

BURY INTERCHANGE, BURY

SITE INVESTIGATION SCOPE OF WORKS

Rev: P01

Date: 25.11.24

16012-REN-BRY-XXX-T-SE-000100



INTRODUCTION

The current project proposals involve the construction of a new Transport Interchange in Bury Town Centre, incorporating the upgrade of the current Metrolink platform, access link bridge and re-development of the former bus station. Given the nature of the proposals the project is completed in two distinct phases, with Phase 1 comprising the Metrolink improvement works and link bridge with the re-modelling of the bus station forming Phase 2.

At the present time there is no Phase I Desk Study and as part of the process we suggest that this is completed to inform the site context and conceptual model for the site, receptors and end users.

The project is at an early stage of the design and it is anticipated that any site investigation works will be phased, with the intent that the initial exploratory investigations are developed to capture the following:-

- Geotechnical progression to inform foundation designs
- Contamination assessment to inform cost planning and support any planning submission

Further site investigations works are proposed in order to supplement any initial investigations to facilitate the detailed design of substructures, plus the full discharge of planning conditions relating to the ground works.

As noted previously WDC should consider a contingent allowance for further investigations that may be required to inform the final agreed form of the Interchange / Bridgescape.

It should be recognised that the 'investigation design and testing regime' is the responsibility of the specialist. The specialist should identify in their Tender return any additional testing that is considered over and above the baseline strategy presented in Appendix A that may be required to realise the scope of work noted above.

SCOPE OF WORKS

Based upon a review of the proposed development an indication of the likely site investigation works is presented on drawing BURY-REN-XX-XX-SK-S-01000 and 01001 together with the scoping defined by Wilmott Dixon – Rev 5.0 March 2022 captured in Appendix A and B respectively. **This should be reviewed by the Site Investigation Specialists and based upon their experience they should design their own site investigation scope and provide a commentary on the principles behind the design within the tender return.**

The **Site Investigation Scope**, should include the following as a minimum:

- Proposed investigation work plan
- Boreholes to confirm ground progression to depth and to sufficient depth within bedrock to allow detailed foundation design. Given the scale of the development a piled foundation solution is the likely solution for proposed Interchange and Footbridge Abutments.
- Trial-pits to confirm shallow (2-3m) ground progressions and presence of historic footings etc.
- Proposed testing requirements to confirm geotechnical properties for foundation advice which is to include enough information for substructures and retaining wall designs.
- Proposed testing requirements to confirm plasticity index of soil layers containing clay.

- Assess the risk of ground gases in accordance with CIRIA C665 '*Assessing risks posed by hazardous ground gasses to buildings*' and monitoring if required (Phase 2 Interchange Site).
- Install a standpipe in each borehole to establish and monitor ground water during the period of the investigations, and to allow for return visits taking three further readings.
- Proposed chemical testing to suit site conceptual model and respond to proposed site uses.
- Localised trenching to confirm presence, extent and location of head wall liner foundations, existing retaining wall foundations together with other legacy features.

The following information is required as a **minimum** outcome of the site investigations works to allow the engineer to design the final building and contractor to understand any remediation requirements. The Site Investigation Specialist should include the following within their ***Factual and Interpretative Report*** as a minimum:

i) Daily drillers records containing the following data:-

Site name, borehole number, drilling depth - start/finish, date sampling depths and type, details of casing depth - required for each undisturbed sample and insitu test. Details of all obstructions - size and time spent chiselling, brief description of strata encountered. Details of size of hole with depth details of instrument installation. Borehole/trial pit layout. Locations of any site tests related to datum and any other pertinent information.

