pressure. Differential pressure and temperature. Detection limits and accuracy to be stated in method statement. The initial peak concentration & final steady state concentration for each gas shall be recorded. Following gas monitoring the groundwater level should be recorded.

Standpipes

To have a minimum 50mm internal diameter or 24mm internal diameter for piezometer pipes.

The slotted section of a standpipe and the response zone of the piezometer shall be surrounded by a washed, graded fine gravel filter, sealed into the ground. Construction should enable gas monitoring and should have a screw on gas tight cap and should prevent ingress of surface water.

Where combined groundwater/gas monitoring standpipes are used. A period of 1 week after installation is to be allowed before gas monitoring, if siteworks are less than a week then gas monitoring should take place on the last day of works. Groundwater readings should follow immediately after gas monitoring.

Permeability Testing

Tests shall be undertaken under constant flow using inflatable packers at agreed borehole locations. Packers should allow for injection of fluid from ground level but seal the cavity from material above and below.

A flow control unit shall allow the fluid to be injected at a constant rate. It should be connected to a data logger displaying and recording; temperature, pressure and flow rate with time. The system shall be de-aired prior to commencement of a test.

A set of steady state values shall be taken for several constant flow rates at least two per test cavity.

Unexploded Ordnance

The site history suggests UXO may poses a risk to any excavations. The Contractor is to provide an itemised quote showing the cost of additional protective measures for excavating in high risk areas. Following the production of the desktop study a methodology will be agreed.

5 Report Specification

Desk Study Review

Please provide further commentary if you believe the desk study should address the following issues in any further detail:

- Geology
- Hydrology / hydrogeology including any requirements for a flood risk assessment
- Contamination, including a review of possible sources of contamination noting the historical uses of the site and existing structures
- Preliminary UXO Assessment to CIRIA C681 guidelines

Factual Report

The factual Report shall include:

- A statement on the purpose of the investigations
- A description of the investigative works carried out, including the standards and specifications followed
- Location plan showing the location of all exploratory works to an accuracy of 0.25m. Ground levels are to be recorded to an accuracy of 0.01m
- Accurate description of all soils, rocks and other material encountered on site, substantiated by appropriate test results
- Water levels met during boring and levels attained during ongoing monitoring. Minimum 3 return readings over 6 week period. Reporting to be provided in addendum report if required to avoid delay in issue of main report
- Results of gas monitoring. Minimum 3 return readings over 6 week period. Reporting to be provided in addendum report if required to avoid delay in issue of main report
- Results of contamination testing describing waste acceptance criteria (WAC)
- Sulphate content and pH values of soil and ground water
- A note on the presence of Japanese Knotweed
- Results of CBR testing
- Results of infiltration and percolation tests, where required
- Results of ground resistivity testing
- Results of UXO investigations
- SPT N values plotted at 1m depths
- Geotechnical lab testing appropriate to ground conditions. Test results to include:
 - Concrete classification to BRE SD1 suite
 - Shear strength
 - Consolidation
 - Plasticity index
 - Moisture content testing of any cohesive soils
- Testing regime to suit anticipated soil types. Testing procedure to be varied to suit encountered soil types if varied from anticipated. Testing is to be proposed by geotechnical company
- Trial pit logs recording the sizes and depths of existing foundations, including any underpinning
- The size and depth of any roots encountered
- Readings from in-situ methods such as shear vanes, pocket penetrometers etc.

- The occurrence, or possibility of occurrence, of radon
- Data on frost susceptibility of soils
- Chemical testing of shallow soils / made ground for assessing human health concerns and to provide suitable data for waste classification by a landfill operator - including hydrocarbons and asbestos screening
- As, B, Be, Cd, Cr (III & VI), Cu, Pb, Hg, Ni, Se, V, Zn, speciated PAH
- Leachate testing of spoil samples / ground water testing for assessing risks to controlled waters.
- Leachate preparation (NRA)
- Speciated TPH(CWG) and BTEX
- Photographs of all cores and trial pits are required to be provided within the report and as Jpeg files. Minimum resolution 12MP.

