GroundSolve Ltd
Consulting Geotechnical Engineers

THE SHAMROCK PUB, BENGAL STREET -VERIFICATION REPORT

GSL3318R02

VERSION 1

24/04/2026

Final

Prepared for: John Dixon & Associates Ltd

Prepared by: A Ridge

jda

GroundSolve Ltd
Consulting Geotechnical Engineers

DOCUMENT CONTROL

Report No. :	GSL3318R02
Report Status:	Final
Version No.:	1
Project Engineer:	A Ridge
Date of Issue:	24/04/2026

This report has been prepared by GroundSolve Ltd with all reasonable care and diligence, within the best practice and guidance current at the time of issue within the proposed redline boundary and proposed Site end use as presented by the Client.

This report is confidential to the Client and GroundSolve Ltd accepts no responsibility whatsoever to third parties to whom this report is presented.

Version No.	Description of Issue / Revision	Date of Issue	Author	Reviewed Approved By
1	Final	24/04/2026	Alex Ridge	James Thorburn
			BSc (Hons) FGS	BSc FGS)

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1 INTRODUCTION

GroundSolve Ltd was commissioned by John Dixon & Associates Ltd to undertake a verification report for a new commercial development at the Shamrock Pub on Bengal Street, Manchester (the "Site").

This report has been devised to generally comply with the relevant principles and requirements of a range of guidance including:

- Part IIA of the Environment Protection Act, 1990
- BS5930:2015: "Code of practice for site investigations"
- BS10175: 2011 +A2:2017 "Investigation of Potentially Contaminated Sites - Code of Practice"
- The Building Regulations 2010. Part C (HM Government 2013)
- Environment Agency: Land Contamination Risk Management (LCRM), Version 3, October 2020
- LCC (2010). Requirements for Contaminated Land Validation.

1.1 Proposed Development

The proposed development of the site is understood to comprise:

- The demolition of the single storey existing buildings within the central part of the site;
- The construction of two storey extension to the main public house building to extend seating capacity and provide an extension of lounge area to the existing pub structure. The new beer garden area, will be hard landscaped therefore no new planting areas.

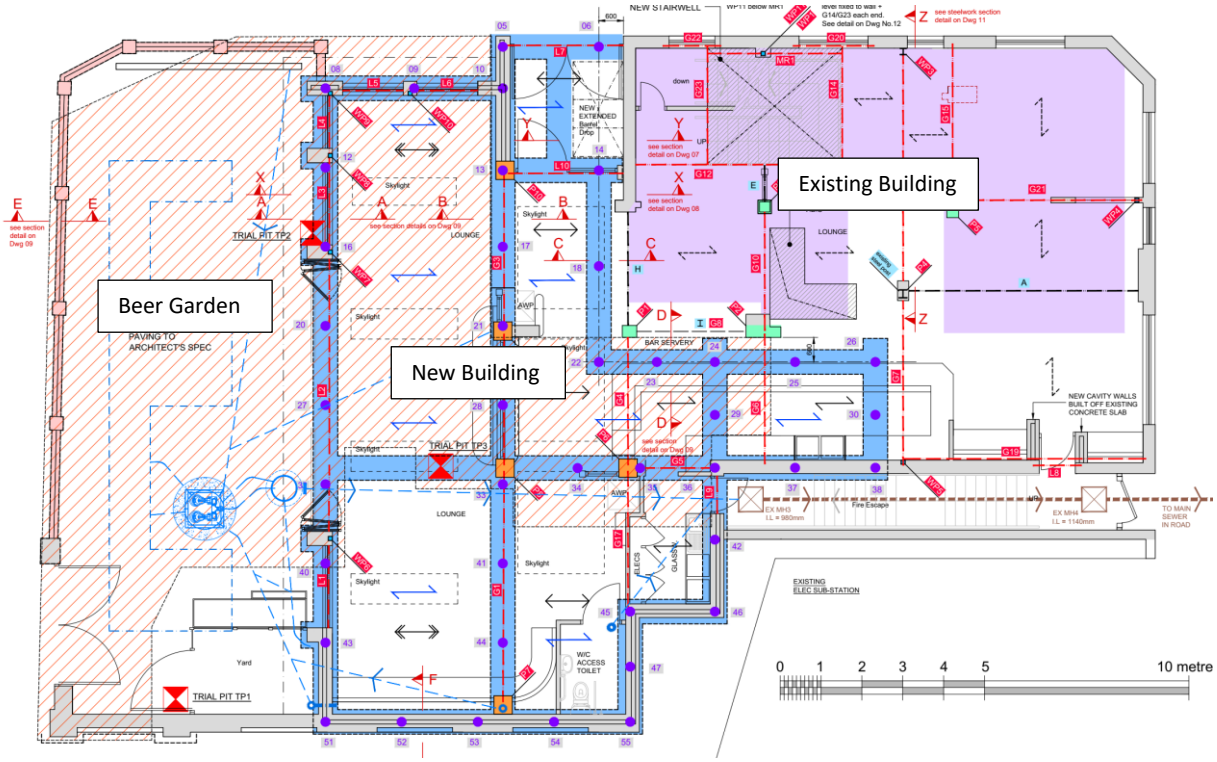


Figure 1 – Extract from Proposed Development Plan

1.2 Objectives

The report provides verification of site material and compares site conditions from the previous landuse and confirm the existing / new material are not a risk to the end users of the site.

1.3 Previous Investigations

A number of previous investigations have been undertaken by GroundSolve Ltd in relation to the proposed and current development. A list of these reports is presented below:

- Phase 1 Preliminary Risk Assessment undertaken by Groundsolve Ltd (Ref. 3046/R01, dated January 2024).
- Phase 2 Ground Investigation undertaken by Groundsolve Ltd (Ref: GSL3127, dated August 2024).
- Remediation Strategy Groundsolve Ltd (Ref: GSL3318, dated June 2025)

The previous site investigation reports are discussed and summarised in **Section 2** of this report.