ii) Interpretative information: -

This section of the report must include: -

- Final investigation works plan, trial pit and borehole logs, final testing schedule, with associated results and analysis
- Foundation type and allowable bearing pressures for traditional foundations and landscape retaining walls. For the pile options safe working loads will be in the 1,000-3,000kN range associated with the Interchange and Southern Link Bridge,.
- Advise on sulphate grade to BRE Special Digest 1 'Concrete in aggressive ground'
- Ground floor construction (ground bearing or suspended)
- Plasticity Index of soil strata layers containing clay to allow foundation depths to be determined.
- CBR tests and advice on hard-standing / highways design.
- Ground gas monitoring results and protection measures.
- Environmental Assessment: Interpretation to confirm classification of material and contamination levels for landscaped areas, material reuse, and disposal off site. A full environmental assessment of the site is required. The investigations shall establish the extent, type and levels of all contamination and gases across the site. Recommendations should be given with respect to measures to be taken during the construction stage and in using the finished development, this should include all remedial and protection measures necessary.

The investigations shall be carried out to produce a meaningful and defensible risk assessment. It shall be carried out following the methodology described in current Contaminated Land Reports (CLR) and highlighting potential liabilities with respect to human (end users and construction operatives), water resource and building receptors. The required package of tests shall be determined by the Site Investigation Specialist and be sufficient to satisfy the aims of the investigation. The type and quantity of testing together with costs shall be reviewed by and agreed with renaissance prior to proceeding with testing.

Assessment of investigatory data shall be carried out utilising currently published soil guideline values (SGVs), defensible site-specific assessment criteria (SSACs). Where SGVs are not

available or not appropriate, current Environment Agency publications on water receptors and building materials / services shall be adopted.

Landfill Waste Acceptance Criteria: The investigation shall include the sampling and testing necessary for the classification for the disposal of waste soils generated by the site for off-site disposal, following the methodology described in the Environment Agency publications "Framework for the classification of contaminated soils in hazardous wastes" (version 1), "Guidelines on sampling and testing of wastes to meet landfill waste acceptance procedures", and Technical Guidance WM3 "Guidance on the classification and assessment of waste" (1st Edition 2015) or other current publications.

- Material classification and its suitability for reuse on site: A separate "basic categorization report" is required on this issue. There may be an opportunity to dispose of waste soils on site, the Site Investigation Specialist will be required to advise on any necessary remedial treatment required prior to the placing of the soil.
- Updated conceptual site model, geo-environmental risk assessment, and remediation scheme design to be implemented by the building contractor during construction

The Site Investigation Specialist is also required to liaise with Bury Council Local Planning Authority to assist in discharging the associated pre-commencement planning conditions. It is anticipated that this will comprise the Site Investigation Report and Remediation Strategy that will then be implemented and validated by the building contractor during construction, plus piling risk assessment.

Laboratory testing shall be carried out by appropriate laboratories, which shall operate an appropriate quality assurance scheme and be accredited for the scheduled testing to be conducted. Appropriately qualified staff shall be used for each aspect of the investigation.

The investigation shall be carried out where appropriate in accordance with BS5930:1999+A2:2010 "Code of practice for site investigations", BS EN 1997-2:2007 "Eurocode 7 - Geotechnical design - Ground investigation and testing", NA to BS EN 1997-2:2007 "UK National Annex to Eurocode 7 - Geotechnical design - Ground investigation and testing", BS EN 1997-1:2004 "Eurocode 7 - Geotechnical design - General rules" and NA to BS EN 1997-1:2004 "UK National Annex to Eurocode 7 - Geotechnical design - General rules".

The investigations shall also be carried out following the principles of BS10175:2011+A1:2013 "Investigation of potentially contaminated sites – Code of practice" and other current, relevant and nationally accepted codes / guidelines.