Interpretive Report

The Interpretive Report shall include:

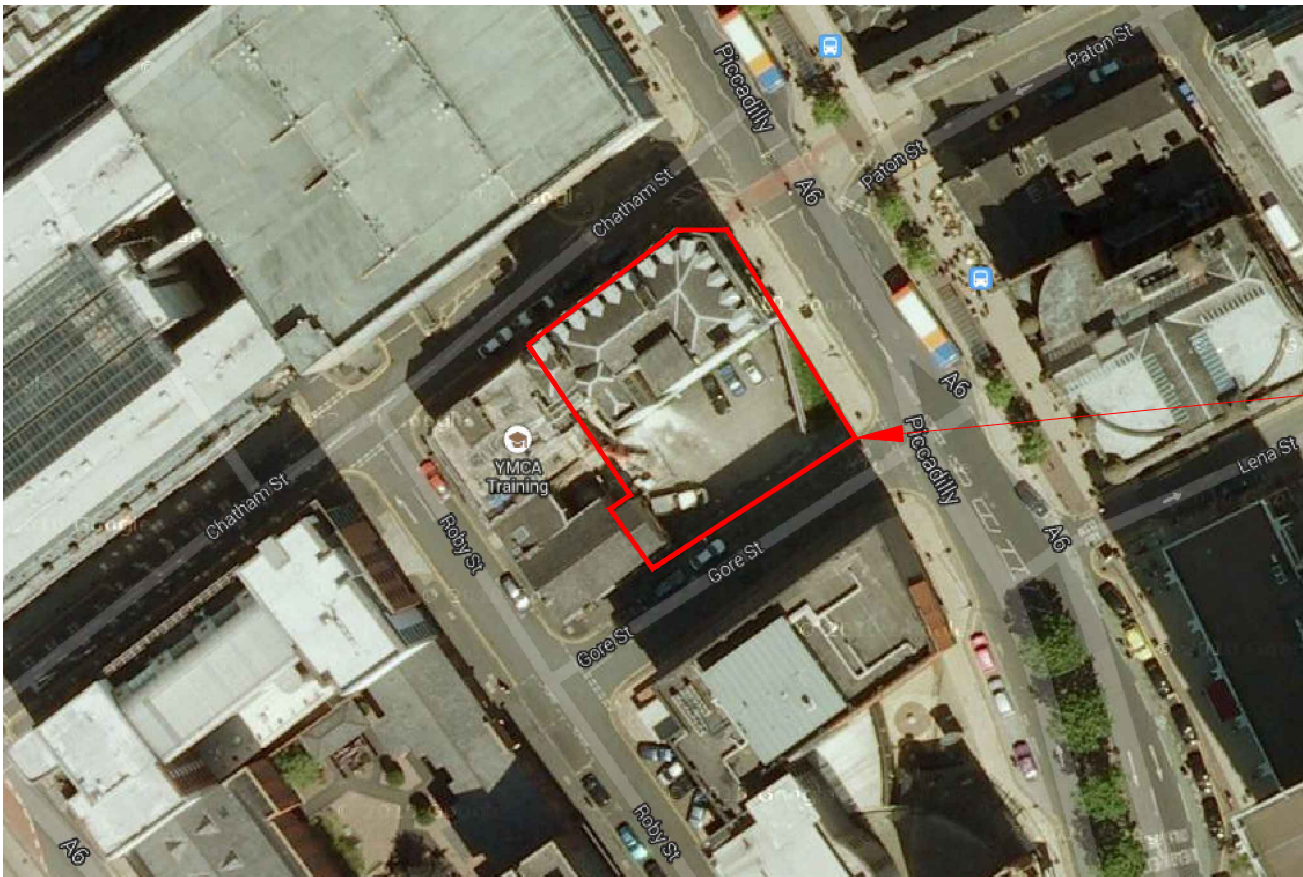
- Recommendations for design of foundations to British Standards and Eurocodes including loading capacities and expected settlement for appropriate foundation types. The anticipated design loads are to be advised at the appropriate time for inclusion in the interpretative report.
- Recommended minimum foundation depths allowing for desiccation and the effects of trees, with recommended capacities at these depths
- Recommendations relating to the use of ground bearing slabs on existing ground and on reworked material
- Recommendation on viability for piled raft design including expected settlements, raft deflections and appropriate detailed spring stiffness values for inclusion in structural model
- Recommendation for pile design capacity, where suitable, for multiple depths assuming 300mm, 450mm and 600mm diameter
- Recommendations of deep excavations and construction methods.
- Recommendations for ground slab construction for high loading and in-service tolerance
- Recommendations relating to the use of site material for engineering fill.
- Expected heave in excavations.
- Assessment of the classification of the design sulphate (DS) and ACEC class for concrete in the ground
- Assessment of levels of contamination and recommendations for any necessary remediation measures required with reference to the end uses of the buildings
- Recommendations on the stability of excavations, and safe angles to adopt on battered slopes to highways and other surrounding buildings.
- Assessment of likely variations in ground water level and if dewatering may be considered or if any other allowance should be made for groundwater during excavation
- Expected heave in excavations
- Recommendations on design earth pressures for use in retaining wall design
- Assessment of CBR values for pavement design
- Recommendations for the design of soakaways and advice on design values of soil permeability.
- Recommendations on differential settlement between the new build and existing, and advise on monitoring targets for movement during excavation and works.
- Provisional column loadings 5500-6500kN.