1.4 Limitations

This report has been prepared for the sole use of John Dixon & Associates Ltd. No other third party may rely upon or reproduce the contents of this report without the written approval of GroundSolve Ltd. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk.

2 PREVIOUS INVESTIGATIONS

2.1 Site History Review

A number of previous investigations have been carried out on the site. A summary of the findings from the previous investigations are given below:

Table 2.1 Current Site Overview.

Summary of main findings from the previous reports	
Scope of Phase 2 Site Investigation	The scope of ground investigation works carried out at the site by GroundSolve comprised: • 3No. Machine excavated trial pits to a maximum depth of 2.25 mbgl; • Laboratory testing for chemical contamination and geotechnical.
Findings of the Phase 2 Ground Investigation	The ground conditions at the site (from ground level, down) comprise: Made Ground Bituminous slab, over gravels and red brick concrete cobbles (demolition rubble); over Glacial Till[1] From 1.00m described as stiff grey sandy clay proven to a depth of 2.25 [1] *The Glacial Till was only encountered in TP01, however is likely to be present under existing concrete slabs at the bases of the historical basement structures.* No groundwater was encountered.
Phase 2 Conclusions – Geoenvironmental	**Human Health:** Slightly elevated levels of PAHs are present. However, subject to EHO approval is not considered a significant risk. An exceedance of Dibenzo(a,h)anthracene was identified within the made ground around TP01. This impacted material will be under hard standing post construction, eliminating plausible SPR linkages. Shallow Made Ground has recorded elevated TPHs, which is likely to be connected with the asphalt surfacing. Potentially the asphalt is tar based and would be potentially be hazardous and should be disposed accordingly and separate to the remaining material. **Plant growth:** No unacceptable risks (based on current proposed development plans **Controlled Waters:** No unacceptable risks. **Ground Gases (Human Health / Property):** No radon protective measures are indicated by the current guidance.
Reuse of Site-won Materials	Made ground (where present) on site is chemically not suitable for use in any soft standing areas, and will only be suitable for reuse under hard standing. Following treatment the majority of the made ground should be suitable for reuse as engineered fill (subject to additional testing and specification) (subject to the necessary approvals/consents)
Foundations	The initial foundation recommendations were to grub out the existing basement foundations and replace with a suitably engineered fill. The foundations could then take the form of a conventional reinforced concrete raft. It is understood that the chosen foundation design (by others) comprised steel driven piles through the basement slab and into the underlying glacial Till. The works required removing approximately 0.9m of material for the installation of the piling matt.
Remediation Strategy	It was concluded that the risk from existing Made ground present on site was considered low as the area with impacted material is within the footprint of the proposed extension, and therefore will be removed for installation of the piling matt material and later will be under the building, as such it will likely not require any additional remediation due to the following factors: • The elevated concentrations are located within the area of the proposed extension therefore not in an area of soft landscaping.

	• The shallower materials are likely to be removed from site during site clearance and preparation for the proposed development. • Material which recorded high concentrations of TPHs are those of which contained bituminous fragments. • No soft landscaped areas are proposed on the site, therefore no direct pathway between any remaining material and end users of the site.

3 VERIFICATION OF GROUNDWORKS

3.1 Introduction

The previous investigations have concluded that remediation measures are not specifically required to address risks to human health from existing material on site.

The proposed development has involved the initial site strip and installation of the piling matt. The new building occupies the majority of the site with a small around along the south boundary which will be a bear garden. The beer garden will have no soft landscaping and will be covered by permanent paving.



Figure 2 – Photo after the installation of piles and ground beam



Figure 3 – Photo after the installation of piles and ground beam



Figure 4 – Beam and block floor and external blockwork



Figure 5 – Beer Garden area prior to permanent paving. No soft landscaped areas within this area.

3.2 Unexpected Contamination

No unexpected Made Ground was encountered during the groundworks.

4 CONCLUSIONS

The proposed development has comprised the construction of a two storey extension to an existing public house with a small beer garden along the southern boundary.

The previous surface materials have been stripped and removed from site. The beer garden has been hard landscaped with no soft landscaped areas.

The new development is considered acceptable due to the following:

- The previous ground investigation indicated that the risk from the existing shallow Made Ground on site was low
- The groundworks carried out on site has not encountered any unexpected Made Ground
- The beer garden will be hard landscaped therefore no pathway between the remaining soils on site and end-users

5 REFERENCES

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http://www.warstateandsociety.com/Bombing-Britain

https://www.epa.gov/pfas/basic-information-pfas

UK Maps of Radon, http://www.ukradon.org/information/ukmaps

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6 DEFINITIONS

AOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GQRA	Generic Quantitative Risk Assessment
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
Ppm	Parts per million
Ppmv	Parts per million by volume
SAC	Special Area of Conservation
SPZ	Source Protection Zone (see **Error! Reference source not found.**)
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest

APPENDIX A – SITE DRAWING

IF IN DOUBT - ASK

NOTHING IN THIS CONTRACT CONFERS OR PURPORTS TO CONFER ON ANY THIRD PARTY ANY BENEFIT OR ANY RIGHT TO ENFORCE ANY TERM OF THIS CONTRACT

THE CONSTRUCTION WORK DETAILED ON THIS DRAWING SHOULD NOT BE COMMENCED UNTIL BUILDING REGULATION APPROVAL HAS BEEN GRANTED, THE WORK IF STARTED BEFORE BUILDING REGULATION APPROVAL HAS BEEN OBTAINED IS AT THE CONTRACTOR'S OWN RISK.