The Site Investigation Specialist, should include for the following:

- Outline programme
- Bill of Works and associated cost allowances including:
 - Review of Phase I report (including site visit and third-party information)
 - A cost allowance for amending/reproducing existing Phase I report, if it is felt necessary to do so.
 - Scoping and managing site investigation works
 - Geotechnical Testing allowance schedule, together with test rates
 - Geo-environmental Testing allowance schedule, together with rates
 - Production of Factual and Interpretative report
 - Liaison with Salford City Council's Contaminated Land Officer to obtain approval of the site investigation report and remediation strategy, for the implementation and validation by the Contractor.
- Expenses
- Provision of a Bond and/or Warranty in favour of the client
- The site investigation is by the appointment of the client, with whom the contract will be placed to

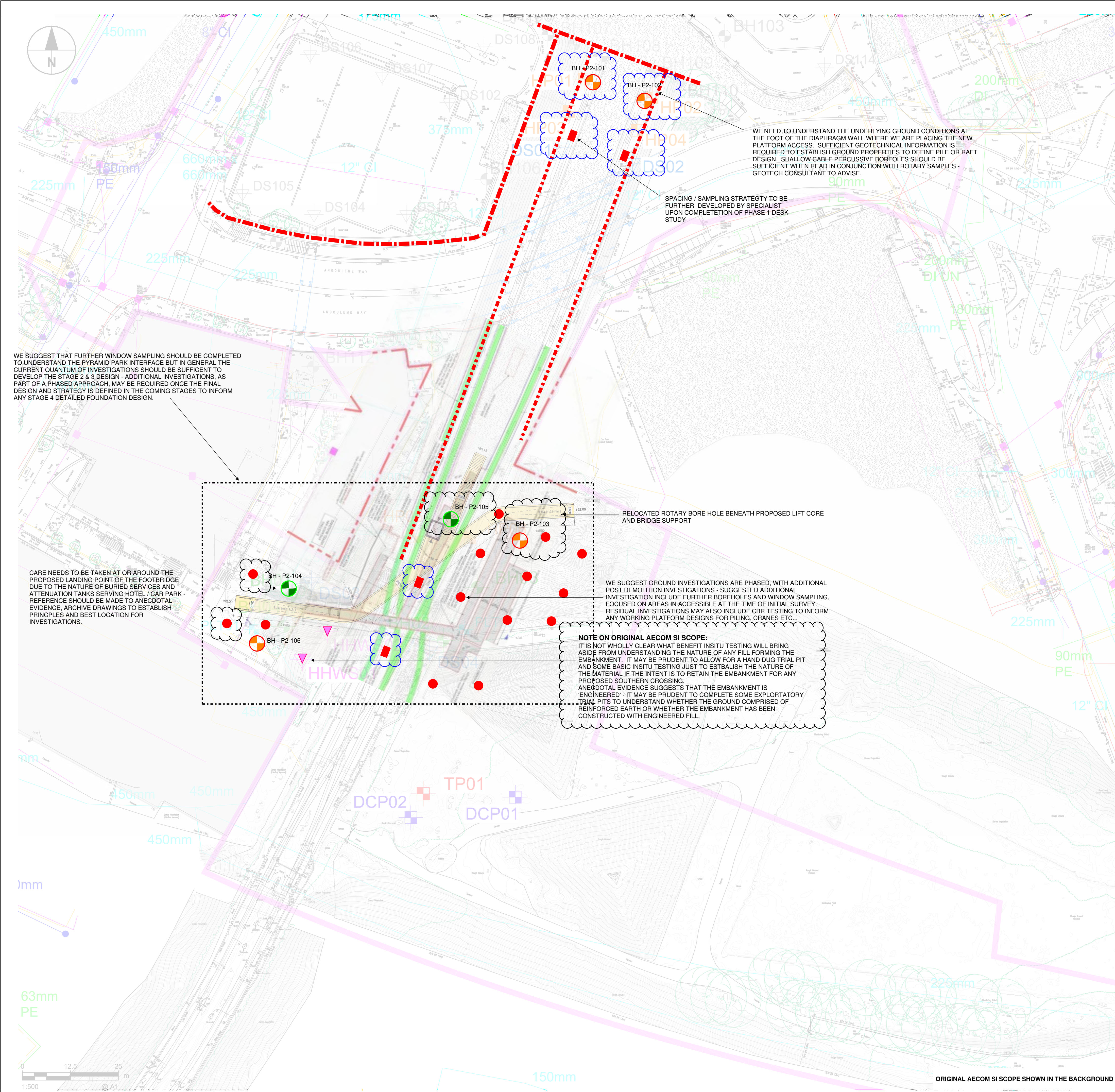
undertake all geotechnical and environmental investigations.