Logging

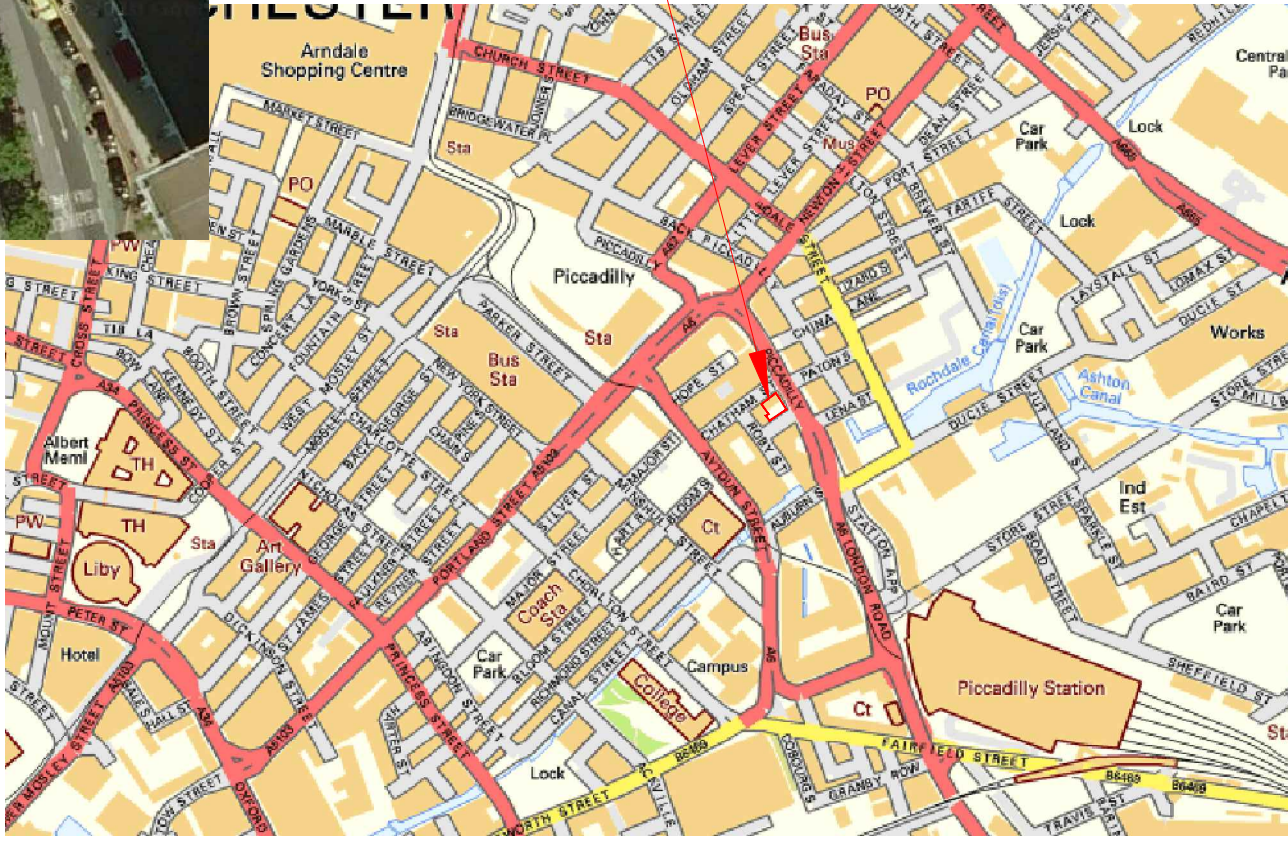
- The contractor shall provide preliminary logs to the Engineer within 3 working days of completion of each borehole.
- Boreholes are to be logged such that descriptions are in accordance with the requirements of Eurocode 7.
- Logs are to include;
- Soil descriptions should provide main characteristics of the soil prior to secondary and tertiary.
- Presence of sand, silt layers, partings, lenses giving depth, thickness and continuity
- Joints & fissures, giving spacing, orientation, surface texture
- Orientations greater than 10deg of horizontal shall be measured.
- Presence of sulphide and sulphate minerals, giving depth and form
- Where chalk is encountered description & classification of chalk shall be given following “Engineering in Chalk” Ciria C574 (2002)