42 No. PILES TOTAL
[note Pile No. 11 omitted]
APPROX 180mmØ
STEEL BOTTOM DRIVEN,
CONCRETE FILLED
x APPROX 5 Metres long,
DESIGNED BY SPECIALIST
FOR MIN 150KN SWL

NEW R.C FOOTING 225w [330w at piers]
x 225mm deep built off existing cellar walls
1 No. LAYER A393 MESH IN BOTTOM
40mm cover. Grade RC35 CONCRETE

NEW R.C GROUND BEAM 600w x 470mm deep
REINFORCEMENT:
H10 LINKS [3 No. LEGS] @300mm CENTRES,
3H25 BARS TOP 3H25 BARS BOTTOM.
RC35 CONCRETE Design Sulphate Class DS-2
PILES @2m centres

EXISTING CELLAR BELOW

EXTENT OF RELIC BASEMENT
SEE TRIAL PITS TP1 + TP2

SPAN OF P.C.C BEAM + BLOCK 225mm deep @530mm ctrs
PILE S.W.L = 155kN

PROPOSED LOW LEVEL FLAT ROOF JOISTS OVER

PROPOSED HIGH LEVEL FLAT ROOF JOISTS OVER

PROPOSED 1st FLOOR JOISTS OVER

EXISTING 1st FLOOR JOISTS OVER

A to I — EXISTING BEAMS OVER See schedule right for sizes

G1 to G21 — PROPOSED NEW BEAM OVER See schedule right for sizes

L1 to L10 — PROPOSED NEW LINTEL OVER See schedule right for sizes

EXISTING BEAMS :

A	2 No. 10" x 8" RSJ's to remain +2748mm to underside of beam
B1	7" x 4" RSJ at high level to remain +2748mm to underside of beam
B2	6" x 3" RSJ at low level to remain +2200mm to underside of beam
H I	2 No. 8"x4" UB's to remain

P6 to P10 — NEW SOLID BLOCKWORK PIERS MINIMUM SIZE 450mm x 450mm IN SOLID CORE 10N BLOCKWORK

WP3 — NEW COLUMN 152x152x37 UC See details on Dwg No. 11

MR1 MR2 — PROPOSED NEW MASONRY RAIL 150x150x5 SHS

WP1 WP3 WP4 WP5 WP8 WP9 — PROPOSED NEW WINDPOST 100x100x5 SHS

WP10 WP11 — PROPOSED NEW WINDPOST 140x140x6.3 SHS

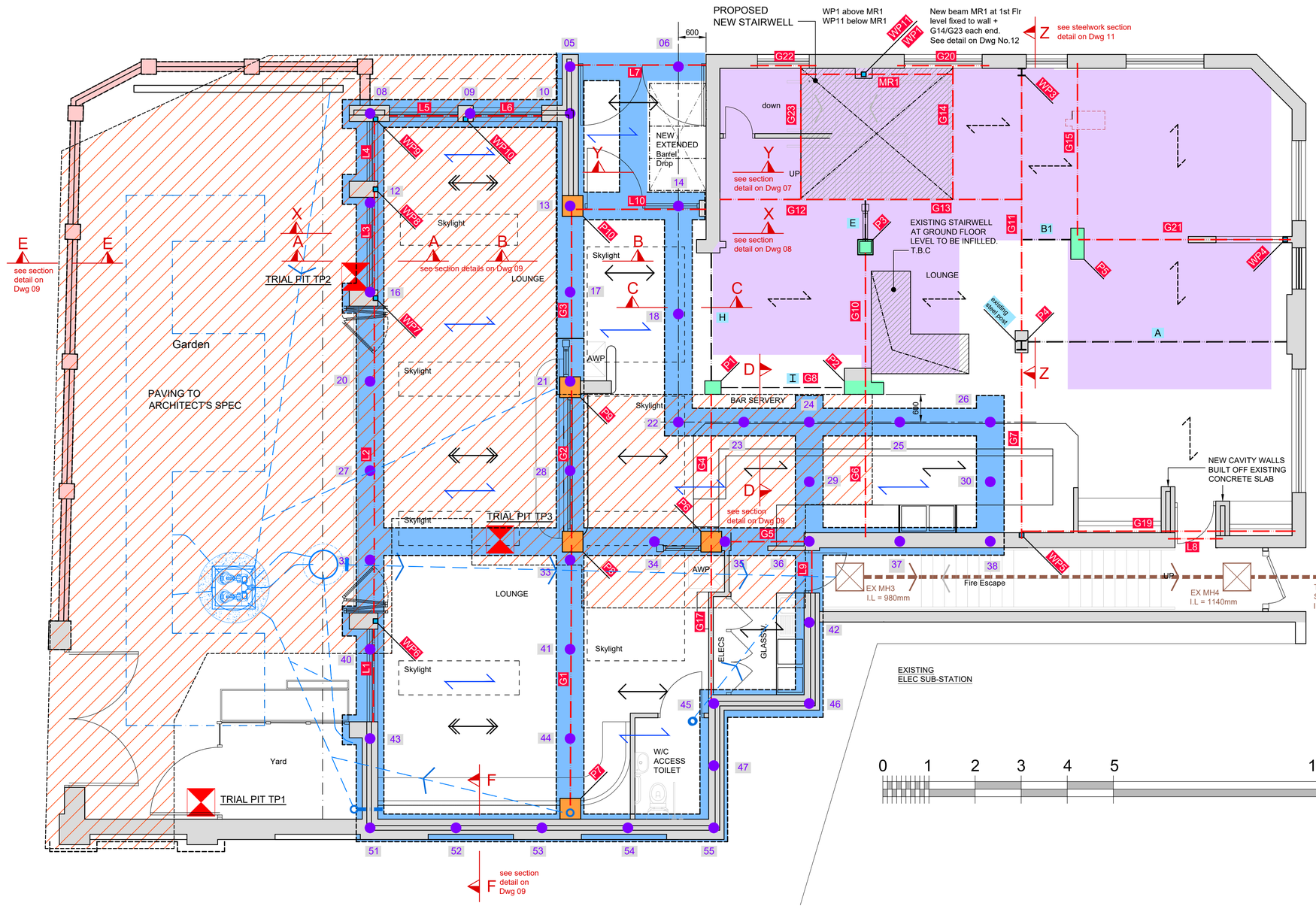
P1 — PROPOSED NEW SOLID PIER. 440x440 min size CLASS 'B' ENGINEERING BRICKS LAID IN 1:0-¼:3 MORTAR. BUILT OFF NEW CONCRETE SPREADERS ONTO EXISTING CELLAR WALLS BELOW

