JAMESON ACOUSTICS

Consultants in acoustics, noise and vibration

Technical Note

Our Ref	22045-TN-4-R0
Date	18 September 2025
Author	Andrew Jameson
Our Client	Domis Construction
Issued To	Domis Construction

Viadux II, Manchester

Adjoining/Associated Infrastructure Protection (Condition 12)

Vibration & Movement from Construction Works

In relation to Planning Condition 12, we write to confirm the approach taken to protect the adjacent and associated infrastructure from effects of vibration and movement resulting from construction works.

The approach take is to monitor vibration and movement throughout the enabling and construction works.

The site has a specific third-party consideration in TfGM/Metrolink, with their asset (an elevated tram structure) passing through the development site. Agreement has been reached with TfGM/Metrolink in relation to the monitoring methodology and the two parties have entered into an Asset Protection Agreement (APA). Blue permits to allow us to commencement monitoring on their asset have been received and these monitoring works have already commenced. Full details of the TfGM/Metrolink monitoring are provided in our Technical Note 22045-TN-3-R0 issued in relation to Planning Condition 13.

The full methodology for vibration and movement monitoring is set out in the Renaissance '*Vibration and Movement Monitoring Specification*', ref. V2B-REN-AA-XX-SP-S-00150 (Rev C02). This document covers the full scope of vibration and movement monitoring in relation to the protection of all adjoining and associated infrastructure.

Specifically in relation to TfGM/Metrolink, 3nr vibration monitoring sensor positions were agreed, as indicated below. These positions are at the head of bridge piers.

Movement is being manually monitored by a specialist engineer carrying out regular site visits. Vibration is being continuously monitored with results available in real-time on a website. All monitoring works are being undertaken by Dywidag with input/interpretation assistance provided to Domis by both Jameson Acoustics and Renaissance. The monitoring will continue throughout the construction phase, as indicated in the Renaissance Specification.

We trust the above is clear and of assistance. However, should you have any queries, please do not hesitate to contact the undersigned.

For and on behalf of
Jameson Acoustics Limited

[redacted]

Andrew Jameson
Director, BSc(Hons), MIOA, MIET



VIADUX 2B – BLOCK A

VIBRATION AND MOVEMENT MONITORING SPECIFICATION

Project No: 2209-01

July 2025

Rev: C04

V2B-REN-AA-XX-SP-S-00150

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Rev.	Description	Author	Checked	Date
C01	RIBA STAGE 5	RLC	PC	09.04.25
C02	RIBA STAGE 5	RLC	PC	15.04.25
C03	RIBA STAGE 5	RLC	PC	18.06.25
C04	RIBA STAGE 5	RLC	PC	01.07.25

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1. INTRODUCTION

This document presents the specification for the detailed movement and vibration monitoring to be undertaken during the proposed construction works at the Viadux Phase 2 development in Manchester. The document is intended for the use of the specialist vibration and movement monitoring contractor and provides appropriate information for the intended works.
The new construction involves various opening up works to the existing viaduct structure as well as installation of new CFA piles and pile-caps to support a new 74-storey RC frame tower. Monitoring is to take place prior to construction at the site, and during the construction of the substructure and superstructure of the new development.

1.1 Purpose and Scope

The monitoring works are to be procured and managed by the Main Contractor, Domis Construction. The purpose of this document is to specify the monitoring regime required and the vibration and movement data to be recorded before and during the construction of the proposed new building. The document details the proposed monitoring work, data collection, analysis and reporting.

The site includes a Grade II listed masonry viaduct to be monitored. The data from the monitoring shall be made available to the Client and the relevant consultants appointed by the client.

The scope of works of the Monitoring Contractor will comprise:

- Design, supply, installation, commissioning, calibration, testing, operation, cleaning, maintenance, decommissioning and removal of monitoring infrastructure.
- Manual monitoring of any relevant survey target points proposed.
- Analysis, interpretation, factual reporting and reporting of interpretation.
- All the monitoring data to be held in a single web access database.
- Liaison with the Client, Contractor and other interested parties will be required as necessary.
- Submission of documentation.
- Liaison with the Construction Manager and/or relevant asset owners as required to gain agreement for the installation of target points and monitoring equipment (method statements, risk assessments, fixing details etc).
- Produce Factual Background Monitoring Reports, Factual Monitoring Reports and Final Monitoring Reports.
- These activities are to take place in line with the construction programme.

The Monitoring Contractor is to liaise with the Construction Manager to confirm any changes to the Construction Programme, in order to ensure that the correct number of surveys is undertaken. The Monitoring Contractor is to identify the impact of changes in the programme to their works and costs.

1.2 Vibration Monitoring

All piling, reduction in site levels and construction of pile caps is building work regulated by the Party Wall Act 1996. In order to control vibration emission during the works, continuous monitoring of vibration should be undertaken. This will enable the contractor to monitor vibration and take suitable action if the agreed criteria are exceeded.

The vibration monitoring should be undertaken in accordance with the guidance detailed within BS ISO 4866: 2010: Mechanical Vibration and Shock – Vibration of Fixed Structures – Guidelines for the Measurement of Vibrations and Evaluation of the Effects on Structures (BS ISO 4866).

Vibration monitoring is required to determine whether the vibration noise levels affecting the viaduct during the works remain below the vibration threshold values detailed within BS 5228-2: 2009+A1: 2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration.

This vibration specification details the vibration thresholds and the vibration monitoring methodology and monitoring system that should be used. It should be followed in-full for the duration of the relevant works listed in Section 3.5.

Monitoring for any underpinning works and reduction in site levels adjacent to the viaduct structure (refer to Section 2.2) will be considered further once the scope of this work and its method/sequence of execution has been agreed.

1.3 Related Works

This specification covers the vibration and monitoring requirements for the existing structures on the site. It does not include requirements for the monitoring of properties or structures adjacent to the site such as;

- ENWL substation
- Metrolink
- Manchester Central

Any requirements for specific monitoring for these assets is to be advised by the relevant owners and considered in addition to the requirements outlined in this specification. The scope of any additional specific monitoring or remediation required should be discussed/agreed with the asset owner prior to the works commencing.

Note also that the temporary works designers might require further detailed movement monitoring over and above that defined within this specification. Refer to the temporary works design proposals for further requirements.

A detailed condition survey of the listed viaduct should be undertaken by the Conservation Architect and repair works scoped. In addition, a structural condition survey should be undertaken in conjunction with a specialist. If any condition surveys undertaken on the viaduct indicate particular areas of concern, then additional monitoring may be recommended and added to the scope

1.4 Main Responsibilities

The Monitoring Contractor shall have the primary responsibility for the monitoring works and shall report directly to the Construction Manager. The Construction Manager shall undertake a review and assessment of the monitoring results on a daily basis. Any necessary actions resulting from the review shall be undertaken by the Construction Manager (Domis).

1.5 Parties

The relevant parties are:

- Principal Contractor: Domis Construction
- Groundworks/RC Frame Subcontractor: Mayo Civil Engineering
- Permanent Works Designer: Renaissance
- Temporary Works Designer: Varies
- Piling Contractor: TBC
- Monitoring Contractor: TBC

2. SITE DESCRIPTION

2.1 The Site

The Viadux development is located in the city centre of Manchester. The site is bounded by Great Bridgewater Street to the north, Albion Street and the Metrolink to the east, Trafford Street and Deansgate-Castlefield Tram Station to the south, and the Hilton Hotel Slot Site to the west. The overall development site is approximately 0.82 ha (8200m2) with the completed Phase 1 being circa 0.35ha (3500m2) of this.

The overall site and phases are indicated in Figure 2.1.

Post Code: M1 5LH

OS Reference: 383550, 397630

National Grid Reference: SJ8359J6

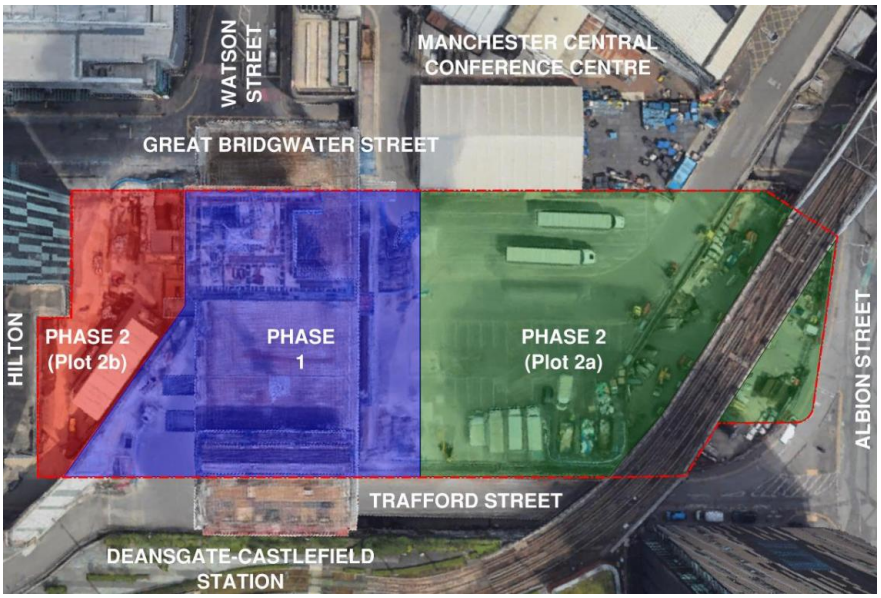


Figure 2.1 - Site Location and Phasing

The site is occupied by a single storey Grade II listed masonry viaduct and the Phase 1 40-storey residential tower. The Upper Deck (Level 01) of the Grade II listed masonry viaduct is currently used as a service yard by Manchester Central Convention Complex (MCCC).

The western portion of the Viaduct Lower Deck (Ground Level) forms part of the Phase 1 works and the eastern portion used as storage. Both levels to the viaduct are generally flat. Access to the upper deck is provided by a ramp along Trafford Street. The topographical survey indicates that the ground floor level is circa 34.9–35.5m AOD and the service yard level is circa 43.0-43.4m AOD.

2.2 Existing Viaduct Structure

The site is currently developed with a Grade II viaduct structure that dates from circa 1876-1879 and is to be retained and incorporated into the scheme (Figure 2.2). The first floor of the viaduct structure is part of a larger structure constructed as part of the Manchester Central Station development.

The viaduct structure is of load bearing masonry construction with segmental arches spanning circa 9.15m between brick piers in the east to west direction (Figure 2.3). Pointed arches spanning north to south (Figure 2.4) are provided between the piers and allow for circulation through the structure at ground floor.

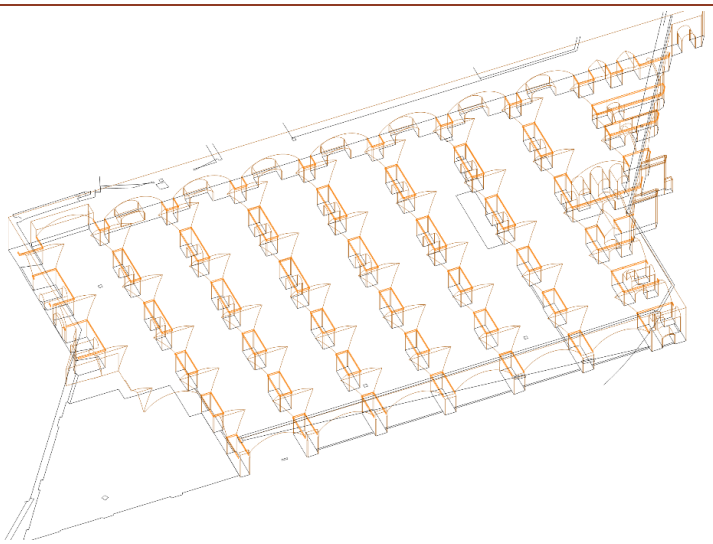


Figure 2.2 - Isometric of Viaduct Arches



Figure 2.3 - Segmental Arches



Figure 2.4 - Pointed Arches

The first floor is currently used as a service yard with heavy goods vehicle access. Detailed load assessments undertaken as part of the Phase 1 development indicate that the existing structure is adequate for its current use.

2.3 Development Proposals

The site forms part of a larger development which comprises 2 Phases. The first phase of the development, which is recently completed includes a 40-storey tower, a section of the podium structure, and conversion of part of the Grade II listed viaduct. The second phase, that this report relates to, includes the construction of a 22-storey residential tower, 74-storey mixed use tower, connecting podium structure, and conversion of the 1870's Grade II listed masonry Viaduct. The 74-storey tower and

podium are to be constructed over the existing viaduct. The works also include partial removal of the existing cast-iron bridge deck to 'daylight' Great Bridgewater Street.



Figure 5 - Site Phasing

The proposed structural frame will be reinforced concrete with the podium formed as a steel frame. The foundations are proposed to be CFA piles. The CFA piles will be socketed into the sandstone ensuring the new structure will not impart any additional load onto the viaduct. Stability to the building is provided primarily by a lift/stair core and shear wall arrangement.

New openings are proposed in the Great Bridgewater Street abutment walls, which will form entrances to the Ground floor of the development which sits beneath the arches. A large opening through the top of the arches will allow the RC core of the tower to penetrate through. Twelve smaller openings will be formed through which the structural columns for the tower and steel landscaped podium will pass. A entrance into the Core at ground floor level will also involve removing part of one of the arch piers and the insertion of a steel frame.

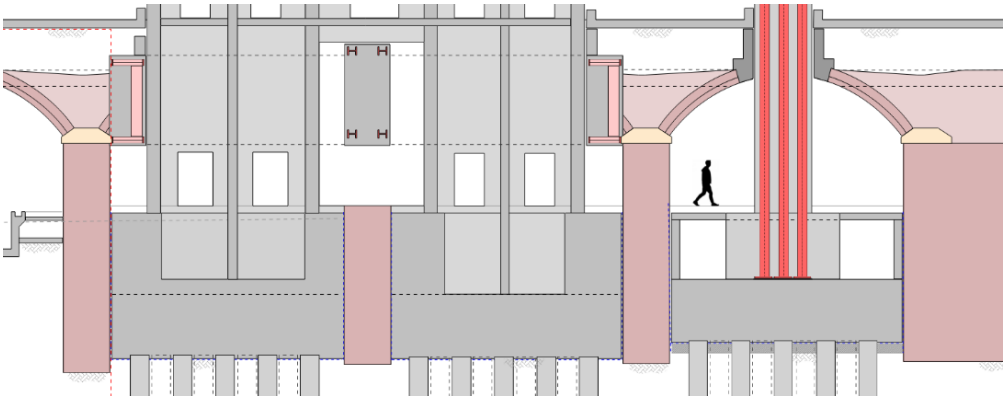


Figure 2.6 - Core and Mega Column Section

3. MONITORING WORKS

The works described in this specification cover the installation of a monitoring system to monitor any movement or vibration of the viaduct that could result from the development works.

3.1 Monitoring Responsibility

The Monitoring Contractor shall be responsible for the following:

- Appointing a responsible person familiar with the instrumentation and monitoring to carry out the works.
- Quality assurance of the instrumentation and the monitoring undertaken. The Monitoring Contractor shall check all data for errors prior to submission. Any readings that appear erroneous should be re-monitored by the Monitoring Contractor, and the reason for the error identified.
- The installation of the monitoring targets, the reading of the targets and instruments, and any additional works required to check the accuracy. The equipment supply shall be robust and adequately protected against interference that could be expected on a construction site.
- Issue reports with numerical and graphical data and circulate to Renaissance and other relevant parties as directed, both in pdf and Excel formats.
- The reporting of the data to the Construction Manager.
- Maintaining all data files and calculations associated with these for the duration of the contract.
- Rectify any faults or damage with the instrumentation system for the duration of the contract.

The Principal Contractor shall be responsible for the following:

- Agreeing the requirements of any monitoring regime with third parties or asset owners.
- Ensuring that the targets can be read at the specified periods.
- Instructing on the installation of additional instrumentation where required through damage etc, or additional monitoring where doubt exists on the available data.
- Reporting and implementing previously agreed contingency measures. These measures could include temporary propping, shoring, strapping, structural repairs etc. to be agreed with the asset owners.
- Ensuring that the processed data and reporting is presented in a manner readily understood by all parties.

3.2 Movement Monitoring Requirements

3.2.1 Viaduct Service Yard Loading

As the upper deck of the viaduct is in ongoing use as a service yard for Manchester Central Convention Complex, the allowable loading of the viaduct requires assessment. Movement monitoring is to be undertaken to assess the structure for movement under the loading of HGVs that currently make use of the service yard above. The deflections caused by loading need to be understood to a minimum level of accuracy of +/-0.5mm.

3.2.2 Viaduct Arch Deformation

During the breakthrough works and subsequent loading, there is a risk of deformation to the viaduct arches. An understanding of the movements of both the segmental and pointed arches is required. This will help build an understanding of the multi-span arch behaviour under loading, load transfer and any potential deformation to the listed structure.

The conditions within the arch are fairly ambient and steady however the structure may be moving diurnally. Background monitoring will likely be required to set a baseline and thresholds of change.

It is proposed that tiltmeters mounted to the arch barrels are used to understand arch deformation. A level of accuracy of +/- 0.5mm is required for this item of monitoring.

3.2.3 Differential Settlement

Control of ground settlements and the resulting movement of the arches is a key consideration of the project. As potential settlement of the ground is a long-term risk, the levels of each pier within the zone of influence require monitoring throughout the substructure and superstructure works.

An initial assessment of the viaduct structure has been undertaken to estimate the maximum settlements that can be accommodated without causing excessive damage to the Grade II listed structure. Differential settlement is to be limited to Δ = L/1000, giving an allowable differential settlement for the segmental arches of Δ = 9mm between the piers and for the pointed arches of Δ = 4mm between the piers. The required accuracy of this movement monitoring is therefore +/- 0.5mm

It is recommended that hydrostatic levelling cells (HLC), a method frequently used for this type of level monitoring, are not used for this project. The ground level areas will be frequently disturbed during the works and the HLC method would likely be too intrusive and impractical to run under such constraints. The HLC method also requires very steady and ambient conditions which cannot be guaranteed on this site.

Manual 3D monitoring is proposed for this item, provided the required level of accuracy can be achieved.

As well as the viaduct piers, targets for the 3D monitoring should also be fixed to the core and columns to monitor any differential settlement of the main tower structure throughout the superstructure works.

3.3 Movement Monitoring Duration and Frequency

The differential settlement of the piers should be monitored monthly. Vertical Tiltmeters should be monitored 24/7 to act as an early warning of movement, supplemented by the monthly settlement readings.

The requirement for the deformation movement monitoring is during the enabling works and substructure phase of construction; during the formation of the viaduct openings, during piling work and excavations for forming pile-caps. This duration is to be confirmed based on Domis' proposed programme and subject to programme changes.

The requirement for monitoring the differential settlement is during the enabling works, substructure and superstructure phases of construction up until final completion of the project. This duration is to be confirmed based upon Domis' proposed programme and subject to programme changes.

3.4 Movement Monitoring Instrumentation Specification

The instrumentation is to be used to measure the horizontal and vertical displacement of the viaduct structure. The locations of the targets are proposed in Appendix C and are to be confirmed by the Main Contractor and Monitoring Specialist. The targets shall be robustly attached and adequately protected to prevent damage, unintended displacement or vandalism. The targets shall not damage the bricks of the listed structure but may be fixed into the mortar joints.

The tiltmeters (primary system) shall have an accuracy of +/- 0.1mm.

The 3D survey targets (secondary system) shall have an accuracy of +/- 0.5mm in either horizontal or vertical direction.

3.5 Vibration Monitoring Requirements

The following construction activities will pose risk to the Grade II listed viaduct due to vibration:

- Excavation
- Piling for foundations
- Piling for the core
- Breakthrough works, including:
    - Great Bridgewater Street Bridge Removal
    - Great Bridgewater Street Abutment Openings
    - Columns Openings

- Core Opening
- Core Entrance

To minimise the risk and ensure damage is not imparted on the structure, vibration monitoring is required during the works.

3.6 Vibration Monitoring Duration and Frequency

Vibration sensors should be monitored 24/7 to act as an early warning of excessive vibration.