- **Confidentiality:** The contents of this document and the results of the investigations are to remain confidential and not to be released to any other party without the written permission of the client.
- **Insurances:** The contractor shall carry all necessary insurances related to the work undertaken, these shall include as a minimum the following level (each and every claim): -

Professional Indemnity	£2m
Public liability	£5m
Employers Liability	£5m

Details of insurances should be provided if requested by the client.

Appendix A – Site Investigation Plans



WE SUGGEST THAT FURTHER WINDOW SAMPLING SHOULD BE COMPLETED TO UNDERSTAND THE PYRAMID PARK INTERFACE BUT IN GENERAL THE CURRENT QUANTUM OF INVESTIGATIONS SHOULD BE SUFFICIENT TO DEVELOP THE STAGE 2 & 3 DESIGN - ADDITIONAL INVESTIGATIONS, AS PART OF A PHASED APPROACH, MAY BE REQUIRED ONCE THE FINAL DESIGN AND STRATEGY IS DEFINED IN THE COMING STAGES TO INFORM ANY STAGE 4 DETAILED FOUNDATION DESIGN.

CARE NEEDS TO BE TAKEN AT OR AROUND THE PROPOSED LANDING POINT OF THE FOOTBRIDGE DUE TO THE NATURE OF BURIED SERVICES AND ATTENUATION TANKS SERVING HOTEL / CAR PARK - REFERENCE SHOULD BE MADE TO ANECDOTAL EVIDENCE, ARCHIVE DRAWINGS TO ESTABLISH PRINCIPLES AND BEST LOCATION FOR INVESTIGATIONS.

WE NEED TO UNDERSTAND THE UNDERLYING GROUND CONDITIONS AT THE FOOT OF THE DIAPHRAGM WALL WHERE WE ARE PLACING THE NEW PLATFORM ACCESS. SUFFICIENT GEOTECHNICAL INFORMATION IS REQUIRED TO ESTABLISH GROUND PROPERTIES TO DEFINE PILE OR RAFT DESIGN. SHALLOW CABLE PERCUSSIVE BOREHOLES SHOULD BE SUFFICIENT WHEN READ IN CONJUNCTION WITH ROTARY SAMPLES - GEOTECH CONSULTANT TO ADVISE.

SPACING / SAMPLING STRATEGY TO BE FURTHER DEVELOPED BY SPECIALIST UPON COMPLETION OF PHASE 1 DESK STUDY

RELOCATED ROTARY BORE HOLE BENEATH PROPOSED LIFT CORE AND BRIDGE SUPPORT

WE SUGGEST GROUND INVESTIGATIONS ARE PHASED, WITH ADDITIONAL POST DEMOLITION INVESTIGATIONS - SUGGESTED ADDITIONAL INVESTIGATION INCLUDE FURTHER BOREHOLES AND WINDOW SAMPLING, FOCUSED ON AREAS IN ACCESSIBLE AT THE TIME OF INITIAL SURVEY. RESIDUAL INVESTIGATIONS MAY ALSO INCLUDE CBR TESTING TO INFORM ANY WORKING PLATFORM DESIGNS FOR PILING, CRANES ETC..