P2 — REBUILD EXISTING PIER IN CLASS 'B' ENGINEERING BRICKS LAID IN 1:0-¼:3 MORTAR. BUILT OFF NEW CONCRETE SPREADERS ONTO EXISTING CELLAR WALLS BELOW

P3 — PROPOSED NEW SOLID PIER. 330x225 min size CLASS 'B' ENGINEERING BRICKS LAID IN 1:0-¼:3 MORTAR. BUILT OFF NEW CONCRETE SPREADERS ONTO EXISTING CELLAR WALLS BELOW

P4 — EXISTING STEEL POST 168x156 UC TO REMAIN - see details on Dwg No. 11

P5 — EXISTING 600x225 MASONRY PIER TO REMAIN



ASSUMPTIONS AND NOTES TO CONTRACTOR

ASSUMPTIONS MADE IN THE DESIGN ARE TO BE CONFIRMED ON SITE BY THE PRINCIPAL CONTRACTOR AND CRAWFORD & Co. TO BE INFORMED IMMEDIATELY IF FOUND TO BE DIFFERENT.
ALL EXISTING DIMENSIONS, WALL THICKNESSES, HEIGHTS, SIZES OF EXISTING BEAMS, JOIST SPANS ETC TO BE CHECKED ON SITE PRIOR TO ANY FABRICATION. ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO THE ARCHITECT AND OURSELVES.
THE PRINCIPAL CONTRACTOR IS TO ALLOW FOR EXPOSING EXISTING BEAMS ON SITE SO THAT PRECISE CONNECTION DETAILS TO NEW BEAMS CAN BE DETERMINED.

THE PRINCIPAL CONTRACTOR IS TO VISIT THE PROPERTY AND FAMILIARISE THEMSELVES WITH THE EXISTING STRUCTURE. ANY AREAS OF CONCERN ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND OURSELVES.

THE PRINCIPAL CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY PROPPING DURING CONSTRUCTION AND INSTALLATION OF NEW BEAMS. ANY MOVEMENT AS A RESULT OF INADEQUATE PROPPING MUST BE REPAIRED AT THE CONTRACTORS OWN COST.

NEW STEELWORK TO BE GRADE S355 CE Marking - Consequences Class 2, Execution Class EXC2
AND TO BE THOROUGHLY CLEANED AND WIRE BRUSHED PRIOR TO PAINTING WITH TWO COATS OF HIGH BUILD ZINC PHOSPHATE PRIMER TO A MINIMUM DRY FILM THICKNESS OF 75 MICRONS PER COAT UNLESS NOTED OTHERWISE.

ALL WELDS TO BE 6mm CONTINUOUS FILLET WELD UNLESS NOTED OTHERWISE.

ALL BOLTS TO BE GRADE 8.8. MINIMUM 4 No. M16 BOLTS PER CONNECTION UNLESS NOTED OTHERWISE.

THIS DRAWING TO BE READ IN CONJUNCTION WITH CRAWFORD & Co. CALCULATIONS, ARCHITECTS DRAWINGS AND THE HEALTH AND SAFETY PLAN.

CONCRETE FOR PAD FOUNDATIONS TO BE GRADE GEN 3. CONCRETE FOR PADSTONES, IF REQUIRED, TO BE GRADE C30. LINTELS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.

SCHEDULE OF NEW STEELWORK SIZES

G1	254 x 254 x 89 UC Grade S355 + 8mm top plate to suit wall over
G2	2 No 254 x 146 x 31 UB's Grade S355fixed together with M12 bolts & spacers @ 500mm crs
G3	2 No 254 x 146 x 31 UB's Grade S355 fixed together with M12 bolts & spacers @ 500mm crs
G4	203 x 203 x 46 UC Grade S355 + 8mm top plate to suit wall over
G5	OMITTED
G6	203 x 102 x 23 UB Grade S355
G7	203 x 203 x 46 UC Grade S355
G8	OMITTED [Existing beam I to remain]
G9	OMITTED
G10	203 x 203 x 46 UC Grade S355 Cantilevered over Pier P3 to support G12 & G13 [See Dwg 11]
G11	203 x 203 x 60 UC Grade S355 [Portal frame beam - see Dwg No. 11]
G12	152 x 152 x30 UC Grade S355
G13	152 x 152 x30 UC Grade S355
G14	152 x 152 x30 UC Grade S355
G15	203 x 102 x 23 UB Grade S355
G16	Existing Beam H to remain
G17	203 x 203 x 46 UC Grade S355 + 8mm top plate to suit wall over
G18	Omitted - Existing Beam A to remain
G19	203 x 203 x 46 UC Grade S355 (To support breast above)
G20/G22	178 x 102 x 19 UB Grade S355 (Lintel to support end of G14/G23)
G21	203 x 102 x 23 UB
G23	152 x 152 x 30 UC Grade S355
LINTELS L1 L3 L4 L5 L6	- 254 x 146 x 31 UB Grade S355 + 8mm bottom plate ALL GALVANISED
LINTEL L2	- 300 x 200 x 12.5 RHS + 8mm bottom plate ALL GALVANISED
LINTELS L7 & L8	- Catnic CN71A with 150mm bearing each end
LINTELS L9 & L10	- Catnic CG90/125 with 150mm bearing each end