The requirement for monitoring the vibration is during the enabling works and substructure phases of construction; during the formation of the viaduct openings, during piling work and excavations for forming pile-caps. This duration is to be confirmed based on Domis' proposed programme and subject to programme changes.

3.7 Vibration Monitoring British Standards and Guidance

The vibration monitoring should be undertaken in accordance with the guidance detailed within BS ISO 4866: 2010: Mechanical Vibration and Shock – Vibration of Fixed Structures – Guidelines for the Measurement of Vibrations and Evaluation of the Effects on Structures (BS IS) 4866).

To assess whether vibration is likely to cause any building damage, BS 7385-2: 1993: Evaluation and Measurement for Vibration in Buildings – Guide to Damage Levels from Ground Borne Vibration provides suitable guidance. It suggests vibration levels and the possible building damage if these levels are exceeded for transient vibration events. Further to this it suggests for continuous vibration sources these levels should be reduced by 50%. This guidance is repeated in BS 5228-2: 2009+A1: 2014: Construction Vibration on Open Sites.

Table 1 - Guide to Transient Vibration Levels and Building Damage

Table B.2 **Transient vibration guide values for cosmetic damage**

Line (see Figure B.1)	Type of building	Peak component particle velocity in frequency range of predominant pulse	
		4 Hz to 15 Hz	15 Hz and above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	50 mm/s at 4 Hz and above
2	Unreinforced or light framed structures Residential or light commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

NOTE 1 Values referred to are at the base of the building.

NOTE 2 For line 2, at frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded.

BS 5228-2: 2009+A1: 2014: Construction Vibration on Open Sites also provides additional vibration limits with regard to human comfort. This proposes lower vibration limits which may be considered suitable for these works.

3.8 Vibration Sensor Fixing and Orientation

According to BS ISO 4866:2010, 'When measurements on the foundation itself are not possible, it is normal to make the measurements at a low point on the main load-bearing external wall of the ground floor. The number of transducers depends on the dimension of the structure."

It is therefore suggested that during the excavation works, piling works and breakthrough works for the columns, core and abutment openings, the vibration monitoring transducers should be securely fixed to the piers for direct monitoring. The sensors should be placed in a position from which the vibration due to each area of works can be monitored.

Table 2 - Recommended Vibration Limits for Human Comfort

Table B.1 **Guidance on effects of vibration levels**

Vibration level [A), B), C)]	Effect
0.14 mm·s^{-1}	Vibration might be just perceptible in the most sensitive situations for most vibration frequences associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm·s^{-1}	Vibration might be just perceptible in residential environments.
1.0 mm·s^{-1}	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10 mm·s^{-1}	Vibration is likely to be intolerable for any more than a very brief exposure to this level 〈A1〉 in most building environments 〈A1〉.

〈A1〉

A) The magnitudes of the values presented apply to a measurement position that is representative of the point of entry into the recipient.

B) A transfer function (which relates an external level to an internal level) needs to be applied if only external measurements are available.

C) Single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case. The values are provided to give an initial indication of potential effects, and where these values are routinely measured or expected then an assessment in accordance with BS 6472-1 or -2, and/or other available guidance, might be appropriate to determine whether the time varying exposure is likely to give rise to any degree of adverse comment. 〈A1〉

Sensors should be fixed in a way so that independent movement is not possible, including any rocking, rattling, shaking or sliding actions. Sensor fixings should not damage the bricks of the viaduct but may be fastened into the mortar joints.

According to BS ISO 4866: 2010, "Where ground-transmitted vibration measurements are to be made, it is usual to orient the horizontal sensors along the direction defined as the line joining the source and the sensor. When studying structural response to ground vibration, it is more realistic to orient these horizontal sensors along the major and minor axes of the structure." In line with this guidance, it is suggested to have the following orientation:

Horizontal X axis	-Parallel with the existing brick bed joints of the piers
Horizontal Y axis	-Perpendicular to the existing brick bed joints of the piers
Vertical Z axis	-Vertical to the piers

3.9 Vibration Monitoring Instrumentation Specification

The vibration measurement equipment must be capable of monitoring continuous vibration levels in three orthogonal axes, using either accelerometers or geophones (seismometers). The vibration should be measured and output as Peak Particle Velocity (PPV) mms-1.

The measurement equipment must be compliant with the detail given in Section 8 of BS 4866:2010. The only stipulation being that the measurement should be of Class 1 specification.

All equipment must be calibrated to traceable national standards and have undergone its most recent calibration no more than 1 year prior to the works being started. All equipment must then be calibrated following manufacturer recommended intervals as required, for the duration of the works.

4. REPORTING

4.1 Monitor Reporting

The Monitoring Contractor shall share the movement monitoring data on a regular basis – results to be updated every 24 hours. The results to include:

- Description of the instrumentation and targets.
- Monitoring data presented in tabular form showing the time and date of readings, location and identifier on the monitoring point, reading, cumulative difference in magnitude between initial readings and the latest readings for all survey targets.
- Monitoring data presented in graphical form (both pdf and Excel spreadsheet) showing incremental and cumulative movements.
- Where high-level and low-level building targets are present, the tilt shall be calculated and plotted against time.
- An executive summary explaining the results.

The results from the vibration monitoring will be reported on a weekly basis during the works that are regulated by the Party Wall Act 1996.

4.2 Movement Monitoring Trigger Levels

A traffic light system will be used to control the works on site. These trigger levels are subject to development as the works progress. The horizontal movement evident in the viaduct arches should be guided by the values in Table 3.

Table 3 - Horizontal Movement Monitoring Traffic Light System

Trigger Level Description	Total Horizontal Movement of Survey Target	Traffic Light System Action
Green	<1mm	Continue as planned.
Amber	1-5mm	Increase monitoring frequency, prepare to implement a revised plan of work, undertake additional condition surveys.
Red	>5mm	If the cause is clear and obvious, relevant works to stop, otherwise all works to stop and a revised plan of work implemented.

Based on a limiting differential settlement between piers of L/1000, a maximum allowable deflection of 7mm would be an upper limit at which work would be stopped and corrective measures agreed before work would proceed.

Table 4 - Differential Settlement Across Segmental Arches Traffic Light System

Trigger Level Description	Total Vertical Movement of Survey Target	Traffic Light System Action
Green	<3mm	Continue as planned.
Amber	3-7mm*	Increase monitoring frequency, prepare to implement a revised plan of work, undertake additional condition surveys and checks on differential settlement between the pointed arches (**which is limited to 4mm**). *If differential settlement between the pointed arches reaches 3mm, relevant works to stop and a revised plan of work implemented.
Red	>7mm	If the cause is clear and obvious, relevant works to stop, otherwise all works to stop, and a revised plan of work implemented.

4.3 Vibration Monitoring Assessment Criteria

4.3.1 Continuous Vibration

The CFA piling operations are considered to be continuous. For continuous vibration the following criteria apply according to BS 5228-2: 2009+A1: 2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration, with suitable multiplying factors derived from BS ISO 4866: 2010.

Table 5 - Continuous Vibration Guide Values for Cosmetic Damage

Potential effect	Type of building	Peak component particle velocity in frequency range of predominant pulse	
		4 Hz to 15 Hz	15 Hz and above
Cosmetic damage	Unreinforced or light framed structures Residential or light commercial buildings	7.5 mm/s at 4 Hz increasing to 10 mm/s at 15 Hz	10 mm/s at 15 Hz increasing to 25 mm/s at 40 Hz and above
Minor damage	Unreinforced or light framed structures Residential or light commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above
Major damage	Unreinforced or light framed structures Residential or light commercial buildings	30 mm/s at 4 Hz increasing to 40 mm/s at 15 Hz	40 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above
NOTE 1 Values referred to are at the base of the building			
NOTE 2 For line 2, at frequencies below 4 Hz, a maximum displacement of 0.6 m (zero to peak) is not to be exceeded.			
NOTE 3 The description of these effects can be found in BS ISO 4866:2010.			

4.3.2 Transient Vibration

In case transient vibration is generated as part of the works, the following criteria apply.

Table 6 - Transient Vibration Guide Values for Cosmetic Damage

Potential effect	Type of building	Peak component particle velocity in frequency range of predominant pulse	
		4 Hz to 15 Hz	15 Hz and above
Cosmetic damage	Unreinforced or light framed structures Residential or light commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above
Minor damage	Unreinforced or light framed structures Residential or light commercial buildings	30 mm/s at 4 Hz increasing to 40 mm/s at 15 Hz	40 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above
Major damage	Unreinforced or light framed structures Residential or light commercial buildings	60 mm/s at 4 Hz increasing to 80 mm/s at 15 Hz	80 mm/s at 15 Hz increasing to 50 mm/s at 100 Hz and above
NOTE 1 Values referred to are at the base of the building			
NOTE 2 For line 2, at frequencies below 4 Hz, a maximum displacement of 0.6 m (zero to peak) is not to be exceeded.			
NOTE 3 The description of these effects can be found in BS ISO 4866: 2010.			

4.3.3 Alert Thresholds

Based on the assessment criteria shown in Table 6, the following alert thresholds are derived (see Table 7).

Table 7 - Alert Thresholds and Contractor Action

Alert Threshold, PPV (all frequencies)	Contractor Action
5 mms^{-1}	Vibration levels may be just perceptible in the adjacent residential building to very sensitive persons. Works should continue. If works are to move closer to the Party Wall consideration of reducing working speeds or alternative working methods may need to be considered.
10 mms^{-1}	It is likely that vibration of this level in residential environments will be perceptible and could cause complaint but can be tolerated if prior warning and explanation has been given to residents.
15 mms^{-1}	Vibration is likely to be clearly perceptible and cause significant complaint. Vibration levels are approaching the potential for cosmetic building damage to arise. Works to be ceased and consideration given to alternative construction working methods. Where possible alternative working methods should be adopted, or if not possible, then a program of public consultation with local residents should be undertaken and possible mitigation investigated.

4.3.4 Vibration Threshold Alert Triggering

The equipment must be capable of alerting via email, SMS, or other suitable means that a threshold has been exceeded immediately at that point in time, or within no more than several minutes, of the exceedance.

The equipment must be capable of alerting more than one party, and preferably by more than one means. It may also be considered suitable to have visual indicators, such as Green/Amber/Red warning lights or sirens on site in addition to email/SMS alerting.

Vibration trigger levels will be subject to review upon completion of baseline level monitoring subject to agreement with TfGM.

APPENDIX A

TOPOGRAPHICAL SURVEY



Topographical Survey Legend

B	Bollard	h	Height	FWP	Ram Water Pipe	Level Prefix Descriptions	
BS	Bus Stop	Hyd	Hydrant	SP	Soil Pipe	AL	Arch Level
BT	Telecommunications IC	IC	Inspection Cover	SPS	Stone Paving Slabs	BL	Bed Level
CCTV	Closed Circuit Television	KO	Kerb Outlet	CS	Cable Slab	CL	Centre Level
CTV	Cable Television Cover	LO	Kerb Outlet	CSy	Cable Stay	CL	Eaves Level
DP	Downpipe	LB	Letter Box	SV	Stop Valve	FL	Floor Level
DR	Drain	LP	Lamp Post	TCB	Telephone Call Box	IL	Invert Level
Elec	Electrical IC	MH	Utility Marker	TL	Traffic Light	OL	Overhead Cable Level
EP	Electric Post	NP	Name Plate	TP	Tactile Paving Slabs	PL	Parapet Level
ER	Earth Rod	NP	Name Plate	TPS	Tactile Paving Slabs	RL	Roofridge Level
FP	Flagpole	P	Post	VP	Vent Pipe	SL	Soffit Level
FT	Floodlight	PM	Parking Meter	WM	Water Meter	Spr	Arch Springing Level
G	Gully	RE	Rodding Eye	WO	Water Outlet	TF	Top Of Fence Level
GP	Guard Post	TL	Traffic Light	UTL	Unable To Lift	TW	Top Of Wall Level
GV	Gas Valve	RTW	Retaining Wall			Thr	Threshold Level
						WL	Water Level

Fence Annotation:

B/W	Barbed Wire		Fence
C/B	Closed Boarded		Safety Barrier
C/I	Corrugated Iron		Gate
C/L	Chain Link		
M/P	Metal Panel		Stile
H/R	Hand Rail		
I/R	Iron Railings		Hedge
O/B	Open Boarded		
P/C	Post & Chain		
P/R	Post & Rail		Limit of Foliage & Tree Canopy
P/W	Post & Wire		
W/M	Wire Mesh		

Spot Level: 50.00

Survey Control Station (coordinated point): SSL1 50.00

Tree: MT Multi Trunk

Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.

Survey Station Coordinates

STN	EASTING	NORTHING	LEVEL
001A	383582.40	397581.22	35.13
N010	383574.06	397733.79	42.67
R13A	383550.92	397712.57	35.77
RP14	383591.20	397648.58	35.85
R17B	383589.02	397579.05	35.45
RP22	383520.69	397609.31	34.95
RP23	383538.51	397584.35	34.85
RP24	383521.71	397610.05	42.06
RP25	383498.34	397617.02	42.59
RP26	383568.03	397674.91	43.55
R26A	383576.29	397705.07	43.30
R26B	383587.20	397697.53	43.34
R26C	383585.57	397667.22	43.54
RP28	383611.80	397659.27	43.45
R28A	383620.38	397659.17	43.34
TN01	383571.56	397649.72	43.52
TN1A	383543.96	397619.69	43.29
TN1B	383585.04	397593.28	43.19
TN02	383530.17	397648.66	43.32
TN03	383529.17	397666.23	43.29
TN05	383532.25	397605.99	34.92
TN06	383536.59	397633.22	34.86
TN07	383555.59	397629.17	34.97
TNX3	383529.93	397663.81	43.27

Sheet Layout

Please note:

Any discrepancy found between an Ordnance Survey benchmark and an OSGB15 computed orthometric height is likely to be due to bench mark subsidence or uplift and, assuming precise GPS survey has been carefully carried out, the orthometric height given by OSGB15 should be considered correct in preference to archive benchmark heights. OSGB15 converts GPS ellipsoid heights to orthometric heights above mean sea level.

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Tel. 01625 533444
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www.surveys.co.uk

Levels are related to **OSGB15**
Value **n/a**

Coordinates are related to **National Grid** (GPS)

Scale **1:200**

0 2 4 6 8 10 12 14 16 18
metres

The accuracy of this survey is commensurate with the drawing scale specified within the title block.
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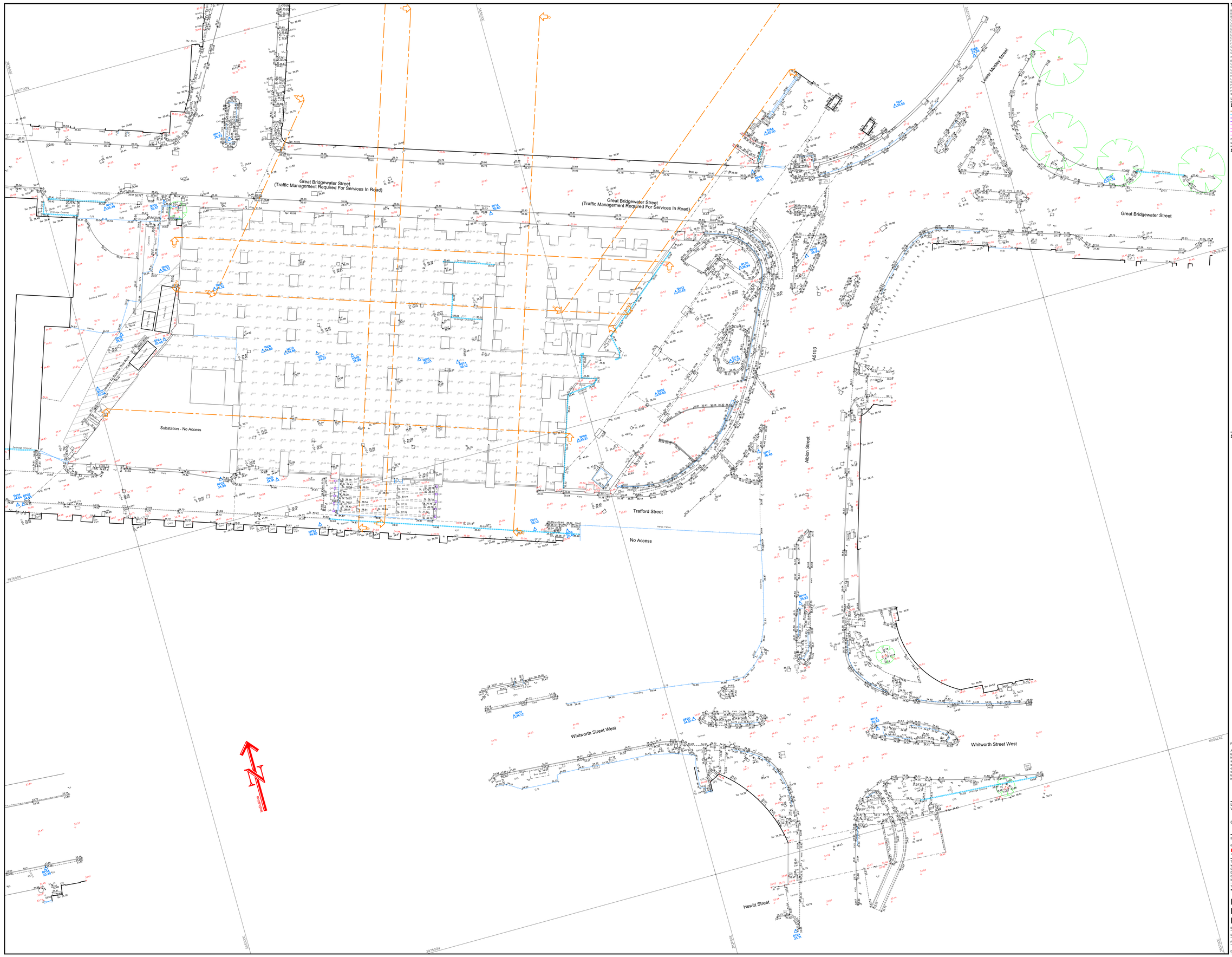
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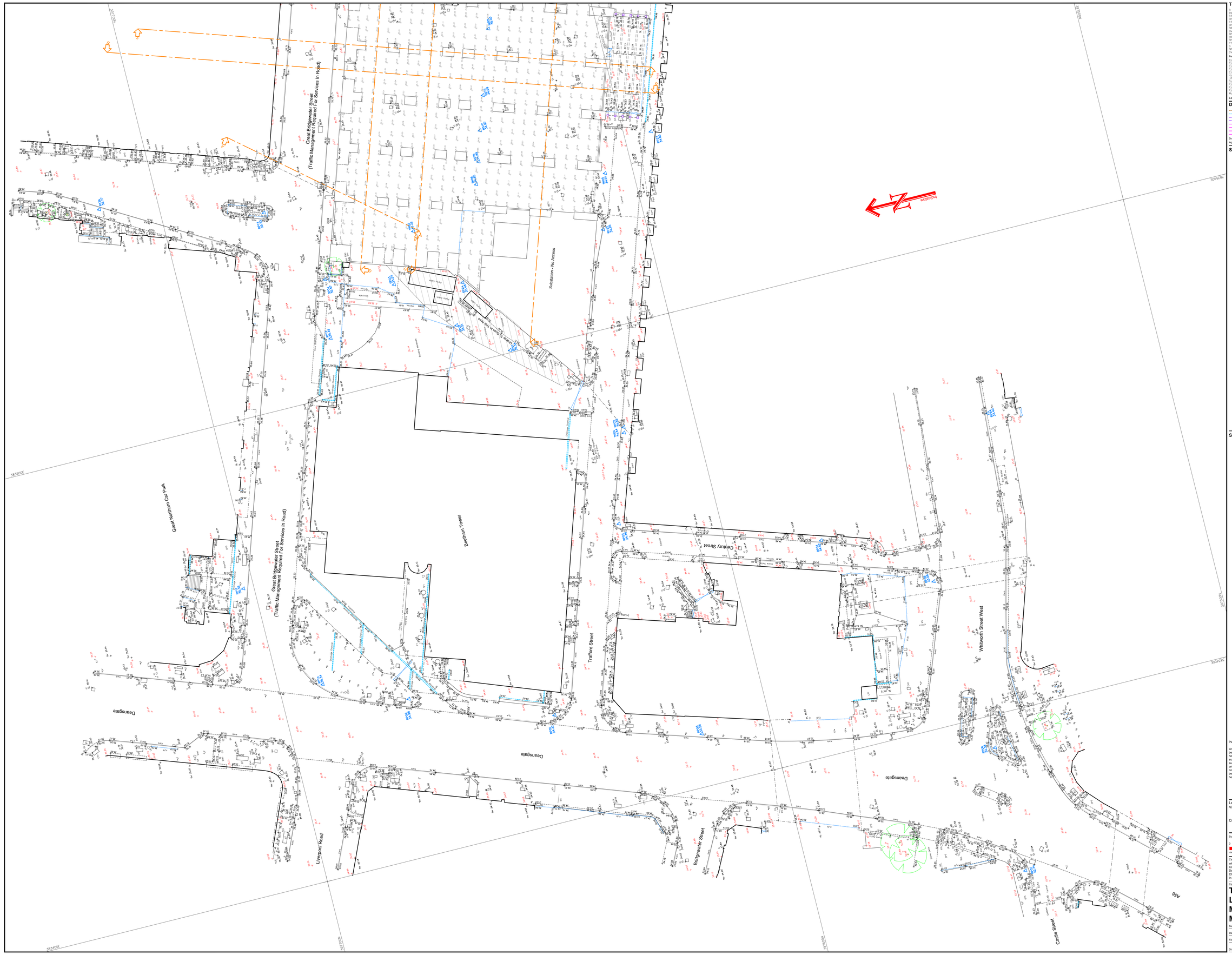
Topograghical Survey
Upper Level Survey
Manchester Central
M2 3GX