Appendix A

Previous Site Investigation Exploratory Locations



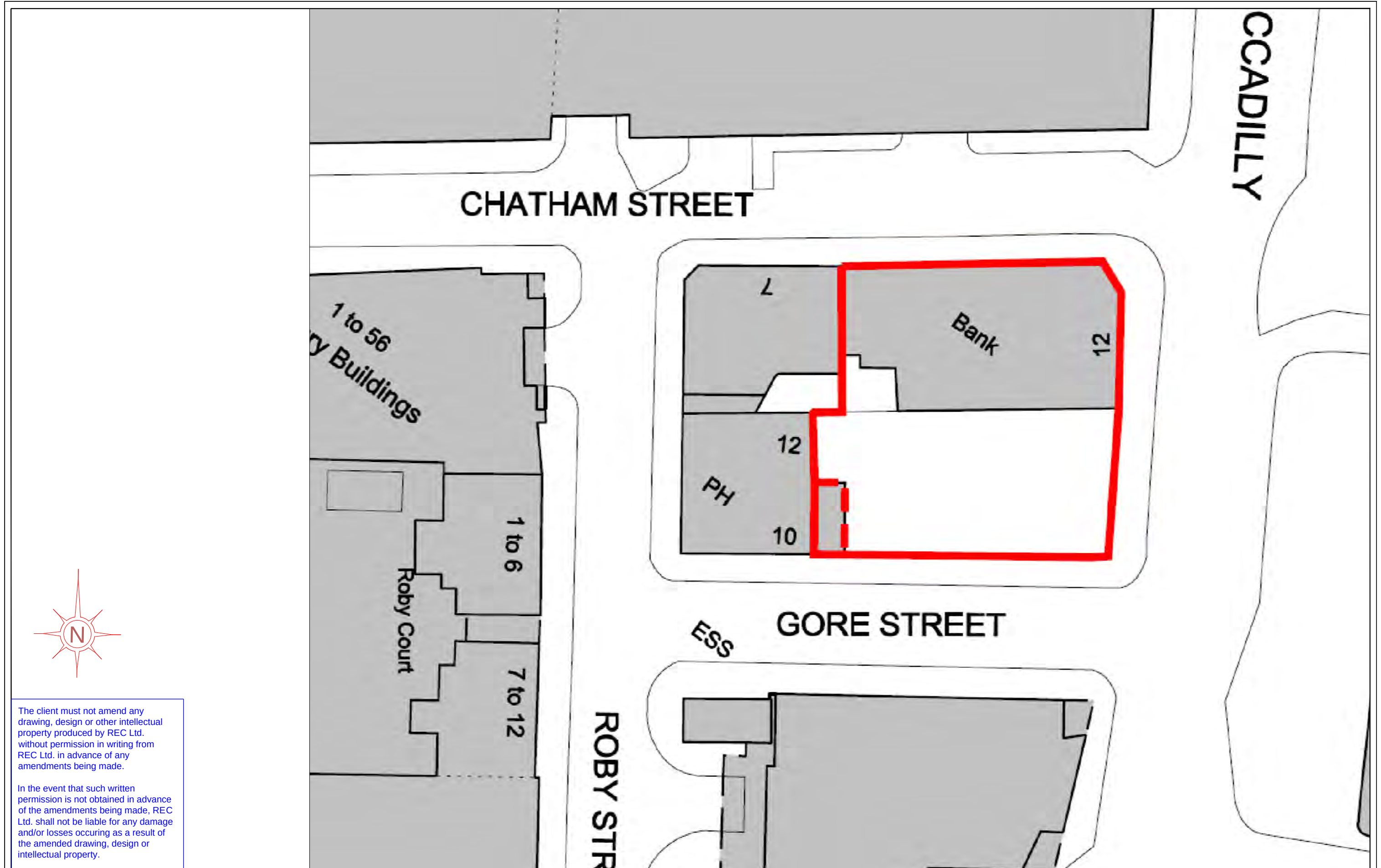
Site Location



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 Resource & Environmental Consultants Ltd	Resource and Environmental Consultants Ltd Osprey House, Pacific Quay Manchester, M50 2UE Tel: 0161 868 1300 Fax: 0161 868 1301 E-mail: sales@rec ltd.co.uk Website: www.rec ltd.co.uk	Job Title: Yotel, Piccadilly, Manchester	Client: Russells Construction	Job No: 44934	Notes:	Drawing Title: 44934p1r0-001 Site Location Plan
				Drawn by: R. Willoughby		
				Approved by: M. Dyer		
				Scale: Not To Scale		

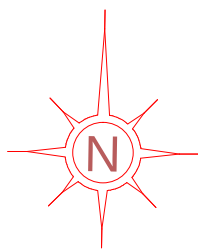


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Key

- Added approximately 1922
- Demolished approximately 1922
- Added approximately 1931
- Demolished approximately 1931
- Added approximately 1948
- Demolished approximately 1948
- Demolished circa 1986



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