REV	AMENDMENTS	DATE
P	Garden wall footing altered, piles omitted	06.02.26
N	Lintel 7,8,9 + 10 spec altered	06.01.26
M	See Rev Clouds	31.10.25
L	See Rev Clouds. Issued for B Regs	23.09.25
K	Updated following site visit 19.08.25 Beams G12 G13 G14 to 152UC	16.09.25
J	Updated following site visit 19.08.25	26.08.25
H	GENERAL UPDATE	14.08.25
G	SECTION F-F ADDED	05.08.25
F	PILED R.C GROUND BEAM OPTION	04.08.25
E	ISSUED TO QS FOR PRICING	22.04.25
D	GENERAL UPDATE	08.04.25
C	UPDATED WITH LATEST JDA PLAN	27.03.25
B	UPDATED WITH LATEST JDA PLAN	04.02.25
A	ISSUED FOR INFORMATION	20.09.24

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CLIENT
JOSEPH HOLT

PROJECT
THE SHAMROCK, BENGAL STREET MANCHESTER

DRAWING DESCRIPTION
PROPOSED GROUND FLOOR PLAN

DRAWN BY	MH	DRAWING No	ISSUE / REV
SCALES @ A1 BORDER	1:50@A1	BJH14_03	P
DATE	20.09.24		

A1 BORDER

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9.4 Reuse of Materials

As part of the site preparation all relict foundations, floor slabs and walls underlying the proposed development will need to be grubbed out and replaced with a suitably compacted granular material. It should be feasible to screen, crush and reuse the majority of excavated made ground and relict foundations as engineered backfill. This material could be placed and compacted in accordance with a suitable earthworks specification to allow the utilisation of a conventional reinforced raft foundation. Due to exceedances of PAH and TPHs within made ground material, it is recommended that this material is not reused under any areas of soft landscaping. The glacial till materials encountered in TP01 should suitable for reuse under any proposed soft landscaping areas.

9.5 Groundwater & Excavations

It is not expected that shallow excavations (<2.50m) within the glacial till or made ground will encounter significant groundwater entries. Some perched water contained within the relict basements and made ground should be anticipated however it is predicted that these should be controllable via conventional pumping from sumps. If inflows are relatively localised, this may cause softening of the ground and require localised excavation support in order to prevent instability of the sides of excavations.

Excavations through the made ground are liable to encounter extensive obstructions associated with relict foundations and basements which will require mechanical or hydraulic breaking,. The presence of numerous obstructions and former developments mean significant amounts of overbreak during excavation should be expected. Fill materials predominantly comprised loose granular material and whole bricks and as such excavations will require temporary support. Any temporary works design will also need to consider support of the existing structure foundations.