Surveyed	JDS CM RL SE AT	Drawn	GAT RW AH
Date	April 2020	Checked	SSL
File name	1468Z-Upper Level	Revision No.	Sheet size A0
Drawing No.	**SSL:1468Z:200:1:1:Upper**		

SURVEYsystems

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Great Bridgewater Street
(Traffic Management Required For Services In Road)
Great Bridgewater Street
(Traffic Management Required For Services In Road)
Great Bridgewater Street
Lower Mosley Street
Albion Street
Trafford Street
Whitworth Street West
Whitworth Street West
Hewitt Street
Substation - No Access
No Access
A5103
Building Boundary
Cars Parked
Cars Parked
Bus Stand
Bus Stand
Taxi Cabs
Taxi Cabs
Drainage Channel
Drainage Channel
Drainage Channel
Drainage Channel
Hedge
Hedge
Hedge



Topographical Survey Legend

B	Bollard	h	Height	RWP	Ram Water Pipe	Level Prefix Descriptions	
BS	Bus Stop	HYd	Hydrant	SP	Soil Pipe	AL	Arch Level
BT	Telecommunications IC	IC	Inspection Cover	SPS	Stone Paving Slabs	BL	Bed Level
C	Combined Sewerage IC	KO	Kerb Outlet	CS	Concrete Slabs	CL	Cover Level
CTV	Cable Television Cover	LO	Kerb Outlet	SSy	Cable Slab	EL	Eaves Level
DP	Downpipe	LB	Letter Box	SV	Stop Valve	FL	Floor Level
DR	Drain	LP	Lamp Post	TCB	Telephone Call Box	IL	Invert Level
Elec	Electrical IC	MU	Utility Marker	TL	Traffic Light	OL	Overhead Cable Level
G	Gully	NP	Name Plate	TPS	Tactile Paving Slabs	PL	Parapet Level
ER	Earth Rod	NP	Name Plate	TPS	Tactile Paving Slabs	RL	Roofridge Level
FP	Flagpole	P	Post	VP	Vent Pipe	SL	Soffit Level
FT	Floodlight	PM	Parking Meter	WM	Water Meter	Spr	Arch Springing Level
G	Gully	RE	Rodding Eye	WO	Water Outlet	TF	Top Of Fence Level
LP	Lamp Post	RS	Road Sign	UTL	Unable To Lift	TW	Top Of Wall Level
GV	Gas Valve	RTW	Retaining Wall			Thr	Threshold Level
						WL	Water Level

Fence Annotation:
B/W Barbed Wire
C/B Closed Boarded
C/I Corrugated Iron
C/L Chain Link
C/P Concrete Panel
H/R Hand Rail
I/R Iron Railings
O/B Open Boarded
P/C Post & Chain
P/R Post & Rail
P/W Post & Wire
W/M Wire Mesh

Fence
Safety Barrier
Gate
Stile
Hedge
Limit of Foliage & Tree Canopy
Spot Level
Survey Control Station (coordinated point)
Tree
Multi Trunk

Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.

Drainage/Services Legend

Foul	CCTV	CCTV	Ducting		
Surface	T	Electric			
Combined	SL	Street lighting	d	Service depth (m)	
Drainage (unspecified)	TM	Traffic management	ø	Pipe diameter (mm)	
BT British telecom	GAS	Gas	EOT	End of trace	
T Telecom	W	Water	UTT	Unable to trace	
FO Fibre optics	F	Fuel		Utility Survey Boundary	
CATV CATV	UK	Unknown / misc			

Drainage pipe size data has been determined from the surface, in order to comply with confined spaces health and safety legislation. Please regard this data as approximate.

Survey Station Coordinates

STN	EASTINGS	NORTHINGS	LEVEL
TN01	383571.563	397649.717	43.517
TN02	383530.169	397648.659	43.320
TN03	383529.166	397666.232	43.289
TN04	383477.538	397615.506	34.637
TN05	383532.250	397605.986	34.915
TN06	383536.592	397633.215	34.855
TN07	383555.589	397629.172	34.969
TNX3	383529.930	397663.805	43.271
SP01	383500.524	397634.801	35.357
SP02	383508.435	397644.583	35.513
SP03	383520.107	397655.409	35.572
SP04	383524.736	397669.440	35.570
RP13	383541.717	397678.639	35.727
RP14	383591.196	397648.580	35.847
RP15	383647.322	397642.366	36.097
RP16	383653.658	397622.021	36.944
RP17	383632.750	397584.526	36.483
R17B	383589.017	397579.052	35.446
RP24	383521.711	397610.047	42.059
RP25	383498.335	397617.024	42.586
SP2A	383516.991	397641.143	35.483
RP18	383632.680	397551.014	35.931
RP19	383641.526	397520.912	34.828
RP20	383604.275	397533.248	34.568
RP21	383567.565	397543.886	34.120
RP5A	383462.768	397539.232	33.397
RP05	383430.740	397559.090	33.056
RP04	383445.045	397580.270	34.521
RP03	383458.957	397621.271	34.461
RP02	383478.714	397615.275	34.652
RP06	383393.144	397555.006	32.384
RP07	383366.139	397550.078	32.344
RP08	383411.196	397614.969	33.559
RP01	383422.663	397644.486	34.321
RP09	383433.568	397673.824	34.981
RP10	383441.031	397690.878	35.339
RP11	383464.975	397702.338	35.380
RP12	383512.243	397671.322	35.490
R13A	383550.920	397712.566	35.767
R16A	383652.170	397649.457	35.901
16A1	383680.297	397647.818	35.589
R16B	383699.438	397653.655	37.549
R16C	383719.249	397620.486	37.322
R17A	383632.098	397604.655	37.261
R17C	383639.362	397623.299	36.941
SH03	383624.716	397621.894	35.619
SH04	383596.361	397596.972	35.510
SH02	383614.897	397602.001	35.645
RP23	383538.514	397594.353	34.851
RP22	383520.691	397609.309	34.946
001A	383582.396	397581.218	35.132
R19A	383613.236	397583.896	33.708
TN1A	383543.964	397619.685	43.289
TN1B	383585.039	397593.280	43.192
RP27	383611.186	397636.749	43.539
RP28	383611.798	397659.265	43.449
R26C	383585.571	397667.220	43.540
RP26	383568.031	397674.912	43.546
R26A	383576.292	397700.067	43.303
R26B	383587.196	397697.530	43.342
R28A	383620.376	397659.169	43.342
JS01	383494.376	397618.307	34.794

Sheet Layout



Please note:

Any discrepancy found between an Ordnance Survey benchmark and an OSGB15 computed orthometric height is likely to be due to bench mark subsidence or uplift and, assuming precise GPS survey has been carefully carried out, the orthometric height given by OSGB15 should be considered correct in preference to another benchmark heights. OSGB15 converts GPS ellipsoid heights to orthometric heights above mean sea level.

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Levels are related to **OSGB15**
Value **n/a**

Coordinates are related to **National Grid** (GPS)

Scale **1:250**

0 2 4 6 8 10 12 14 16 18
metres

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Title
Topographical Survey
Lower Level Survey
Manchester Central
M2 3GX

Surveyed	JDS CM RL SE AT	Drawn	GAT RW AH
Date	April 2020	Checked	SSL
File name	1468Z-Lower Level	Revision No.	Sheet size A0
Drawing No.	**SSL:1468Z:250:1:2:Lower**		

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APPENDIX B

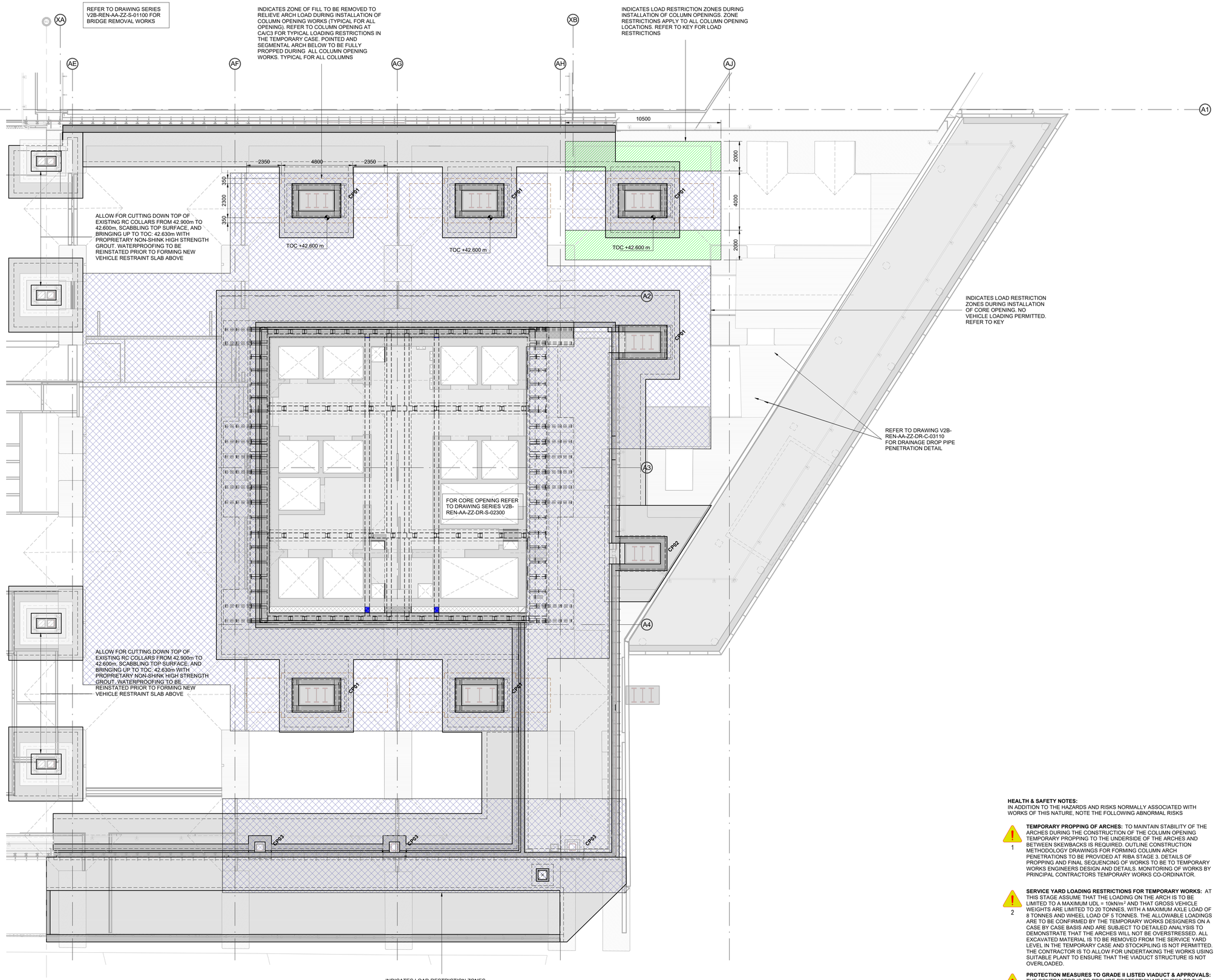
VIADUCT ARCH PENETRATION DRAWINGS

VIADUX 2B - BLOCK A

ISSUE SHEET - STRUCTURES

Job No: 2209-01
Ref: V2B-REN-AA-XX-SH-S-00002
Sheet No: AA-S1-01

| DOCUMENT No. | DOCUMENT TITLE | SIZE | ISSUE DATE | | |



NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.
2. ALL STEELWORK TO BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITION OF THE 'NATIONAL STRUCTURAL STEELWORK SPECIFICATION' AND RENAISSANCE PROJECT STEELWORK SPECIFICATION.
3. ALL STEELWORK TO BE S355 J2 U.N.O. FINAL SUBGRADE IS TO BE CONFIRMED DURING TECHNICAL DESIGN WITH INPUT FROM THE STEELWORK FABRICATOR ONCE THE CONNECTION DETAILS ARE KNOWN.
4. CONCRETE TO FOUNDATIONS AND ENCASEMENT TO STEELWORK TO BE RC35/45.
5. WHERE FEASIBLE EXISTING GOOD QUALITY MASONRY UNITS ARE TO BE SALVAGED AND CLEANED FOR REUSE WITHIN THE WORKS. THE GLAZED BRICKS TO GREAT BRIDGEWATER STREET ARE TO ALSO BE SALVAGED AND REUSED FOR REINSTATEMENT OF BRICKWORK AROUND THE NEW OPENINGS.
6. WHERE NEW BRICKS ARE REQUIRED THAT ARE NOT EXPOSED IN THE FINISHED WORKS THESE ARE TO BE SOLID CLASS B CLAY ENGINEERING BRICKS. ALL EXPOSED MASONRY TO BE SUITABLY SOURCED TO MATCH EXISTING.
7. NO CEMENT BASED MORTAR IS PERMITTED FOR USE WITHIN REINSTATEMENT WORKS OF MASONRY. ALLOW FOR NEW AND REPAIR WORKS UNDERTAKEN TO BE WITH A LIME MORTAR.
   HLM 3.5 - GENERAL MASONRY WORKS 150mm ABOVE GROUND LEVEL
   HLM 5.0 - WORKS BELOW GROUND
   FINAL MORTAR SPECIFICATION TO BE IN ACCORDANCE WITH THE HERITAGE ARCHITECTS SPECIFICATION AND SUBJECT TO AGREEMENT WITH THE ENGINEER.
8. PACKING WORKS BETWEEN STEELWORK AND EXISTING MASONRY TO BE UNDERTAKEN WITH NON-SHRINK PROPRIETARY GROUT INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.

GENERAL ARCH MAINTENANCE & REPAIR WORKS
REFER TO RENAISSANCE 'VIADUCT STRUCTURAL REPORT' (VIA-REN-B-XX-RP-00010) FOR EXISTING SURVEY INFORMATION AND RECOMMENDATIONS FOR REMEDIAL AND REPAIR WORKS

BELOW GROUND DRAINAGE & SERVICE YARD PAVEMENT
BELOW GROUND DRAINAGE HAS BEEN OMITTED FOR CLARITY.
- FOR ALTERATIONS TO EXISTING DRAINAGE REFER TO DRAWING **V2B-REN-AA-01-DR-C-01105**
- FOR NEW DRAINAGE REFER TO DRAWING **V2B-REN-CC-01-DR-C-01105**
- FOR BLOCK A PAVEMENT BUILD-UPS REFER TO DRAWING **V2B-REN-AA-01-DR-C-01200&01400**

BLOCK C FOUNDATIONS & FLOOR SLABS
BLOCK C FOUNDATIONS AND FLOOR SLAB OMITTED FOR CLARITY.
- FOR BLOCK C FOUNDATIONS REFER TO DRAWING V2B-REN-CC-FN-DR-S-01095
- FOR BLOCK C FLOOR SLABS REFER TO DRAWING V2B-REN-CC-01-DR-S-01101

TEMPORARY LOAD RESTRICTION TO SERVICE YARD ADJACENT TO COLUMN AND CORE OPENING WORKS

TO PREVENT OVER-STRESSING OF THE ARCH IN THE TEMPORARY CASE THE FOLLOWING LOAD RESTRICTIONS ARE TO BE IMPLEMENTED AND MANAGED BY THE MAIN CONTRACTOR, SUB-CONTRACTOR AND TEMPORARY WORKS CO-ORDINATOR:

- DURING EXCAVATION AND INSTALLATION OF COLUMN AND CORE OPENINGS NO VEHICLE ACCESS PERMITTED
- DURING EXCAVATION AND INSTALLATION OF COLUMN AND CORE OPENINGS NO VEHICLE ACCESS EXCEEDING 7.5 TONNE PERMITTED

KEY:

CPDX — INDICATES COLUMN OPENING TYPE. REFER TO THE FOLLOWING DRAWINGS FOR OPENING DETAILS:
CP01 - V2B-REN-AA-ZZ-DR-S-02200
CP02 - V2B-REN-AA-ZZ-DR-S-02210
CP03 - V2B-REN-AA-ZZ-DR-S-02220

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

1 **TEMPORARY PROPPING OF ARCHES:** TO MAINTAIN STABILITY OF THE ARCHES DURING THE CONSTRUCTION OF THE COLUMN OPENING TEMPORARY PROPPING TO THE UNDERSIDE OF THE ARCHES AND BETWEEN SKEWBACKS IS REQUIRED. OUTLINE CONSTRUCTION METHODOLOGY DRAWINGS FOR FORMING COLUMN ARCH PENETRATIONS TO BE PROVIDED AT RIBA STAGE 3. DETAILS OF PROPPING AND FINAL SEQUENCING OF WORKS TO BE TO TEMPORARY WORKS ENGINEERS DESIGN AND DETAILS. MONITORING OF WORKS BY PRINCIPAL CONTRACTORS TEMPORARY WORKS CO-ORDINATOR.

2 **SERVICE YARD LOADING RESTRICTIONS FOR TEMPORARY WORKS:** AT THIS STAGE ASSUME THAT THE LOADING ON THE ARCH IS TO BE LIMITED TO A MAXIMUM UDL = 10kN/m² AND THAT GROSS VEHICLE WEIGHTS ARE LIMITED TO 20 TONNES, WITH A MAXIMUM AXLE LOAD OF 8 TONNES AND WHEEL LOAD OF 5 TONNES. THE ALLOWABLE LOADINGS ARE TO BE CONFIRMED BY THE TEMPORARY WORKS DESIGNERS ON A CASE BY CASE BASIS AND ARE SUBJECT TO DETAILED ANALYSIS TO DEMONSTRATE THAT THE ARCHES WILL NOT BE OVERSTRESSED. ALL EXCAVATED MATERIAL IS TO BE REMOVED FROM THE SERVICE YARD LEVEL IN THE TEMPORARY CASE AND STOCKPILING IS NOT PERMITTED. THE CONTRACTOR IS TO ALLOW FOR UNDERTAKING THE WORKS USING SUITABLE PLANT TO ENSURE THAT THE VIADUCT STRUCTURE IS NOT OVERLOADED.