NOTE ON ORIGINAL AECOM SI SCOPE:
IT IS NOT WHOLLY CLEAR WHAT BENEFIT INSITU TESTING WILL BRING ASIDE FROM UNDERSTANDING THE NATURE OF ANY FILL FORMING THE EMBANKMENT. IT MAY BE PRUDENT TO ALLOW FOR A HAND DUG TRIAL PIT AND SOME BASIC INSITU TESTING JUST TO ESTABLISH THE NATURE OF THE MATERIAL IF THE INTENT IS TO RETAIN THE EMBANKMENT FOR ANY PROPOSED SOUTHERN CROSSING. ANECDOTAL EVIDENCE SUGGESTS THAT THE EMBANKMENT IS 'ENGINEERED' - IT MAY BE PRUDENT TO COMPLETE SOME EXPLORATORY TRIAL PITS TO UNDERSTAND WHETHER THE GROUND COMPRISED OF REINFORCED EARTH OR WHETHER THE EMBANKMENT HAS BEEN CONSTRUCTED WITH ENGINEERED FILL.

GENERAL NOTES

GEOTECHNICAL SPECIALIST TO DEFINE THE DETAILED SAMPLING REGIME FOR THE WORKS.

FROM A HIGH LEVEL PERSPECTIVE, GIVEN THE OPERATIONAL NATURE OF THE SITE, ANY INVESTIGATIONS ARE LIKELY TO BE PHASED TO ESTABLISH THE EXACT NATURE OF THE GEO TECHNICAL AND GEO ENVIRONMENTAL CONDITIONS ACROSS THE SITE.

A MULTI PHASESD APPROACH SHOULD BE CONSIDERED TO BOTH THE GEOTECHNICAL AND GEO ENVIRONMENTAL GROUND CONDITIONS.

FURTHER INVESTIGATIONS MAY BE REQUIRED TO UNDERSTAND ANY RECORDED HOT SPOTS AND TO SAMPLE AREAS CURRENTLY OCCUPIED BY STRUCTURES.

GEO ENVIRONMENTAL

THE GEO ENVIRONMENTAL INVESTIGATION AND TESTING REGIME SHOULD BE DEVELOPED TO REFLECT THE NATURE OF THE PROPOSED CONSTRUCTION, TOGETHER WITH A CONCEPTUAL GROUND MODEL RISK DEFINING PONTENTIAL SOURCES OF CONTAMINATION AND RECEPTORS IE PUBLIC, CONSTRUCTION OPERATIVES AND WIDER SENSITIVITIES AROUND THE SITE. THIS INVESTIGATION SHOULD TARGET ANY ANALOGOUS HISTORIC CONSTRUCTION RECORDED AS PART OF A DETAILED PHASE 1 DESK STUDY THAT MAY FORM A RESIDUAL RISK OF CONTAMINATION.

IT WOULD BE PRUDENT TO COMPLETE SUFFICIENT GEO-ENVIRONMENTAL INVESTIGATIONS TO UNDERSTAND THE NATURE OF CONTAMINATION ON SITE TO INFORM EARTHWORKS, REMEDIATION STRATEGY AND MATERIALS MANAGEMENT IE CHEMICAL CLASSIFICATION OF THE UNDERLYING STRATA - HAZARDOUS / NON HAZARDOUS / INERT.

GEOTECHNICAL

THE CABLE PERCUSSIVE BOREHOLES ARE REQUIRED TO ESTABLISH THE GEOTECHNICAL PROGRESSION BENEATH THE SITE. THE INTENT OF ANY INVESTIGATION WOULD BE TO CAPTURE THE PROPERTIES OF THE GROUND THROUGH SAMPLING AND LABORATORY TESTING TO INFORM THE FOUNDATION DESIGN FOR THE PRIMARY STRUCTURE BASED ON A PILED, GROUND IMPROVED OR RAFT FOUNDATION SOLUTION.

ANY BOREHOLEINVESTIGATIONS SHOULD EXTEND TO APPROXIMATELY 5M BEYOND THE DEPTH OF A PILED FOUNDATION DESIGN. FROM REFERENCE TO EXISTING PUBLISHED BORE HOLE DATA SHALES / MUDSTONES ARE RECORDED AT AROUND 15-20m DEPTH. ANY ROTARY BORHOLES MAY BE APPROXIMATELY 20-25m IN DEPTH.