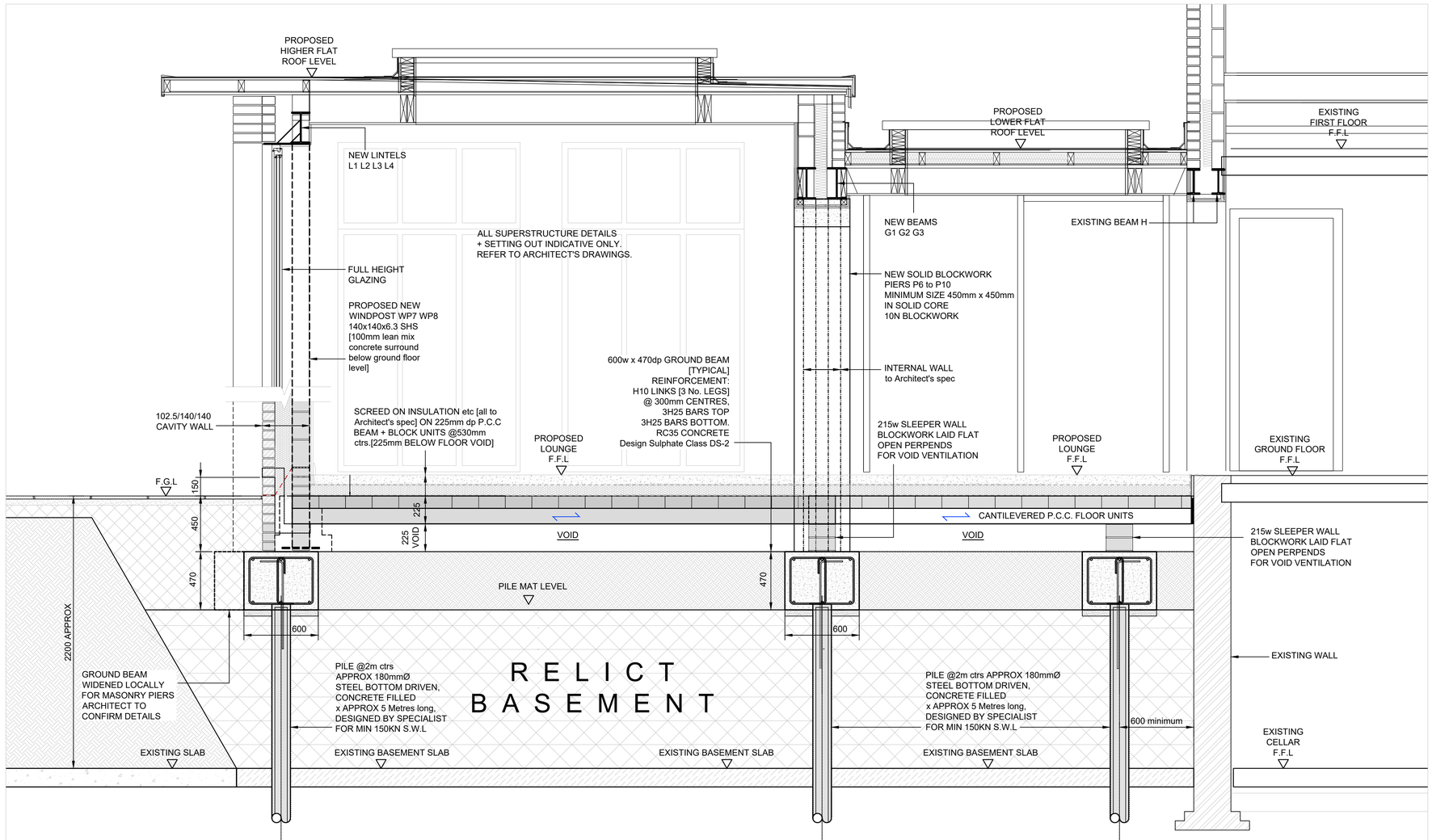
9.5 continued

Whilst excavation depths should generally be readily achieved using conventional hydraulic plant, with breaker attachments careful consideration should be given to plant and breaker sizes following difficulty observed during the site investigation works.

All excavations should be carried out in accordance with CIRIA Report 97 "Trenching Practice" and BS6031: 2009: Code of Practice for Earthworks. Further guidance on this aspect of site works is given in the British Standards for "Workmanship on Building Sites", BS 8000, Part 1, and in the Construction Industry Training Board's Site Safety Note

9.6 Buried Concrete and Pipework

The results of laboratory pH and sulphate content indicate that ACEC Class AC-1 conditions prevail in accordance with BRE Special Digest 1, 2005 (the Design Concrete Class). Therefore, special precautions are not required at the site for the design of concrete in terms of the durability and structural performance.



PROPOSED SECTION X-X. Scale 1:20

See drawing No. BJH14-03 for location of section on plan

REV	AMENDMENTS	DATE
E	GROUND BEAMS ALTERED TO 600x470 + 600x350	23.09.25
D	MINOR MODS	26.08.25
C	GROUND BEAMS ALTERED TO 600x470 + 600x350	23.09.25
B	ISSUED TO QS FOR PRICING	22.04.25
A	ISSUED FOR INFORMATION	08.04.25

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JOSEPH HOLT

PROJECT
THE SHAMROCK, BENGAL STREET MANCHESTER

DRAWING DESCRIPTION
PROPOSED EXTENSION
PROPOSED FOUNDATION SECTION X-X

DRAWN BY	MH	DRAWING No	ISSUE / REV
SCALES @ A1 BORDER	1:20@A1	BJH14_08	E
DATE	08.04.25		

A1 BORDER

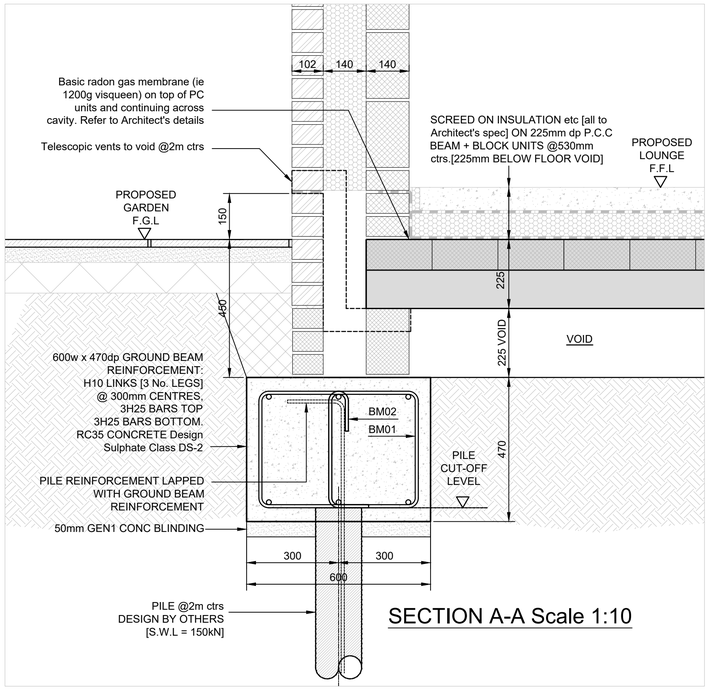
COPYRIGHT ©

55 No. PILES TOTAL
APPROX 180mmØ STEEL
BOTTOM DRIVEN, CONCRETE
FILLED x APPROX 5 Metres
long,
DESIGNED BY SPECIALIST
FOR MIN 155kN S.W.L