3 **PROTECTION MEASURES TO GRADE II LISTED VIADUCT & APPROVALS:** THE CONTRACTOR IS TO PROVIDE PROTECTION MEASURES TO THE VIADUCT MASONRY STRUCTURE IN THE TEMPORARY CASE. ALL TEMPORARY WORKS ARE TO BE DESIGNED TO MINIMISE FIXING TO THE EXISTING LISTED STRUCTURE. WHERE INTRUSIVE CONNECTIONS OR ALTERATIONS ARE REQUIRED THESE ARE TO BE AGREED IN WRITING BY THE LISTED BUILDING OFFICER. THE PRINCIPAL CONTRACTOR'S TEMPORARY WORKS CO-ORDINATOR IS TO ALLOW SUFFICIENT TIME WITHIN THEIR PROGRAMME FOR OBTAINING LISTED BUILDING CONSENT IF REQUIRED.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	04.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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

Project:
VIADUX 2B, MANCHESTER

Drawing Title:
BLOCK A VIADUCT PENETRATION PLAN

Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi		KAG

Scale: 1 : 125 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

V2B - REN - AA - 01 - DR - S - 02100 - P02

STEEL COLUMN SCHEDULE			
REF	SECTION DESIGNATION	GRADE	SPECIAL REQUIREMENTS
SC01	UC254x254x89	S355	
SC02	UB457x191x74	S355	
SC03	UB610x305x149	S355	

HOT ROLLED STEEL BEAMS			
REF	SECTION DESIGNATION	GRADE	SPECIAL REQUIREMENTS
SB01	UC305x305x198	S355	
SB02	UC356x406x235	S355	
SB03	UB406x178x74	S355	

FABRICATED STEEL BEAMS					
REF	SECTION DESIGNATION	FLANGE THICKNESS	WEB THICKNESS	GRADE	SPECIAL REQUIREMENTS
FB01	UB1200x265x437	50	25	S355	
FB02	UB1200x265x575	75	30	S355	

NOTES:

1. REFER TO DRAWING STM-REN-XX-XX-DR-S-00010 FOR GENERAL NOTES.
2. REFER TO DRAWING STM-REN-XX-XX-DR-S-00015 FOR ELEMENT SCHEDULE

Rev:	Description:	Date:	By:	Chkd:
P01	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC

Renaissance Associates Ltd
2nd Floor, Tribeca House
21-27 Dale Street
Manchester
M1 1EY

Project:

VIADUX 2B, MANCHESTER

Drawing Title:

ELEMENT SCHEDULE

Status:

STAGE 2

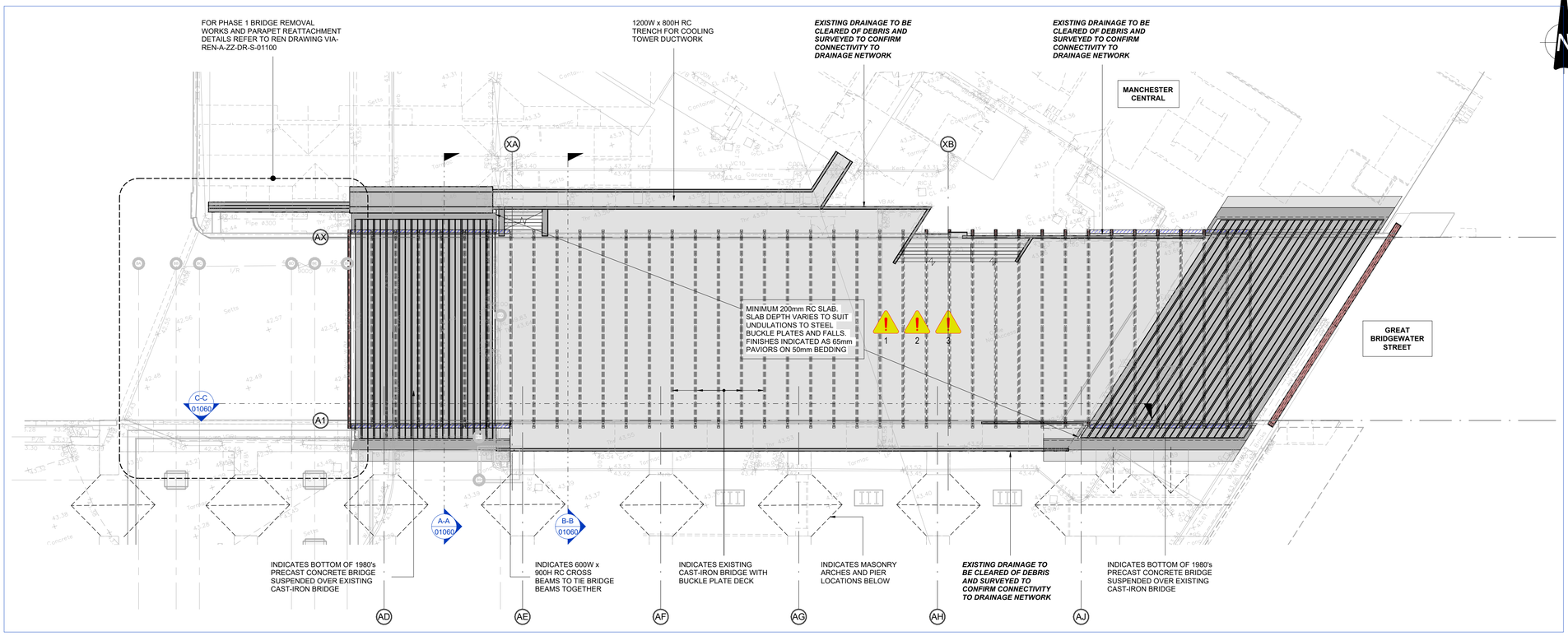
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A1	SEPT 22	AMi	RC	PC

Scale: | Project No: 2209-01

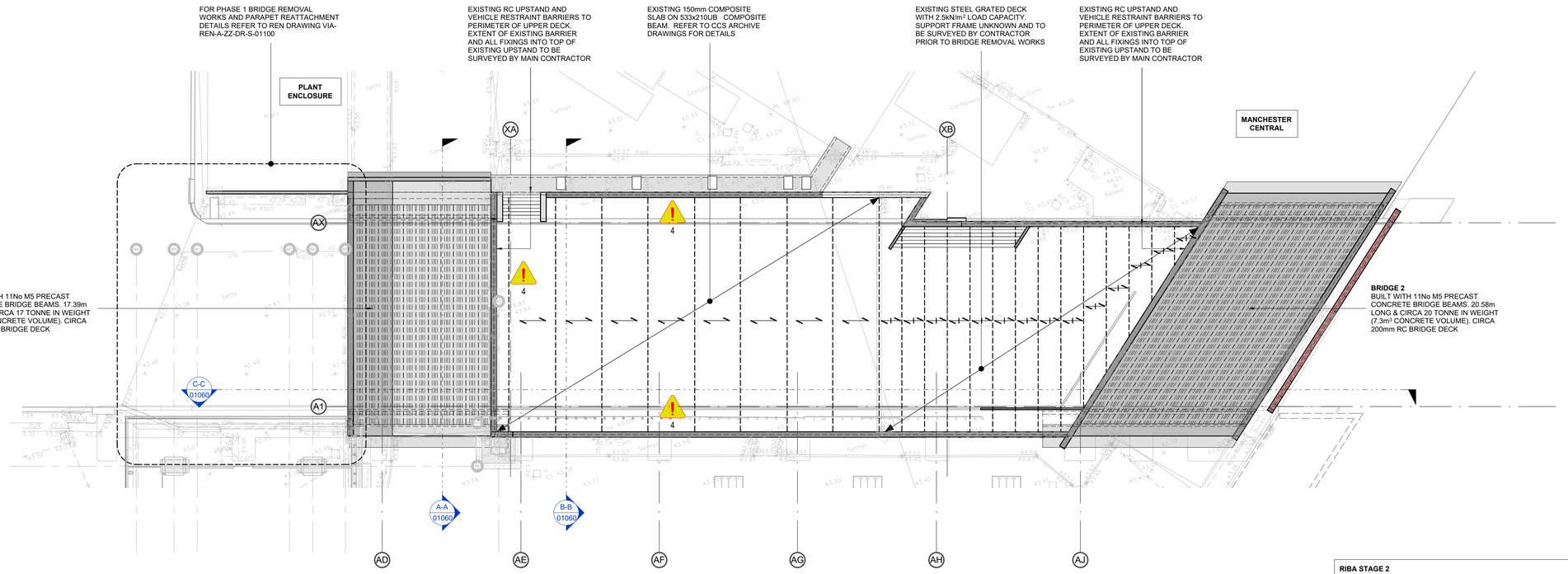
Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

V2B - REN - AA - XX - DR - S - 00015 - P01

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EXISTING BRIDGE LOWER LEVEL PLAN



EXISTING BRIDGE UPPER LEVEL PLAN

RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

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A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.
2. THE DRAWINGS SHOWING THE EXISTING STRUCTURE ARE BASED UPON THE 1980'S DRAWINGS CONTAINED WITHIN MANCHESTER CENTRALS ARCHIVES AND ORIGINAL 1870'S DRAWINGS FOR THE CAST-IRON BRIDGE OVER GREAT BRIDGEWATER STREET. THE ARCHIVE DRAWINGS ARE INCOMPLETE OR OF POOR SCAN QUALITY. THE INFORMATION SHOWN ON THESE DRAWINGS SHOULD THEREFORE BE CONSIDERED AS INDICATIVE AND PROVIDED TO GIVE AN UNDERSTANDING OF THE LIKELY CONSTRUCTION AND DETAILS THAT MAY BE ENCOUNTERED. WHERE EXISTING DETAILS ARE CRITICAL TO THE DEMOLITION WORKS OR DETAILING OF NEW INTERFACES THESE SHOULD BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF DEMOLITION AND CONSTRUCTION WORKS SO THAT ANY ANOMALIES BETWEEN THE ARCHIVE DRAWINGS AND AS-BUILT STRUCTURE OR SUBSEQUENT ALTERATIONS OR ADDITIONS CAN BE ADDRESSED.

DEMOLITION WORKS
THE DEMOLITION CONTRACTOR SHOULD READ THESE DRAWINGS IN CONJUNCTION WITH THE FOLLOWING ARCHIVE INFORMATION:
A. CAST IRON RIB & BUCKLE PLATE DRAWINGS (CIRCA 1875)
B. RC OVERSLAB DETAILS & RC DETAIL DRAWINGS (CIRCA 1984)
C. CONSTRUCTION PHOTOGRAPHS (CIRCA 1985-1986)
D. INFILL FLOOR (CCS 2013)
E. DRAWINGS TOPGRAPHICAL (SURVEY SYSTEMS 2016)

THE INFORMATION PROVIDED ABOVE AND ON THESE DRAWINGS IS INCOMPLETE, BASED ON LIMITED RECORD INFORMATION AND COMES WITH NO RELIANCE. THE DEMOLITION CONTRACTOR IS THEREFORE TO UNDERTAKE THEIR OWN DETAILED SURVEYS TO CONFIRM THE EXISTING CONSTRUCTION, EXISTING DETAILS AND TEMPORARY LOADING CONSTRAINTS TO ALLOW THEM TO DEVELOP THEIR DEMOLITION STRATEGY, DETAILED RISK ASSESSMENTS AND METHOD STATEMENTS.

SURVEYS REQUIRED
THE INFORMATION ON THIS DRAWINGS IS BASED UPON ARCHIVE INFORMATION AND LIMITED SURVEY INFORMATION. TO ALLOW FOR STAGE 3 AND 4 TO BE DEVELOPED AND ALTERATIONS TO EXISTING ELEMENTS TO BE DEFINED THE FOLLOWING SURVEYS ARE REQUIRED:
- **OPEN MESH FLOOR & SUPPORT FRAME** : DETAILED SURVEY REQUIRED CONFIRMING ALL SECTION SIZES, CONNECTION DETAILS, DETAILED SETTING OUT AND INTERFACE DETAILS.
- **EXISTING RC UPSTAND AND BARRIER PLINTHS** : FOLLOWING REMOVAL OF THE MARQUEE ALL EXISTING LEVELS AND EXTENT OF RC UPSTANDS AND SAFETY BARRIERS SHOULD BE COMPLETED.
- **EXISTING LOWER DECK DRAINAGE** : THE EXISTING LOWER DECK DRAINAGE CHANNEL AND OUTLETS ARE TO BE CLEANED AND SURVEYED, INCLUDING CONNECTION INTO BELOW GROUND DRAINAGE SYSTEM.
- ***MANCHESTER CENTRAL SERVICES*** : THE EXISTING SERVICES AND BELOW GROUND DRAINAGE SYSTEM ALONG THE MANCHESTER CENTRAL SIDE IS TO BE SURVEYED TO UNDERSTAND INTERFACE WITH NEW WORKS AND POTENTIAL NEED FOR EXISTING SERVICES DIVERSIONS OR ALTERATIONS

A SUITABLE PERIOD SHOULD BE ALLOWED BETWEEN RECEIPT OF THE SURVEY INFORMATION AND BRIDGE DEMOLITION TO ALLOW FOR FINAL CO-ORDINATION BETWEEN THE DESIGN TEAM AND COMPLETION OF THE DESIGN. THE MARQUEE WILL REQUIRE EARLY REMOVAL TO ALLOW FOR COMPLETION OF THE SURVEYS.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

1. THE LOAD CAPACITY OF EXISTING CAST-IRON BRIDGE IS UNKNOWN AND ANECDOTAL EVIDENCE INDICATES IT HAS FRACTURES, WHICH WILL LIMIT ITS LOAD CAPACITY. ALL WORKS UNDERTAKEN TO OR OVER THE EXISTING BRIDGE NEED TO TAKE CONSIDERATION OF THIS (I.E. PLANT LIMITED TO LIGHTWEIGHT MACHINERY, NO STOCKPILING OF MATERIALS ETC.). ARCHIVE DRAWINGS INDICATE A MAXIMUM IMPOSED LOAD ALLOWANCE OF 2.5kN/m².
2. THE EXISTING BRIDGE IS OF CAST-IRON CONSTRUCTION WHICH IS BRITTLE. THE USE OF PERCUSSIVE TECHNIQUES ON OR IN CLOSE PROXIMITY TO THE CAST-IRON ARCHES SHOULD BE USED WITH EXTREME CAUTION AND SUBJECT TO ASSESSMENT BY THE CONTRACTOR'S TEMPORARY WORKS ENGINEER.
3. THE EXISTING BRIDGE IS AN ARCH AND RELIES ON BALANCED LOADING FOR ITS STABILITY. ALL CONSTRUCTION AND DEMOLITION WORKS NEED TO BE PHASED TO MINIMISE OUT OF BALANCE LOADING AND AN ASSESSMENT UNDERTAKEN BY THE CONTRACTOR AND THEIR TEMPORARY WORKS ENGINEER.
4. THE EXISTING BRIDGE PARAPET RC EDGE AND STEEL BARRIER CONDITION IS UNKNOWN. PRIOR TO DEMOLITION OF THE CAST IRON BRIDGE BELOW THE CONTRACTOR IS TO UNDERTAKE A DETAILED CONDITION SURVEY OF THE BRIDGE EDGE & EXISTING PARAPET SAFETY BARRIER, THE CONTRACTOR IS TO REPAIR RETAINED BARRIERS AND PROCURE AND INSTALL NEW VEHICLE RESTRAINT BARRIERS TO THE UPPER DECK BRIDGES AND ALONG THE MANCHESTER CENTRAL SIDE. REMOVAL OF THE EXISTING CAST-IRON BRIDGE PRIOR TO INSTALLATION/REPAIR OF A SUITABLE SAFETY BARRIER TO THE BRIDGE EDGE IS NOT PERMITTED.
5. THE CAST-IRON BRIDGE BEAMS ARE TIED AT LOW LEVEL TO PREVENT BUCKLING. PRIOR TO REMOVAL OF THE BRIDGE AND BUCKLE PLATE THE FINAL RETAINED CAST IRON EDGE BEAMS ARE TO ALL BE TIED BACK TO THE BUCKLE PLATE LEVEL.

KEY

INDICATES EXISTING PRECAST CONCRETE INFILL PANELS

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

renaissance
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77 Dale Street
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Project:
VIADUX 2B, MANCHESTER

Drawing Title:
GBS BRIDGE DECK REMOVAL EXISTING PLANS

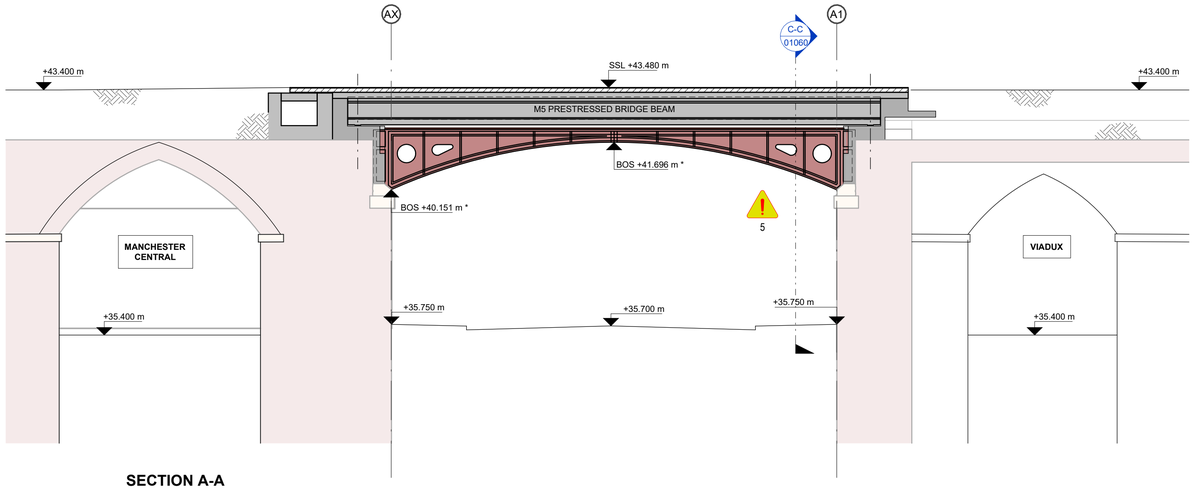
Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	APR 24	AMi	-	KAG

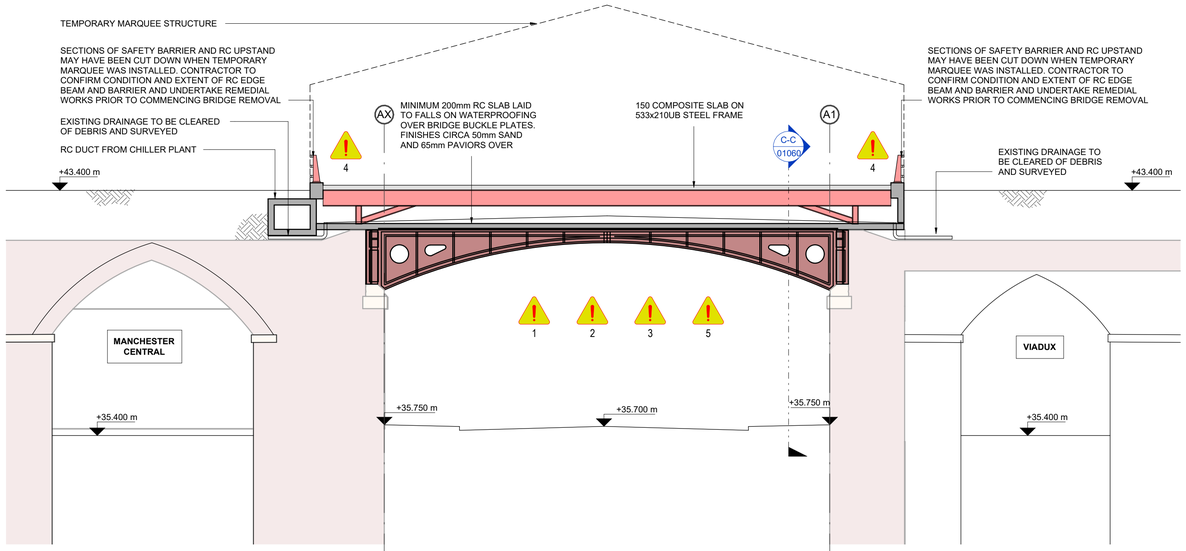
Scale: As indicated | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

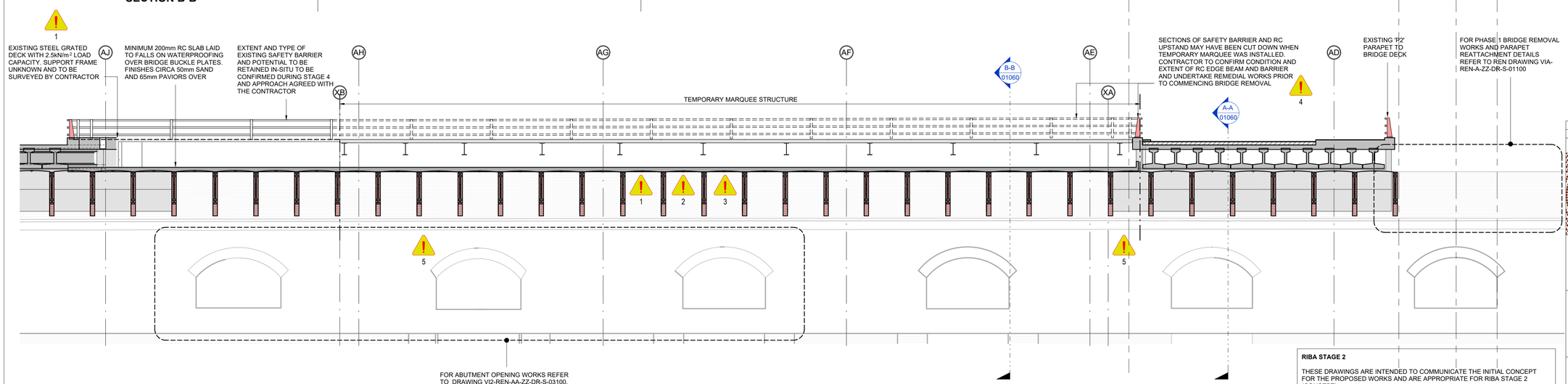
V2B - REN - AA - ZZ - DR - S - 01050 - P02



SECTION A-A



SECTION B-B



SECTION C-C



PHOTOGRAPH SHOWING BRIDGE 1 PRECAST CONCRETE INSTALLATION AND WATERPROOFING OF BUCKLE PLATES OVER CAST-IRON ARCHES
CIRCA 1985



PHOTOGRAPH SHOWING COMPLETED BRIDGE 1, CONCRETE SLAB TO CAST-IRON ARCHES AND RC VENT DUCTS
CIRCA 1985

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.
2. FOR ADDITIONAL NOTES REFER TO DRAWING VI2-REN-AA-ZZ-DR-S-01050.