A NUMBER OF MONITORING POINTS WITHIN THE BOREHOLES WILL BE REQUIRED ACROSS THE SITE TO ESTABLISH GROUND WATER LEVELS AND ALSO TO MONITOR GROUND GAS TO INFORM ANY FOUNDATION CONSTRUCTION TECHNIQUES, PROTECTION MEASURES ETC....

ISOLATED CBR TESTS MAY BE OF VALUE TO INFORM TEMPORARY WORKS BUT IT WOULD BE MORE PRUDENT TO COMPLETE THESE AS PART OF ANY SPECIFIC WORKS AHEAD OF ANY TEMPORARY WORKING PLATFORM DESIGN IE AFTER DEMOLITION AND CLEARANCE OF THE SITE.

NOTES:

- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS AND SPECIFICATIONS.
- DO NOT SCALE FROM THIS DRAWING. ANY AMBIGUITIES OR ERRORS ON DRAWING SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY. ALL DIMENSIONS TO BE CHECKED / VERIFIED ON SITE.
- ALL LEVELS ARE IN METRES, ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
- FOR GENERAL NOTES REFER TO DRAWING XXX-REN-XXX-XX-DR-S-0010.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DESIGN PHILOSOPHY, RENAISSANCE DOCUMENT REFERENCE XXX-REN-XXX-XX-RP-S-0001.
- GEOTECHNICAL SPECIALIST TO ENSURE PROPOSED INVESTIGATIONS ALIGN WITH MINIMUM REQUIREMENTS FOR SAMPLING AND SPACING TO EC7 PART 2 APPROPRIATE TO THE NATURE OF THE DEVELOPMENTS CONSIDERED.
- SAMPLING LOCATIONS TO BE VERIFIED ON SITE BY GEO TECHNICAL SPECIALIST TAKING INTO CONSIDERATION BURIED AND OVERHEAD SERVICES - APPROPRIATE H AND S / RAMS TO BE COORDINATED WITH VARIOUS STATUTORY UNDERTAKERS, LANDOWNERS AND MAIN CONTRACTOR, INCLUDING METRO LINK APPROVALS AHEAD OF WORKS. WORKS TO BE COORDINATED BY MAIN CONTRACTOR.

FOR THE PURPOSES OF THE GEOTECHNICAL INVESTIGATIONS IT IS ASSUMED GEOTECHNICAL SPECIALIST WILL ACT AS PRINCIPAL CONTRACTOR UNDER CDM REGULATIONS.

KEY

- WINDOW SAMPLE
- CABLE PERCUSSIVE BORE HOLE
- CABLE PERCUSSIVE BORE HOLE WITH ROTARY FOLLOW ON TO DEFINE ROCK QUALITY
- TRIAL PITS TO ESTABLISH NATURE OF FOUNDATIONS OF RETAINED STRUCTURES.
- INDICATES INITIAL INVESTIGATIONS THAT WERE COMPLETE BY TIER 03.11.24

P04	ISSUED FOR INFORMATION	25.11.24	BH	SHi
P03	UPDATED TO REFLECT MTG COMMENTS 14.10.25	31.10.24	AI	DW
P02	ISSUED FOR INFORMATION	11.10.24	AI	DW
P01	ISSUED FOR INFORMATION	10.09.24	AI	DW
Rev:	Description:	Date:	By:	Chkd:

Renaissance Associates Ltd
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

Project:

BURY INTERCHANGE

Drawing Title:

**SITE INVESTIGATION
PHASE 1 SITE**

Status:

PRELIMINARY

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	JAN'22	BH	AI	SHi

Scale:	NTS	Project No:	2401-09				
Project:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:

BURY - REN- XX -XX-SK-S-01001

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