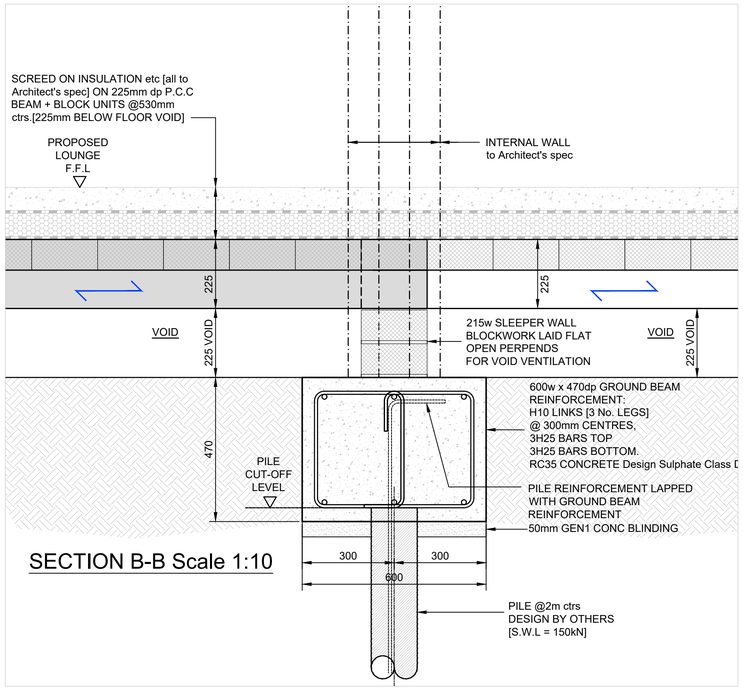
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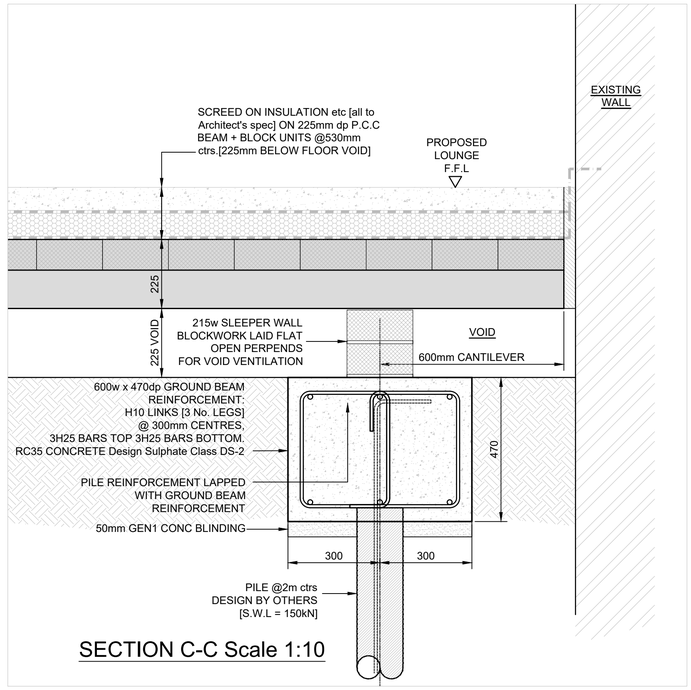
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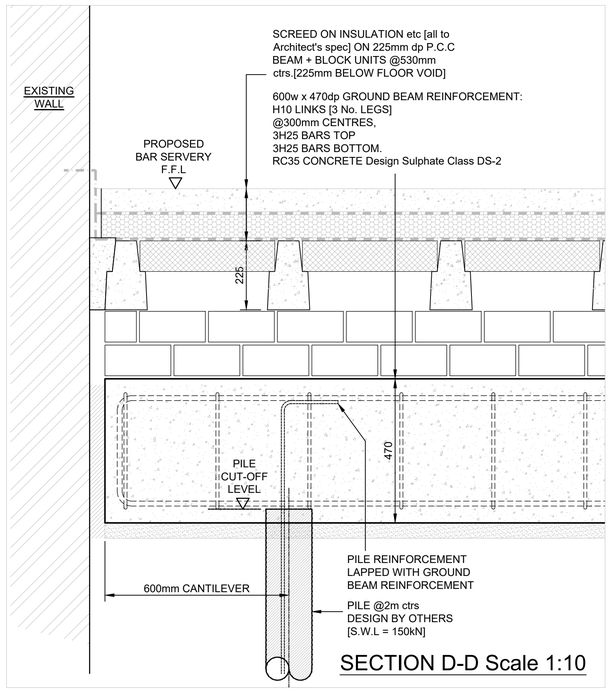
SECTION A-A Scale 1:10