HEALTH & SAFETY NOTES:
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RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

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A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

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P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL EXISTING SECTIONS

Status:

STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	APR 24	AMi	-	KAG

Scale:	Project No:
1 : 100	2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	01060 -	P02

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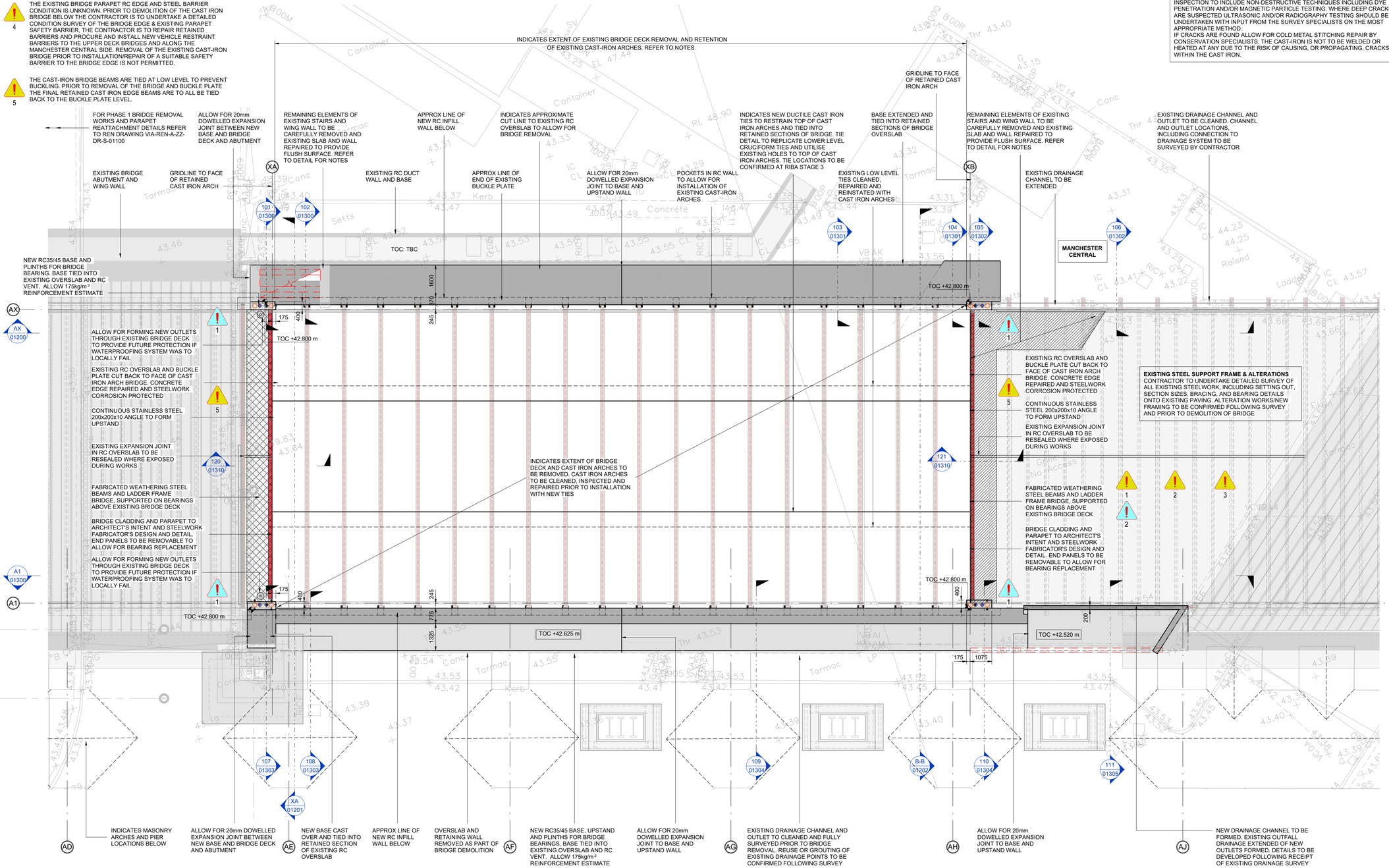
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OPERATION & MAINTENANCE
IN ADDITION TO THE NORMAL OPERATION AND MAINTENANCE OF THE BUILDING AND STRUCTURE, NOTE THE FOLLOWING:

1 ALL BRIDGE BEARINGS ARE TO BE PERIODICALLY INSPECTED AND MAINTAINED. REFER TO NOTE ON DRAWING FOR REQUIREMENTS

2 GRATED INFILL AREA OVER EXISTING CAST-IRON BRIDGE, AND NEW BRIDGE EXTENSION, AREAS TO BE LIMITED TO A MAXIMUM 2.5kN/m² IMPOSED LOAD. MANCHESTER CENTRAL TO CONTINUE TO OPERATE AREAS WITH RESTRICTED LOADS AND ENSURE VEHICLE ACCESS AND LOADINGS ARE RESTRICTED



BRIDGE DECK REMOVAL
THE EXISTING PAVING, CONCRETE DECK, AND BRIDGE DECK BUCKLE PLATE ARE TO BE CAREFULLY REMOVED TO THE EXTENT INDICATED. THE EXISTING FIXINGS INTO THE TOP OF THE EXISTING CAST-IRON ARCHES ARE TO BE CAREFULLY REMOVED USING NON-PERCUSSIVE TECHNIQUES TO PREVENT RISK OF DAMAGE TO THE CAST-IRON ARCHES WHICH ARE TO BE RETAINED. BRIDGE DECK REMOVAL TO BE SEQUENCED BY THE CONTRACTOR, WITH TEMPORARY WORKS AS REQUIRED TO ENSURE STABILITY OF THE ARCHES AND OVERALL STRUCTURE ARE MAINTAINED AT ALL TIMES.

CAST IRON BRIDGE BEAM REMOVAL, REPAIR AND REINSTATEMENT
THE EXISTING CAST IRON BEAMS ARE TO BE CAREFULLY REMOVED, FULLY CLEANED, INSPECTED, REPAIRED, CORROSION PROTECTION APPLIED, AND THEN REINSTATED ONTO EXISTING BEARING STONES. NEW SUPPORT RESTRAINTS AND TIES TO BE INSTALLED TO MAINTAIN STABILITY OF THE ARCHES.
THE CONTRACTOR IS TO CLEARLY LABEL ALL BEAMS AND REINSTALL IN THE SAME PLACE. ALL INVESTIGATIONS AND REPAIRS ARE TO BE FULLY DOCUMENTED AND AGREED WITH THE CONSERVATION ARCHITECT, ENGINEER AND CONSERVATION OFFICE PRIOR TO BEING UNDERTAKEN.
INSPECTION TO INCLUDE NON-DESTRUCTIVE TECHNIQUES INCLUDING DYE PENETRATION AND/OR MAGNETIC PARTICLE TESTING. WHERE DEEP CRACKS ARE SUSPECTED ULTRASONIC AND/OR RADIOGRAPHY TESTING SHOULD BE UNDERTAKEN WITH INPUT FROM THE SURVEY SPECIALISTS ON THE MOST APPROPRIATE METHOD.
IF CRACKS ARE FOUND ALLOW FOR COLD METAL STITCHING REPAIR BY CONSERVATION SPECIALISTS. THE CAST-IRON IS NOT TO BE WELDED OR HEATED AT ANY DUE TO THE RISK OF CAUSING, OR PROPAGATING, CRACKS WITHIN THE CAST IRON.

EXISTING STEEL SUPPORT FRAME & ALTERATIONS
CONTRACTOR TO UNDERTAKE DETAILED SURVEY OF ALL EXISTING STEELWORK, INCLUDING SETTING OUT, SECTION SIZES, BRACING, AND BEARINGS DETAILS ONTO EXISTING PAVING. ALTERATION WORKS/NEW FRAMING TO BE CONFIRMED FOLLOWING SURVEY AND PRIOR TO DEMOLITION OF BRIDGE

RIBA STAGE 2

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A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

SURVEYS REQUIRED
THE INFORMATION ON THIS DRAWINGS IS BASED UPON ARCHIVE INFORMATION AND LIMITED SURVEY INFORMATION. TO ALLOW FOR STAGE 3 AND 4 TO BE DEVELOPED AND ALTERATIONS TO EXISTING ELEMENTS TO BE DEFINED THE FOLLOWING SURVEYS ARE REQUIRED:
- **OPEN MESH FLOOR & SUPPORT FRAME** : DETAILED SURVEY REQUIRED CONFIRMING ALL SECTION SIZES, CONNECTION DETAILS, DETAILED SETTING OUT AND INTERFACE DETAILS.
- **EXISTING RC UPSTAND AND BARRIER PLINTHS** : FOLLOWING REMOVAL OF THE MARQUEE ALL EXISTING LEVELS AND EXTENT OF RC UPSTANDS AND SAFETY BARRIERS SHOULD BE COMPLETED.
- **EXISTING LOWER DECK DRAINAGE**: THE EXISTING LOWER DECK DRAINAGE CHANNEL AND OUTLETS ARE TO BE CLEANED AND SURVEYED, INCLUDING CONNECTION INTO BELOW GROUND DRAINAGE SYSTEM.
- ***MANCHESTER CENTRAL SERVICE***: THE EXISTING SERVICES AND BELOW GROUND DRAINAGE SYSTEM ALONG THE MANCHESTER CENTRAL SIDE IS TO BE SURVEYED TO UNDERSTAND INTERFACE WITH NEW WORKS AND POTENTIAL NEED FOR EXISTING SERVICES DIVERSIONS OR ALTERATIONS

A SUITABLE PERIOD SHOULD BE ALLOWED BETWEEN RECEIPT OF THE SURVEY INFORMATION AND BRIDGE DEMOLITION TO ALLOW FOR FINAL CO-ORDINATION BETWEEN THE DESIGN TEAM AND COMPLETION OF THE DESIGN. THE MARQUEE WILL REQUIRE EARLY REMOVAL TO ALLOW FOR COMPLETION OF THE SURVEYS.

BEARING INSPECTION & MAINTENANCE
THE BEARINGS ARE TO BE PERIODICALLY INSPECTED BY A COMPETENT SPECIALIST IN ACCORDANCE WITH THE LATEST EDITION OF HIGHWAY ENGLAND'S CS450 'INSPECTION OF HIGHWAY STRUCTURES'.

INSPECTIONS ARE TO OCCUR:
- FOLLOWING ERECTION OF THE BRIDGE AND PRIOR TO GROUTING OF BEARINGS
- ***SAFETY INSPECTIONS*** IMMEDIATELY AFTER ANY ACCIDENTAL OR MALICIOUS VEHICLE IMPACT TO THE FRAME OR SUPPORTING STRUCTURE
- ***GENERAL INSPECTION*** EVERY 24 MONTHS
- ***PRINCIPAL INSPECTION*** EVERY 6 YEARS
- ***SPECIAL INSPECTION*** IF DEFECTS ARE RECORDED
- ANY ADDITIONAL INSPECTION AND MAINTENANCE IDENTIFIED WITHIN THE BEARING SPECIALIST'S OPERATION AND MAINTENANCE DATA.

THE BUILDING OWNER/MANAGER ARE RESPONSIBLE FOR MANAGING AND ORGANISING INSPECTION AND REMOVAL AND REINSTATEMENT OF ACCESS HATCH AND WATERPROOFING TO ALLOW INSPECTION. THEY ARE ALSO TO MAINTAIN INSPECTION RECORDS. WHERE MAINTENANCE, REPAIR OR REPLACEMENT WORKS ARE REQUIRED THESE ARE TO BE UNDERTAKEN IN A TIMELY MANNER TO ENSURE THE OVERALL STRUCTURAL INTEGRITY OF THE BRIDGE IS NOT COMPROMISED.

FOR DETAILED BEARING INSPECTION AND MAINTENANCE REQUIREMENTS REFER TO BEARING SUPPLIER'S OPERATION & MAINTENANCE MANUAL.

WHERE BEARING REPLACEMENT IS REQUIRED THE BUILDING OWNER/MANAGER IS TO APPOINT A SPECIALIST CONTRACTOR TO DESIGN THE REPLACEMENT BEARING AND ASSOCIATED TEMPORARY WORKS.

THE CLIENT IS TO ENSURE ACCESS RIGHTS ARE INCLUDED WITHIN ANY THIRD PARTY AREAS TO ENSURE ACCESS IS AVAILABLE FOR THE BEARING INSPECTION, MAINTENANCE AND IF REQUIRED, REPLACEMENT.

WATERPROOFING
THE NEW RC STRUCTURES ARE TO BE FULLY WATERPROOFED AND LAPPED INTO THE EXISTING WATERPROOFING SYSTEMS TO MAINTAIN CONTINUITY AND PREVENT WATER INGRESS TROUGH THE VIADUCT STRUCTURE AND BRIDGES. ALL WATERPROOFING, INCLUDING LAPPING TO THE EXISTING WATERPROOFING SYSTEMS IS TO THE SPECIALIST WATERPROOFING SUPPLIER'S DESIGN AND DETAIL. THE CONTRACTOR IS TO APPOINT A WATERPROOFING SPECIALIST TO CO-ORDINATE AND DETAIL ALL WATERPROOFING WORKS. ALL WATERPROOFING INDICATED ON THESE DRAWINGS IS INDICATIVE ONLY AND THE FINAL LOCATION AND DETAILS ARE TO BE TO THE ARCHITECT'S INTENT AND WATERPROOFING SPECIALIST'S DESIGN.

KEY

- * INDICATES DIMENSIONS AND LEVEL TO BE CONFIRMED ON SITE AND AGREED WITH THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION AND EXECUTION OF THE WORKS
- EXISTING PAVING AND BEDDING TO BE LOCALLY REMOVED, ALTERATION AND NEW RC WORKS UNDERTAKEN, CONCRETE SURFACE CLEANED AND BRIDGE DECK WATERPROOFING SYSTEM INSTALLED. PAVING TO THEN BE REINSTATED. WHERE PAVING IS IN POOR CONDITION ALLOW FOR REPLACEMENT WITH NEW UNITS TO MATCH EXISTING
- DENOTES PAVING AND BEDDING TO BE LOCALLY REMOVED, ALTERATION AND NEW RC WORKS UNDERTAKEN, CONCRETE SURFACE CLEANED AND BRIDGE DECK WATERPROOFING SYSTEM INSTALLED
- DENOTES BEARING (FIXED HORIZONTALLY)TO SPECIALIST BEARING SUPPLIER'S DESIGN AND DETAIL
- DENOTES BEARING (MULTI-DIRECTION HORIZONTAL SLIDING) TO SPECIALIST BEARING SUPPLIER'S DESIGN AND DETAIL
- DENOTES BEARING (UNI-DIRECTION HORIZONTAL SLIDING) TO SPECIALIST BEARING SUPPLIER'S DESIGN AND DETAIL
- DENOTES ASSUMED JACKING LOCATION PRIMARY STRUCTURE HAS BEEN DESIGNED FOR. FINAL LACKING LOCATIONS AND RESTRAINT TO ALLOW FOR BEARING REPLACEMENT OF BEARINGS TO BE DEVELOPED BY BEARING SPECIALIST SUPPLIER AND COORDINATED WITH STEELWORK FABRICATOR

B1.1.1 INDICATES BEARING REFERENCE
B1.1.1 — LEVEL — TYPE — NUMBER

TYPE 1 - POT BEARING (COLUMN/TRUSS HORIZONTALLY FIXED)
TYPE 2 - POT BEARING (TRUSS MULTI-DIRECTION HORIZONTALLY FREE)
TYPE 3 - POT BEARING (BEAM HORIZONTALLY FIXED)
TYPE 4 - POT BEARING (BEAM UNI-DIRECTIONALLY HORIZONTALLY FREE)

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
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Project:
VIADUX 2B, MANCHESTER

Drawing Title:
GBS BRIDGE DECK REMOVAL LOWER DECK PLAN

Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	APR 24	AMi	-	KAG

Scale: 1 : 100 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:
V2B - REN - AA - ZZ - DR - S - 01100 - P02

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SURVEYS REQUIRED
THE INFORMATION ON THIS DRAWINGS IS BASED UPON ARCHIVE INFORMATION AND LIMITED SURVEY INFORMATION. TO ALLOW FOR STAGE 3 AND 4 TO BE DEVELOPED AND ALTERATIONS TO EXISTING ELEMENTS TO BE DEFINED THE FOLLOWING SURVEYS ARE REQUIRED:
- **OPEN MESH FLOOR & SUPPORT FRAME** : DETAILED SURVEY REQUIRED CONFIRMING ALL SECTION SIZES, CONNECTION DETAILS, DETAILED SETTING OUT AND INTERFACE DETAILS.
- **EXISTING RC UPSTAND AND BARRIER PLINTHS** : FOLLOWING REMOVAL OF THE MARQUEE ALL EXISTING LEVELS AND EXTENT OF RC UPSTANDS AND SAFETY BARRIERS SHOULD BE COMPLETED.
- **EXISTING LOWER DECK DRAINAGE**: THE EXISTING LOWER DECK DRAINAGE CHANNEL AND OUTLETS ARE TO BE CLEANED AND SURVEYED, INCLUDING CONNECTION INTO BELOW GROUND DRAINAGE SYSTEM.
- ***MANCHESTER CENTRAL SERVICE***: THE EXISTING SERVICES AND BELOW GROUND DRAINAGE SYSTEM ALONG THE MANCHESTER CENTRAL SIDE IS TO BE SURVEYED TO UNDERSTAND INTERFACE WITH NEW WORKS AND POTENTIAL NEED FOR EXISTING SERVICES DIVERSIONS OR ALTERATIONS

A SUITABLE PERIOD SHOULD BE ALLOWED BETWEEN RECEIPT OF THE SURVEY INFORMATION AND BRIDGE DEMOLITION TO ALLOW FOR FINAL CO-ORDINATION BETWEEN THE DESIGN TEAM AND COMPLETION OF THE DESIGN. THE MARQUEE WILL REQUIRE EARLY REMOVAL TO ALLOW FOR COMPLETION OF THE SURVEYS.

BEARING INSPECTION & MAINTENANCE
THE BEARINGS ARE TO BE PERIODICALLY INSPECTED BY A COMPETENT SPECIALIST IN ACCORDANCE WITH THE LATEST EDITION OF HIGHWAY ENGLAND'S CS450 'INSPECTION OF HIGHWAY STRUCTURES'.

INSPECTIONS ARE TO OCCUR:
- FOLLOWING ERECTION OF THE BRIDGE AND PRIOR TO GROUTING OF BEARINGS
- ***SAFETY INSPECTIONS*** IMMEDIATELY AFTER ANY ACCIDENTAL OR MALICIOUS VEHICLE IMPACT TO THE FRAME OR SUPPORTING STRUCTURE
- ***GENERAL INSPECTION*** EVERY 24 MONTHS
- ***PRINCIPAL INSPECTION*** EVERY 6 YEARS
- ***SPECIAL INSPECTION*** IF DEFECTS ARE RECORDED
- ANY ADDITIONAL INSPECTION AND MAINTENANCE IDENTIFIED WITHIN THE BEARING SPECIALIST'S OPERATION AND MAINTENANCE DATA.

THE BUILDING OWNER/MANAGER ARE RESPONSIBLE FOR MANAGING AND ORGANISING INSPECTION AND REMOVAL AND REINSTATEMENT OF ACCESS HATCH AND WATERPROOFING TO ALLOW INSPECTION. THEY ARE ALSO TO MAINTAIN INSPECTION RECORDS. WHERE MAINTENANCE, REPAIR OR REPLACEMENT WORKS ARE REQUIRED THESE ARE TO BE UNDERTAKEN IN A TIMELY MANNER TO ENSURE THE OVERALL STRUCTURAL INTEGRITY OF THE BRIDGE IS NOT COMPROMISED.

FOR DETAILED BEARING INSPECTION AND MAINTENANCE REQUIREMENTS REFER TO BEARING SUPPLIER'S OPERATION & MAINTENANCE MANUAL.

WHERE BEARING REPLACEMENT IS REQUIRED THE BUILDING OWNER/MANAGER IS TO APPOINT A SPECIALIST CONTRACTOR TO DESIGN THE REPLACEMENT BEARING AND ASSOCIATED TEMPORARY WORKS.

THE CLIENT IS TO ENSURE ACCESS RIGHTS ARE INCLUDED WITHIN ANY THIRD PARTY AREAS TO ENSURE ACCESS IS AVAILABLE FOR THE BEARING INSPECTION, MAINTENANCE AND IF REQUIRED, REPLACEMENT.

WATERPROOFING
THE NEW RC STRUCTURES ARE TO BE FULLY WATERPROOFED AND LAPPED INTO THE EXISTING WATERPROOFING SYSTEMS TO MAINTAIN CONTINUITY AND PREVENT WATER INGRESS TROUGH THE VIADUCT STRUCTURE AND BRIDGES. ALL WATERPROOFING, INCLUDING LAPPING TO THE EXISTING WATERPROOFING SYSTEMS IS TO THE SPECIALIST WATERPROOFING SUPPLIER'S DESIGN AND DETAIL. THE CONTRACTOR IS TO APPOINT A WATERPROOFING SPECIALIST TO CO-ORDINATE AND DETAIL ALL WATERPROOFING WORKS. ALL WATERPROOFING INDICATED ON THESE DRAWINGS IS INDICATIVE ONLY AND THE FINAL LOCATION AND DETAILS ARE TO BE TO THE ARCHITECT'S INTENT AND WATERPROOFING SPECIALIST'S DESIGN.

KEY

★ INDICATES DIMENSIONS AND LEVEL TO BE CONFIRMED ON SITE AND AGREED WITH THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION AND EXECUTION OF THE WORKS

# INDICATES LEVEL TO BE CONFIRMED FOLLOWING REMOVAL OF MARQUEE. ALL NEW RC WORKS RELATE TO THESES EXISTING LEVELS SO MAY ALTER FOLLOWING RECEIPT OF SURVEY

EXISTING STAIR TO BE CAREFULLY REMOVED AND RC WALL LOCALLY CUT DOWN TO ALLOW FOR CONSTRUCTION OF CIRCA 500H x 420W TO MATCH EXISTING. NEW SECTION TO BE TIED INTO EXISTING WALL

EXTENT OF EXISTING SAFETY BARRIER TBC BY CONTRACTOR. CONTRACTOR TO CONFIRM CONDITION AND EXTENT OF RC EDGE BEAM AND BARRIER AND UNDERTAKE REMEDIAL / INSTALLATION OF NEW BARRIER PRIOR TO COMMENCING BRIDGE REMOVAL

EXISTING RC PLINTH TO PERIMETER OF BRIDGE SHOWN INDICATIVELY. CONTRACTOR TO UNDERTAKE DETAILED LEVEL SURVEY TO VERIFY EXTENT, LOCATION, LEVELS AND FALLS FOLLOWING REMOVAL OF MARQUEE AND PRIOR TO BRIDGE REMOVAL WORKS

PEDESTRIAN FOOTPATH, ALLOW FOR 30mm HOT ROLLED ASPHALT WEARING COURSE AND 40mm CLOSE GRADED MACADAM BINDER COURSE ON BRIDGEDECK WATERPROOFING SYSTEMS TO SPECIALISTS DESIGN AND DETAIL

CIRCA 1.5m LOAD EXCLUSION ZONE DURING BRIDGE REMOVAL AND ALTERATION WORKS. ZONE TO BE CONFIRMED BY MAIN CONTRACTORS TEMPORARY WORKS ENGINEER

EXISTING STAIR TO BE CAREFULLY REMOVED AND RC WALL LOCALLY CUT DOWN TO ALLOW FOR CONSTRUCTION OF CIRCA 500H x 420W TO MATCH EXISTING. NEW SECTION TO BE TIED INTO EXISTING WALL

DRAINAGE AND SERVICES TO BE SURVEYED BY CONTRACTOR. LOCALISED DIVERSION OF DRAINAGE AND SERVICES MAY BE REQUIRED SUBJECT TO SURVEY

FOR PHASE 1 BRIDGE REMOVAL WORKS AND PARAPET REATTACHMENT DETAILS REFER TO REN DRAWING V3A-REN-A-ZZ-DR-S-01100

ALLOW FOR 20mm DOWELLED EXPANSION JOINT TO BASE AND UPSTAND WALL

NEW RC35/45 PARAPET WALL, ALLOW 200kg/m³ REINFORCEMENT ESTIMATE

OPEN MESH FLOOR LOCALLY REMOVED TO ALLOW FOR CLEANING AND SURVEYING OF EXISTING CHANNEL DRAIN AND OUTLET BY CONTRACTOR

MANCHESTER CENTRAL

TOC +43.650 m

1:40 FALL

420

1970

245

250

TOC +44.680 m

TOC +43,650 m

MINIMUM 8mm THICK BRIDGE DECK PLATE AT 1:40 FALL WITH BRIDGE DECK WATERPROOFING SYSTEM. BRIDGE DECK TO OVERSAIL ADJACENT CONCRETE

MINIMUM 8mm THICK BRIDGE DECK PLATE AT 1:40 FALL WITH BRIDGE DECK WATERPROOFING SYSTEM. BRIDGE DECK TO OVERSAIL ADJACENT CONCRETE

CIRCA 300 DIAMETER ACCESS HOLE WITH 400mm DIAMETER COVER PLATE TO ALLOW FOR PERIODIC INSPECTION OF BEARINGS. DETAIL TO BE DEVELOPED

BARRIER REQUIREMENTS TO BRIDGE EDGE SUBJECT TO DISCUSSIONS WITH MANCHESTER CENTRAL TO AGREED USE

BARRIER REQUIREMENTS TO BRIDGE EDGE SUBJECT TO DISCUSSIONS WITH MANCHESTER CENTRAL TO AGREED USE

ALLOW FOR HIGH CONTAINMENT KERB AND NEW 'H2-W2' CONTAINMENT PARAPET (TBC AT STAGE 4) TO EDGE OF EXISTING BRIDGE. EXISTING PARAPET CONNECTIONS TO BE INSPECTED BY BARRIER SUPPLIER TO ASSESS SUITABILITY FOR REUSE

OPEN MESH FLOOR & SUPPORT FRAME
ALLOW FOR ALTERATIONS TO EXISTING GALVANISED STEEL SUPPORT FRAME. EXTENT OF ALTERATION WORKS TO BE CONFIRMED FOLLOWING SURVEY BY CONTRACTOR

FABRICATED WEATHERING STEEL BEAMS AND LADDER FRAME BRIDGE, SUPPORTED ON BEARINGS ABOVE EXISTING BRIDGE DECK

FABRICATED WEATHERING STEEL BEAMS AND LADDER FRAME BRIDGE, SUPPORTED ON BEARINGS ABOVE EXISTING BRIDGE DECK

CIRCA 300 DIAMETER ACCESS HOLE WITH 400mm DIAMETER COVER PLATE TO ALLOW FOR PERIODIC INSPECTION OF BEARINGS. DETAIL TO BE DEVELOPED

BRIDGE CLADDING AND PARAPET TO ARCHITECTS INTENT AND STEELWORK FABRICATORS DESIGN AND DETAIL. END PANELS TO BE REMOVABLE TO ALLOW FOR BEARING REPLACEMENT

BRIDGE CLADDING AND PARAPET TO ARCHITECT'S INTENT AND STEELWORK FABRICATOR'S DESIGN AND DETAIL. END PANELS TO BE REMOVABLE TO ALLOW FOR BEARING REPLACEMENT

ALLOW FOR 20mm DOWELLED EXPANSION JOINT TO BASE AND UPSTAND WALL

TOC +43.550 m
TOC +43.465 m
TOC +43.550 m

245
300
225
250

TOC +43.650 m

EXISTING RC PLINTH TO END OF BRIDGE TO BE CAREFULLY BROKEN DOWN TO 43.35m. CONCRETE FACE TO BE ROUGHENED, CLEANED AND EXPOSED REINFORCEMENT TREATED WITH FOSROC NITOPRIME ZINCHRICH. CONCRETE BROUGHT UP TO LEVEL WITH FOSROC RENDEROC HB30. ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH FOSROC PRODUCT INSTRUCTIONS

ALLOW FOR WATERPROOFING RC AND GROUTING IN A CONTINUOUS ACO MD 200 CHANNEL WITH FOSROC CONBEXTRA NON-SHRINK GROUT. ACO MD200.20 ACO CHANNELS WITH PERFORATED GALVANISED GRATING. MINIMUM 3No. OUTLETS. LOCATION TBC FOLLOWING LOWER DECK DRAINAGE SURVEY

NEW RC35/45 UPSTANDS WITH REBATE FOR CHANNEL DRAIN. ALLOW 200kg/m³ REINFORCEMENT ESTIMATE

ALLOW FOR 20mm DOWELLED EXPANSION JOINT TO BASE AND UPSTAND WALL

FOR SERVICE YARD SLAB DETAILS REFER TO DRAWING V2B-REN-AA-01-C-01420

EXISTING RC PLINTH TO END OF BRIDGE TO BE CAREFULLY BROKEN DOWN TO 43.35m. CONCRETE FACE TO BE ROUGHENED, CLEANED AND EXPOSED REINFORCEMENT TREATED WITH FOSROC NITOPRIME ZINCHRICH. CONCRETE BROUGHT UP TO LEVEL WITH FOSROC RENDEROC HB30. ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH FOSROC PRODUCT INSTRUCTIONS

RIBA STAGE 2

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:
VIADUX 2B, MANCHESTER

Drawing Title:
GBS BRIDGE DECK REMOVAL UPPER DECK PLAN

Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	APR 24	AMi	-	KAG

Scale: 1 : 100 | Project No: 2209-01

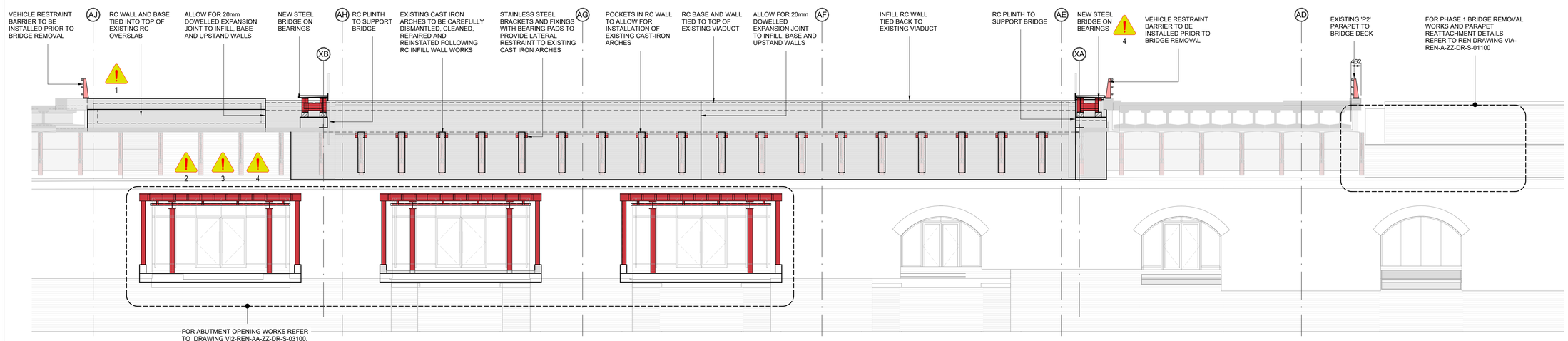
Project Code: V2B - Originator: REN - Volume: AA - Level: ZZ - Type: DR - Role: S - Category / Number: 01101 - Rev: P02

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

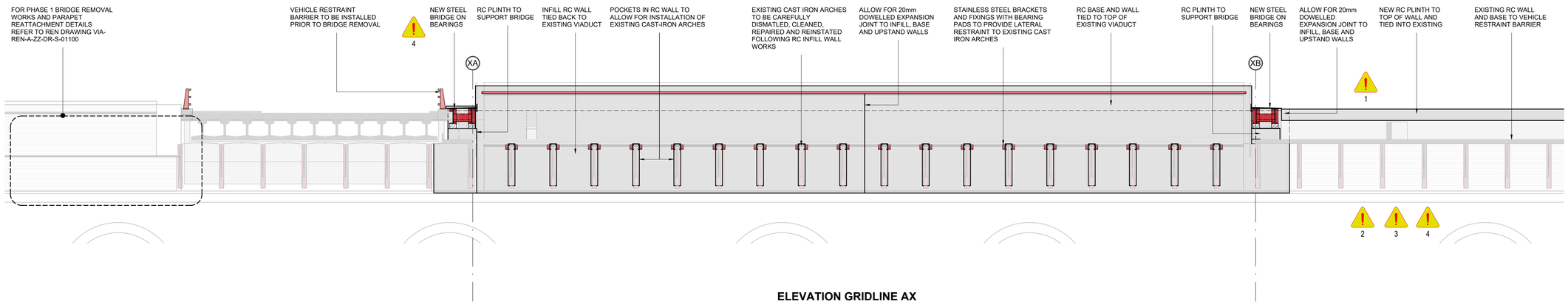
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2. THE EXISTING BRIDGE IS OF CAST-IRON CONSTRUCTION WHICH IS BRITTLE. THE USE OF PERCUSSIVE TECHNIQUES ON OR IN CLOSE PROXIMITY TO THE CAST-IRON ARCHES SHOULD BE USED WITH EXTREME CAUTION AND SUBJECT TO ASSESSMENT BY THE CONTRACTOR'S TEMPORARY WORKS ENGINEER.
3. THE EXISTING BRIDGE IS AN ARCH AND RELIES ON BALANCED LOADING FOR ITS STABILITY. ALL CONSTRUCTION AND DEMOLITION WORKS NEED TO BE PHASED TO MINIMISE OUT OF BALANCE LOADING AND AN ASSESSMENT UNDERTAKEN BY THE CONTRACTOR AND THEIR TEMPORARY WORKS ENGINEER.
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5. THE CAST-IRON BRIDGE BEAMS ARE TIED AT LOW LEVEL TO PREVENT BUCKLING. PRIOR TO REMOVAL OF THE BRIDGE AND BUCKLE PLATE THE FINAL RETAINED CAST IRON EDGE BEAMS ARE TO ALL BE TIED BACK TO THE BUCKLE PLATE LEVEL.

NOTES:
1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

KEY
DENOTES BRIDGE BEARING TO SPECIALIST BEARING SUPPLIER'S DESIGN AND DETAIL



ELEVATION GRIDLINE A1



ELEVATION GRIDLINE AX

RIBA STAGE 2

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:
VIADUX 2B,
MANCHESTER

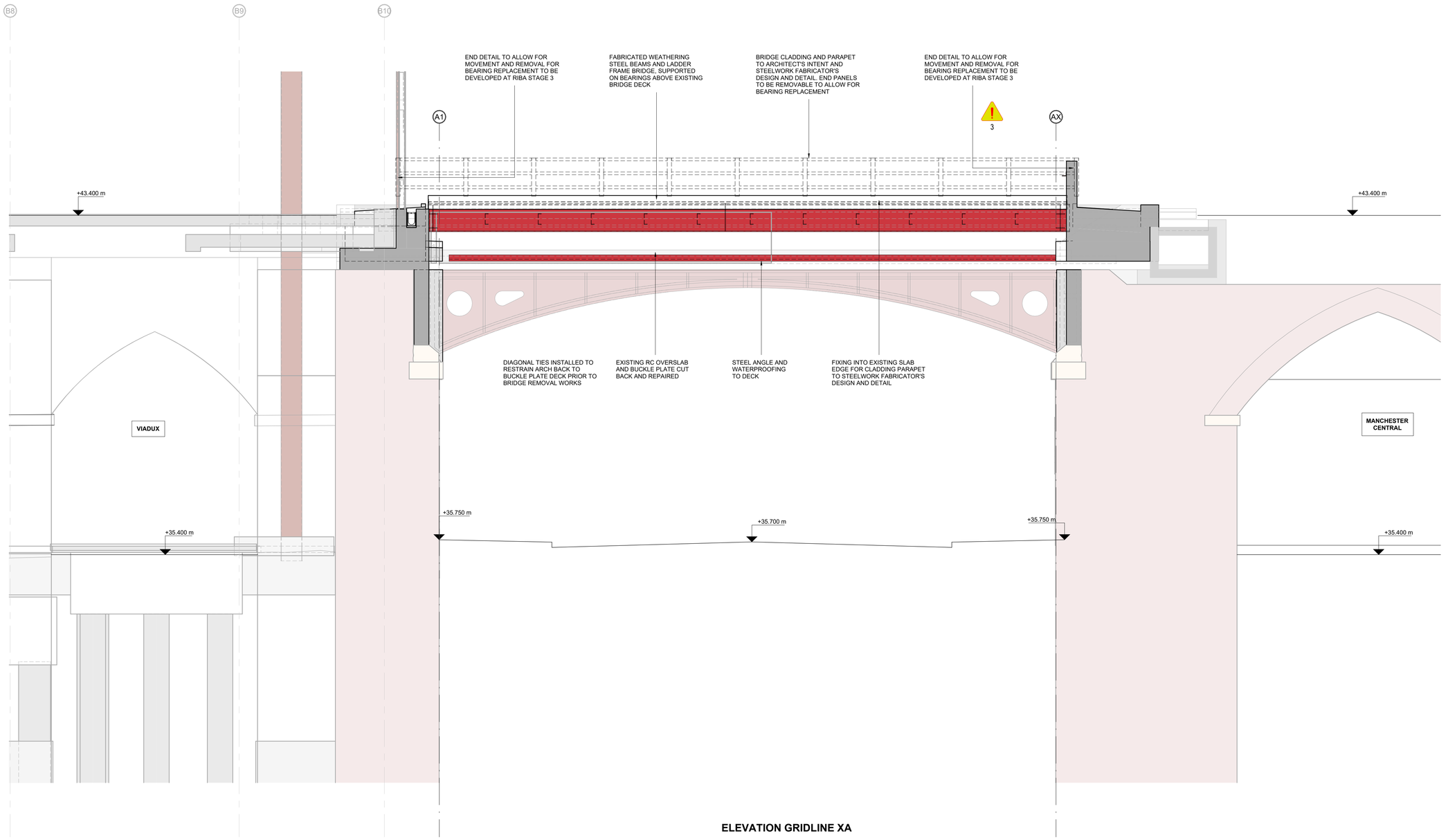
Drawing Title:
GBS BRIDGE DECK REMOVAL ELEVATIONS GRIDLINE A1 & AX

Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	APR 24	AMi	-	KAG

Scale: 1 : 100 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:
V2B - REN - AA - ZZ - DR - S - 01200 - P02



ELEVATION GRIDLINE XA

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

1. THE LOAD CAPACITY OF EXISTING CAST-IRON BRIDGE IS UNKNOWN AND ANECDOTAL EVIDENCE INDICATES IT HAS FRACTURES, WHICH WILL LIMIT ITS LOAD CAPACITY. ALL WORKS UNDERTAKEN TO OR OVER THE EXISTING BRIDGE NEED TO TAKE CONSIDERATION OF THIS (I.E. PLANT LIMITED TO LIGHTWEIGHT MACHINERY, NO STOCKPILING OF MATERIALS ETC.). ARCHIVE DRAWINGS INDICATE A MAXIMUM IMPOSED LOAD ALLOWANCE OF 2.5kN/m².
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P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:
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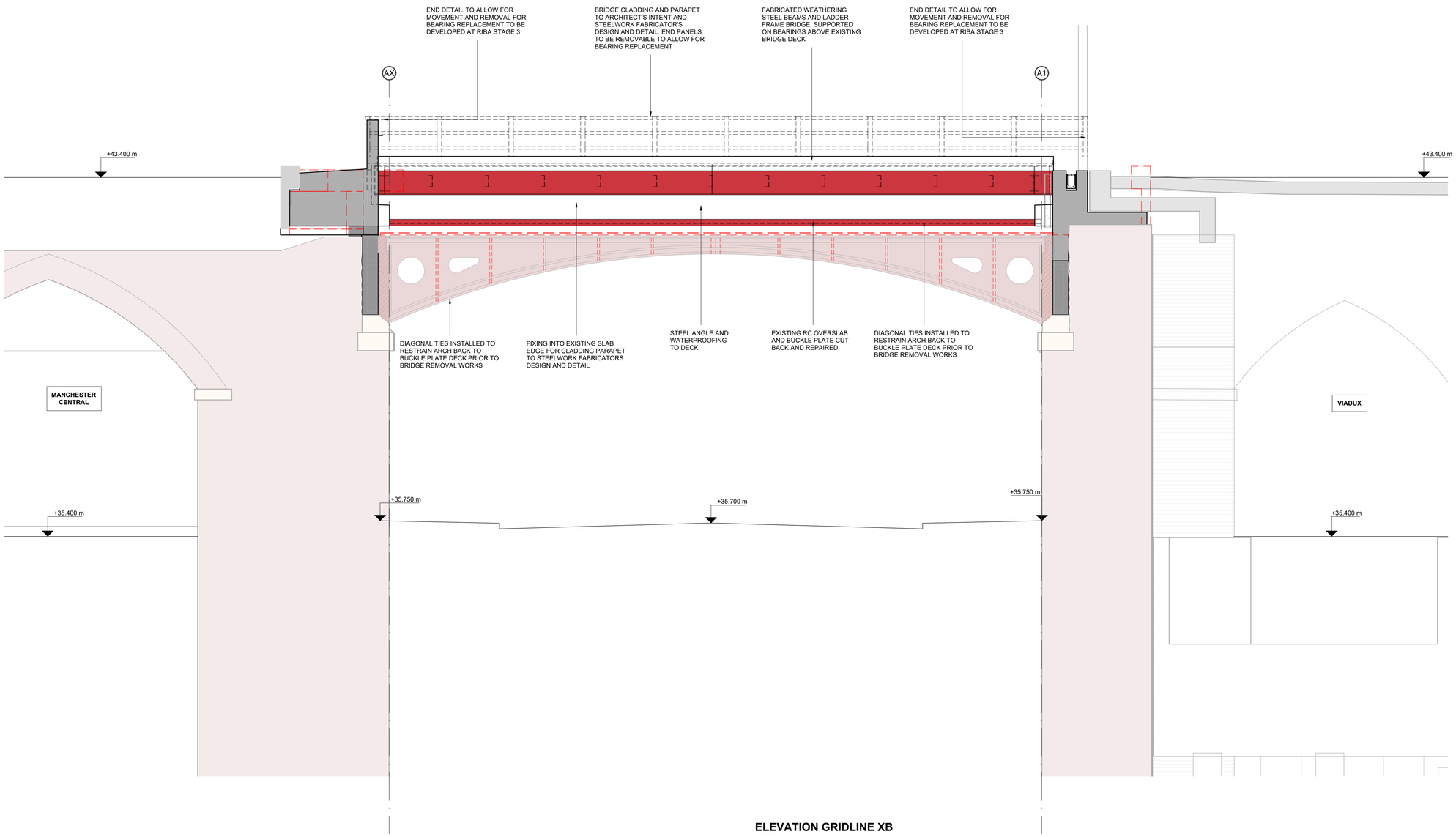
Drawing Title:
GBS BRIDGE DECK REMOVAL ELEVATIONS GRIDLINE XA

Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	APR 24	AMi	-	KAG

Scale:	Project No:
1 : 50	2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	01201 -	P02



ELEVATION GRIDLINE XB

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

HEALTH & SAFETY NOTES:
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P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:

VIADUX 2B,
MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL ELEVATIONS GRIDLINE XB

Status:

STAGE 2

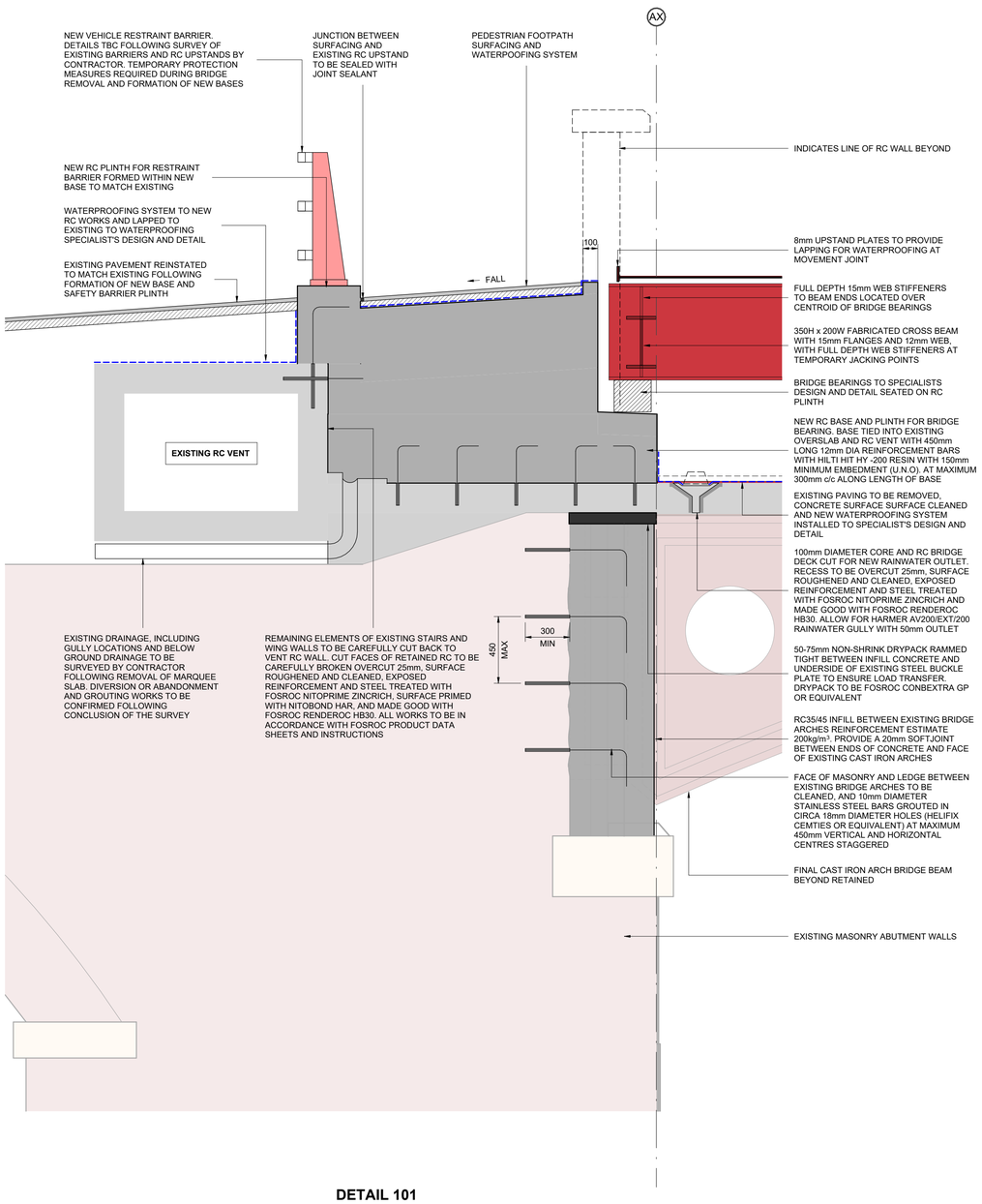
Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	APR 24	AMi	-	KAG

Scale:	Project No:
1 : 50	2209-01

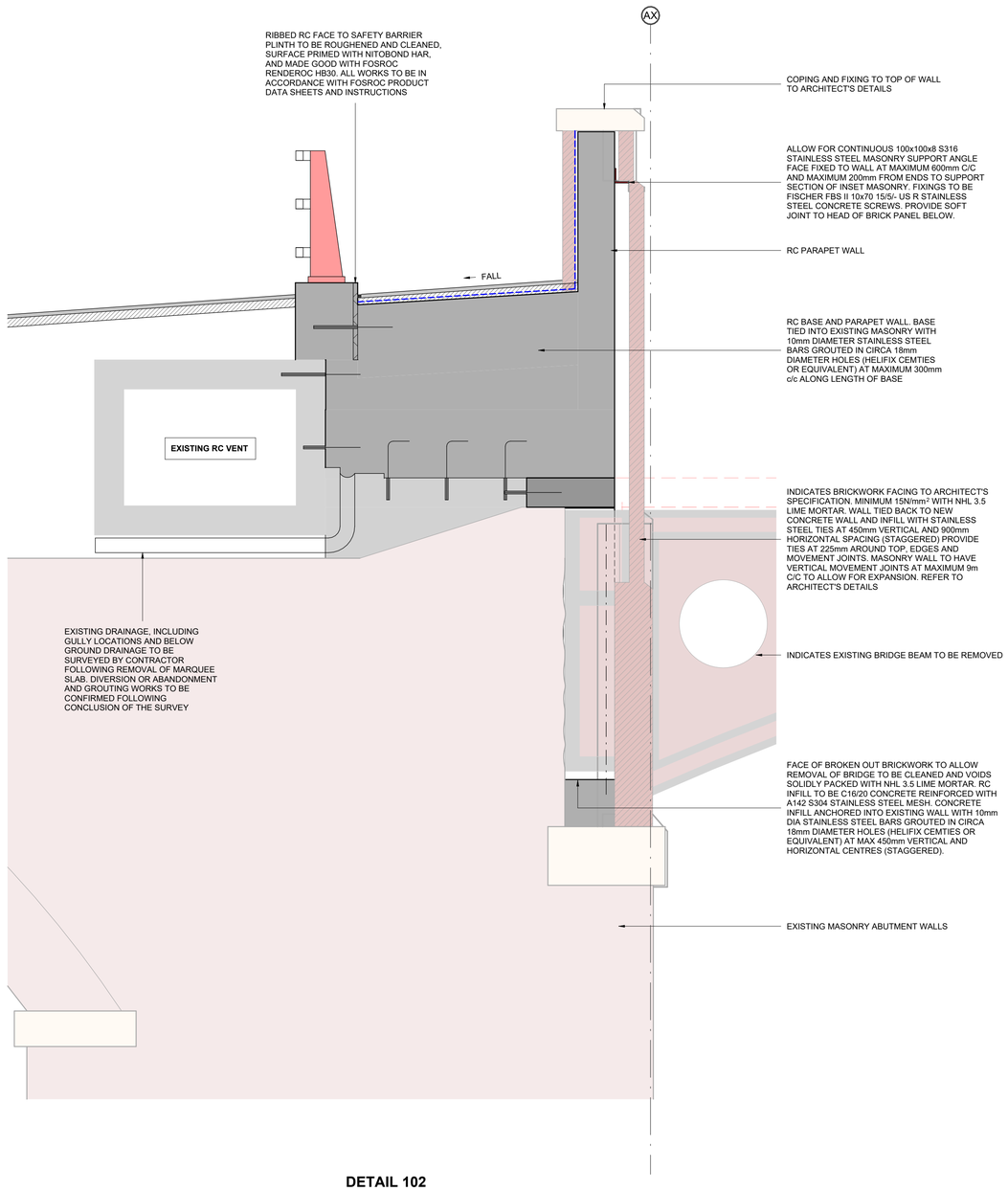
Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	01202 -	P02

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



DETAIL 101



DETAIL 102

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P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Carvers Warehouse
77 Dale Street
Manchester
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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL DETAILS (SHEET 1)

Status:

STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	APR 24	AMi	-	KAG

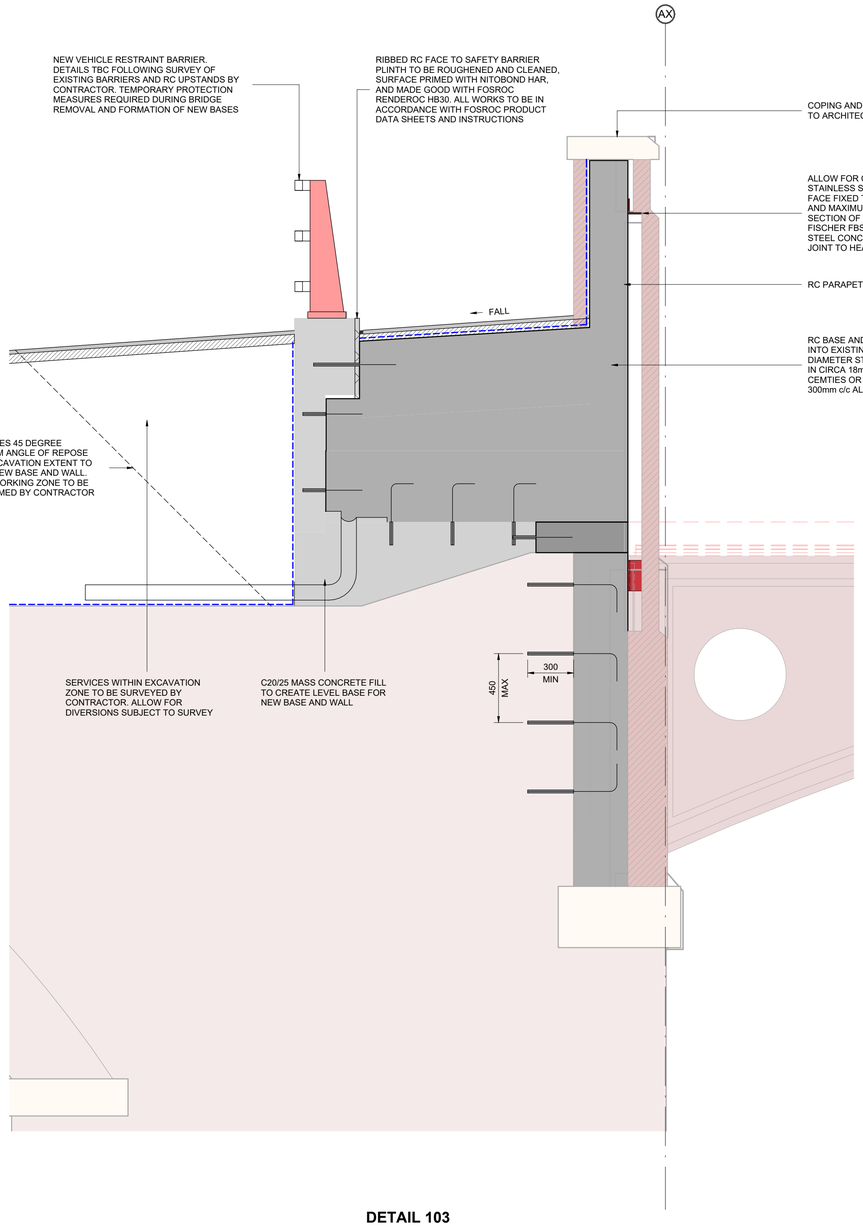
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1 : 20	2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

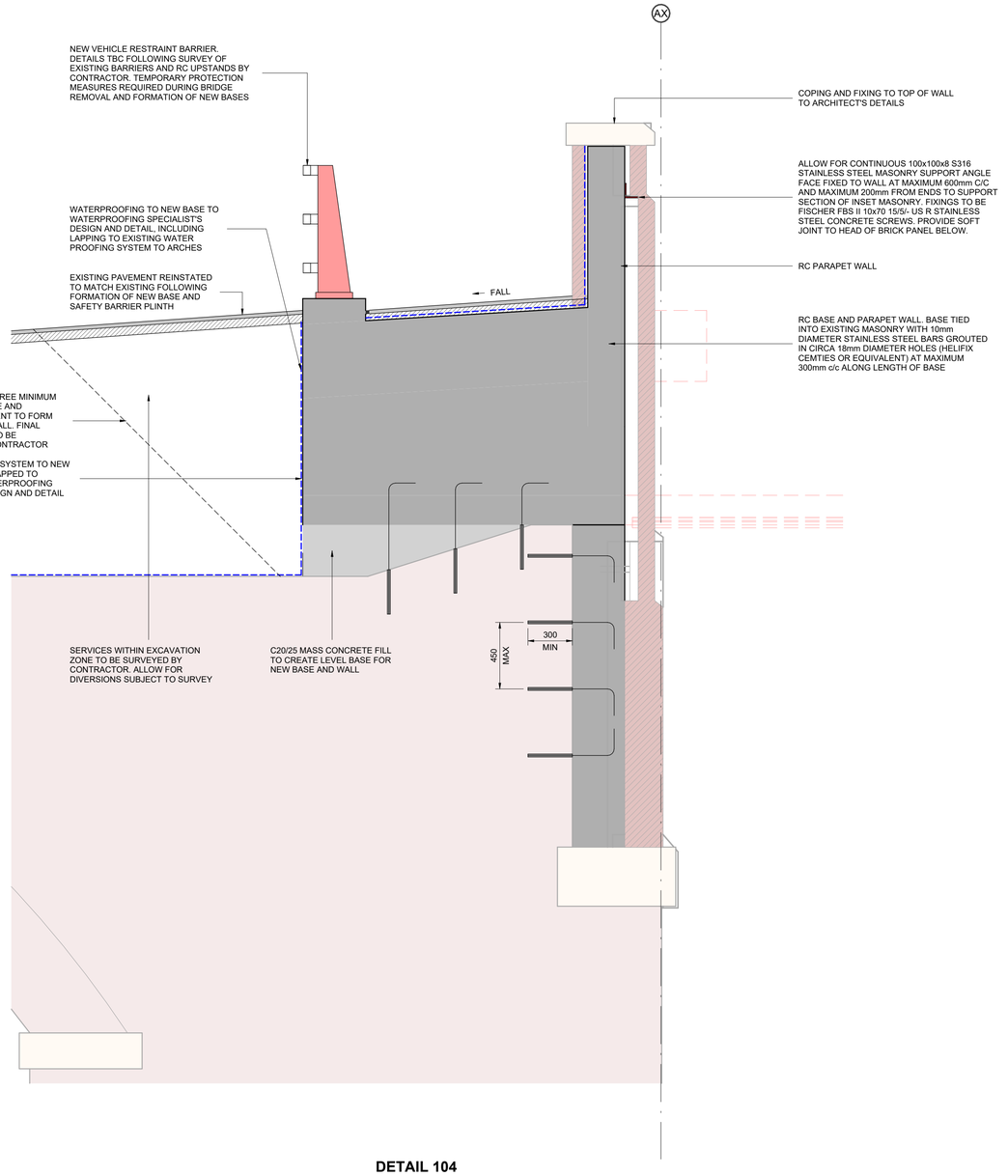
V2B - REN - AA - ZZ - DR - S - 01300 - P02