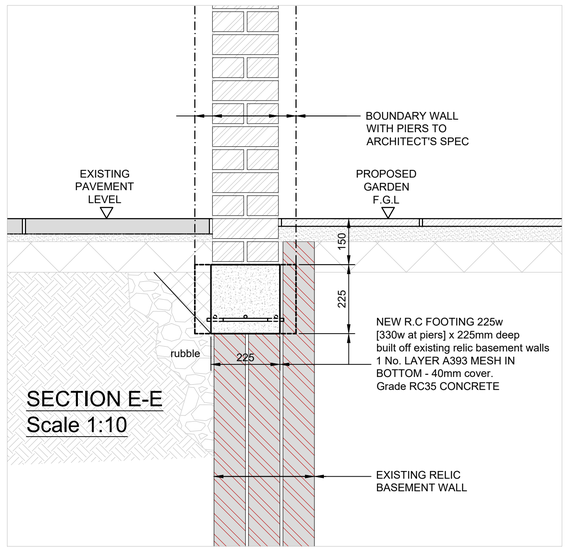
SECTION B-B Scale 1:10



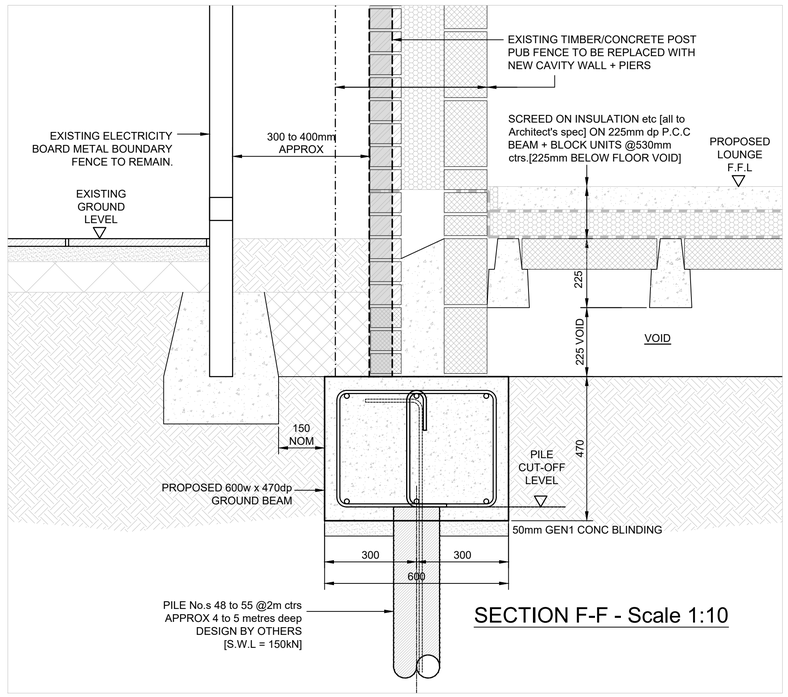
SECTION C-C Scale 1:10



SECTION D-D Scale 1:10



SECTION E-E Scale 1:10



SECTION F-F - Scale 1:10

PLEASE READ IN CONJUNCTION WITH GENERAL ARRANGEMENT PLAN ON Drawing No. BGK332-09

REV	AMENDMENTS	DATE
D	SECTION E-E ALTERED	06.02.26
C	GROUND BEAMS ALTERED TO 600x470 + 600x350	23.09.25
B	SECTION F-F ADDED	05.08.25
A	ISSUED TO QS FOR PRICING	04.08.25

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CLIENT
JOSEPH HOLT

PROJECT
THE SHAMROCK, BENGAL STREET
MANCHESTER

DRAWING DESCRIPTION
PROPOSED EXTENSION
PROPOSED PILED R.C GROUND BEAM
TYPICAL SECTIONS

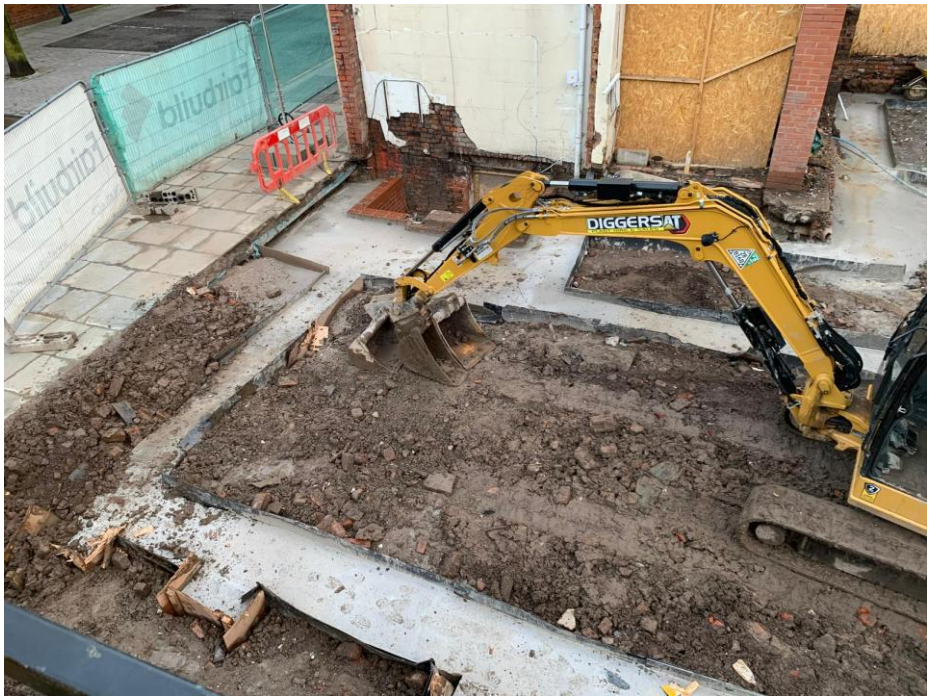
DRAWN BY	MH	DRAWING No	ISSUE / REV
SCALES @ A1 BORDER	1:10@A1	BJH14_09	D
DATE	04.08.25		

A1 BORDER

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APPENDIX B – SITE PHOTOGRAPH





Photos after installations of piles and ground beam



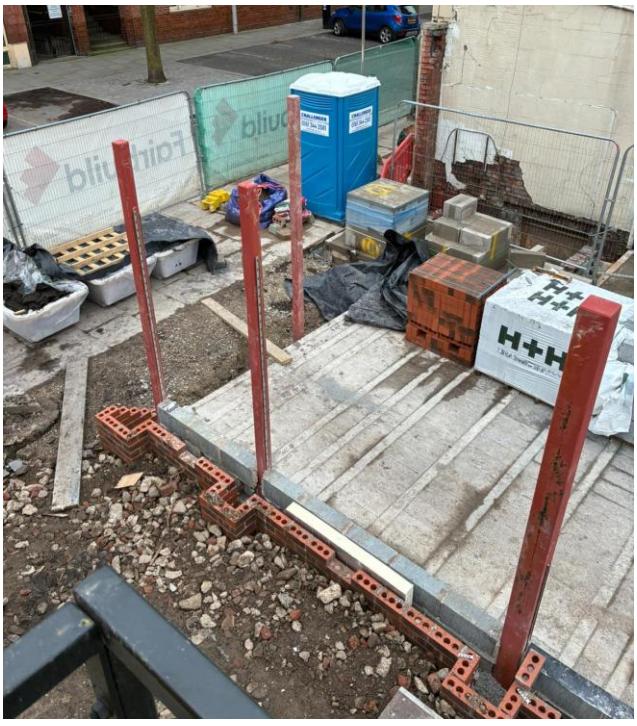
Photos after installations of piles and ground beam



Installation of beam and block floor and walls



Installation of beam and block floor and walls



Installation of beam and block floor and walls



Installation of beam and block floor and walls



New beer garden area prior to hard landscaping.