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



DETAIL 103



DETAIL 104

RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL DETAILS (SHEET 2)

Status:

STAGE 2

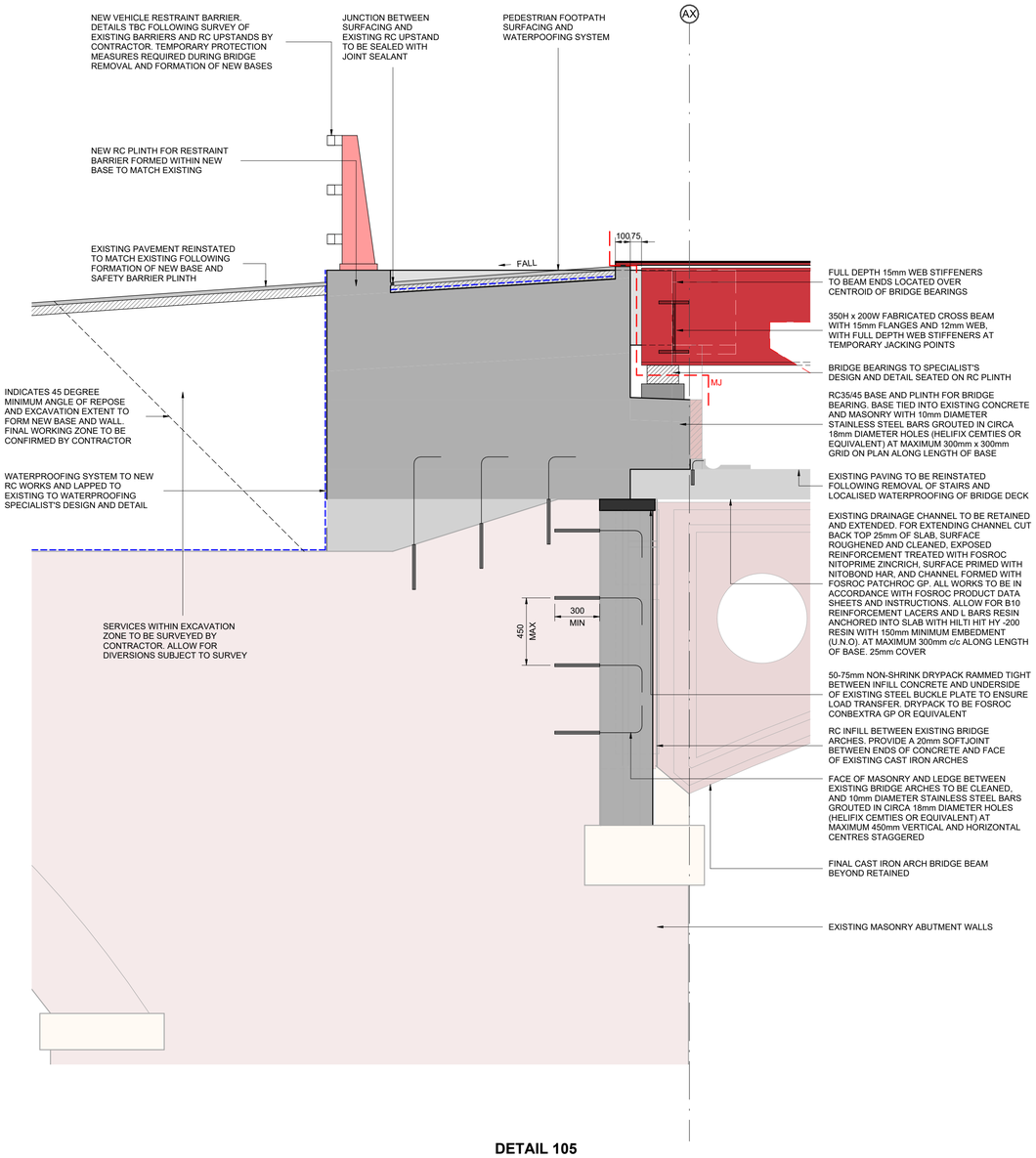
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A1	APR 24	AMi	-	KAG

Scale: 1 : 20 | Project No: 2209-01

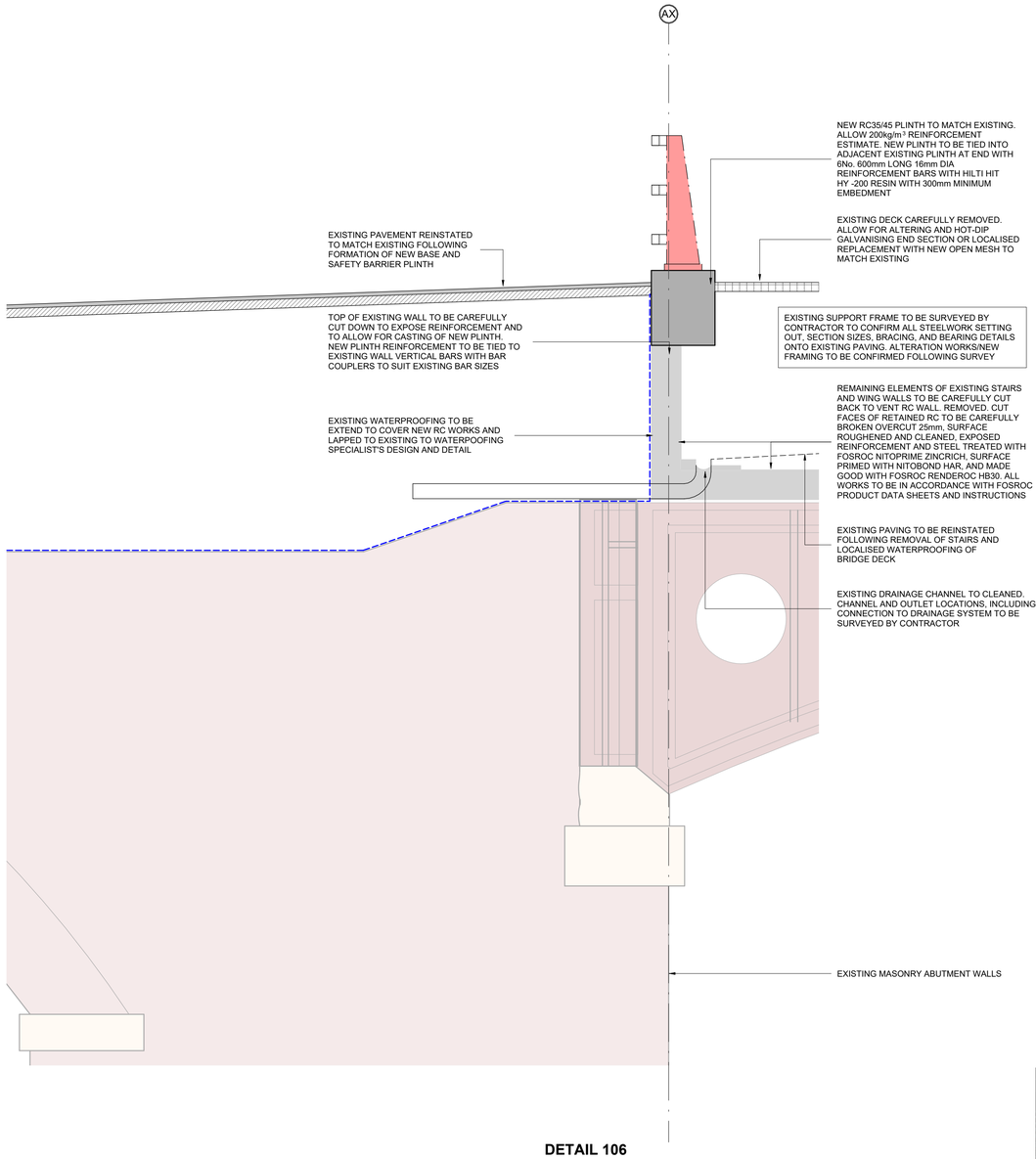
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V2B -	REN -	AA -	ZZ -	DR -	S -	01301 -	P02

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



DETAIL 105



DETAIL 106

RIBA STAGE 2

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A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL DETAILS (SHEET 3)

Status:

STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	APR 24	AMi	-	KAG

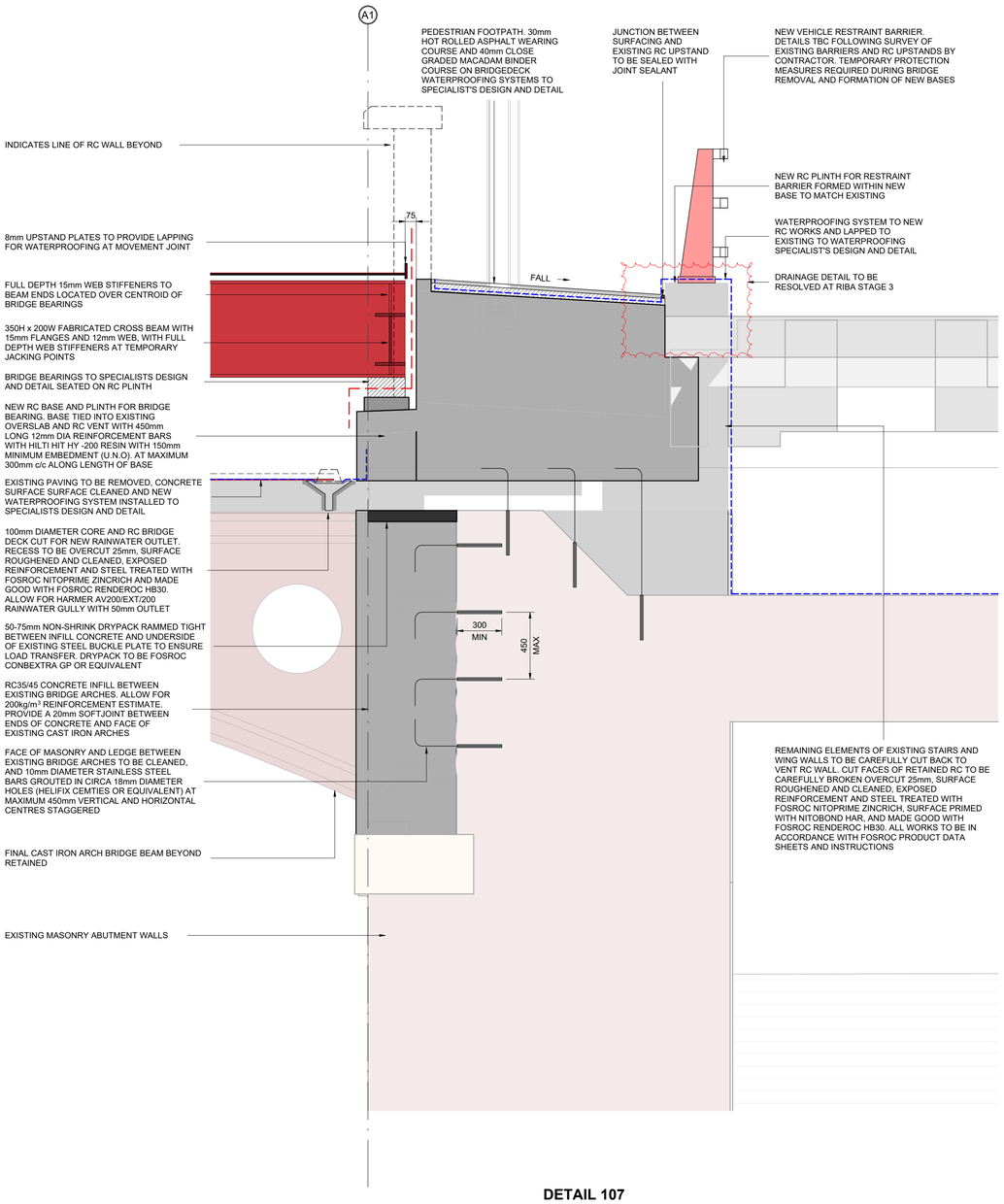
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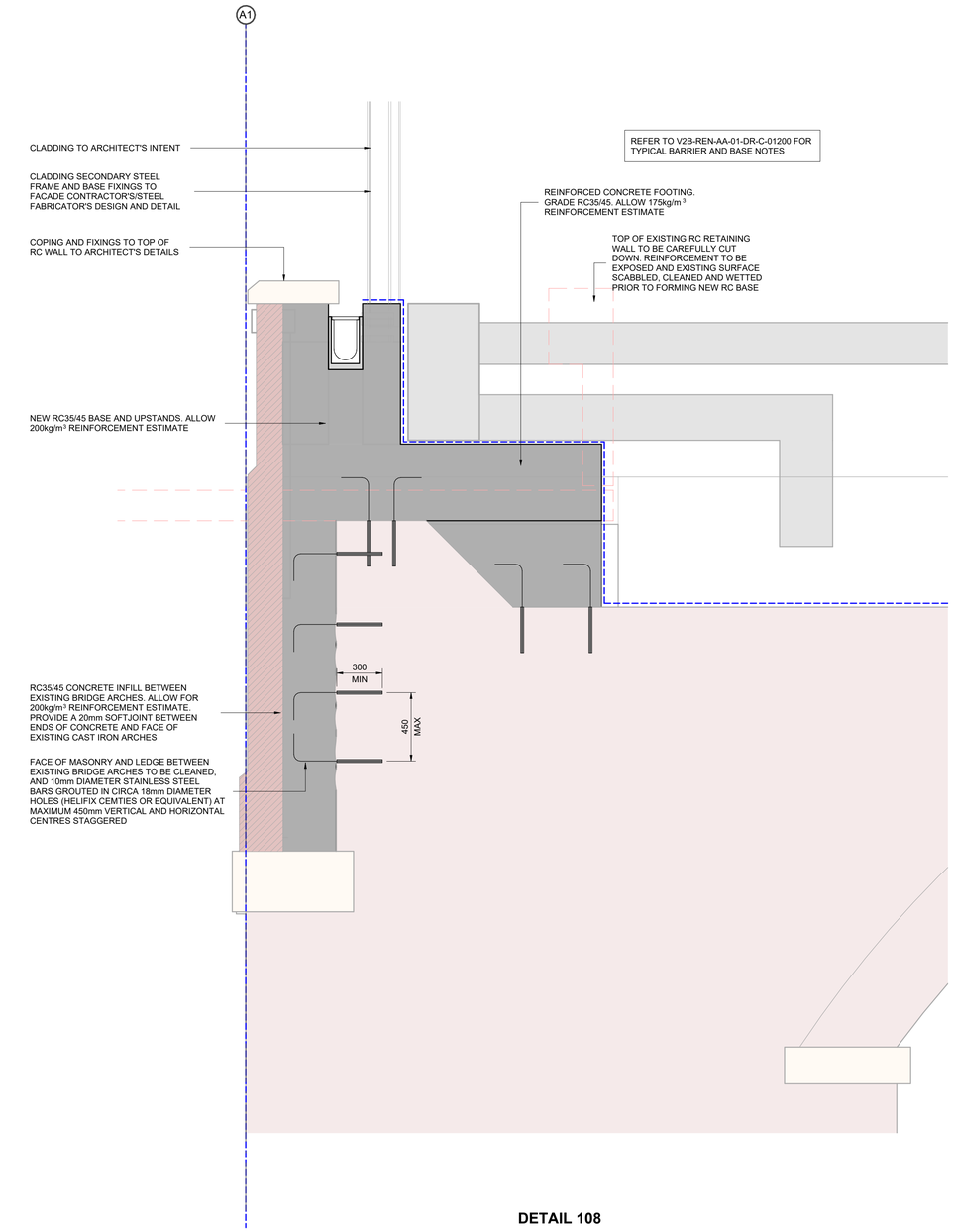
V2B - REN - AA - ZZ - DR - S - 01302 - P02

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



DETAIL 107



DETAIL 108

RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL DETAILS (SHEET 4)

Status:

STAGE 2

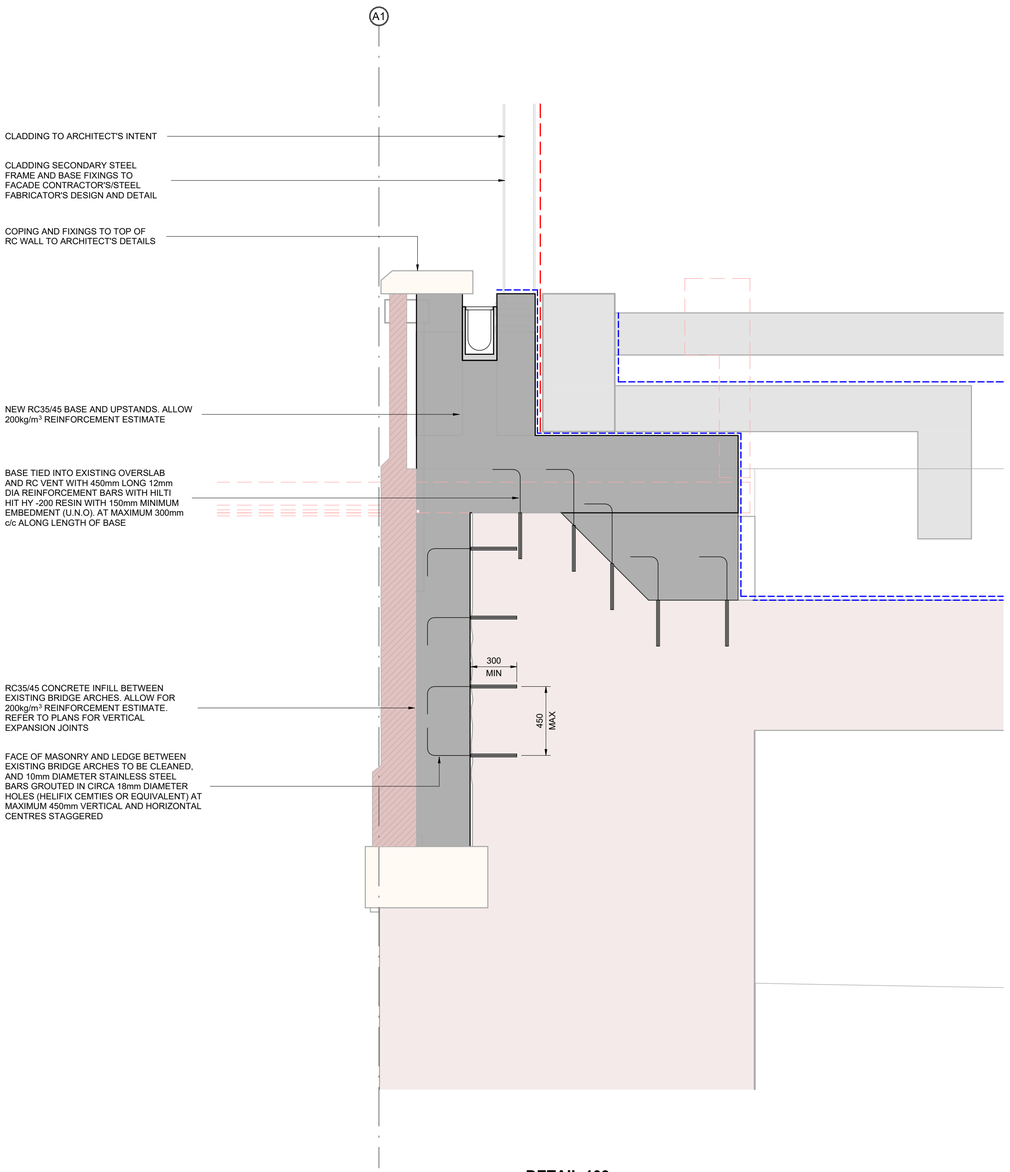
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Scale: 1 : 20 | Project No: 2209-01

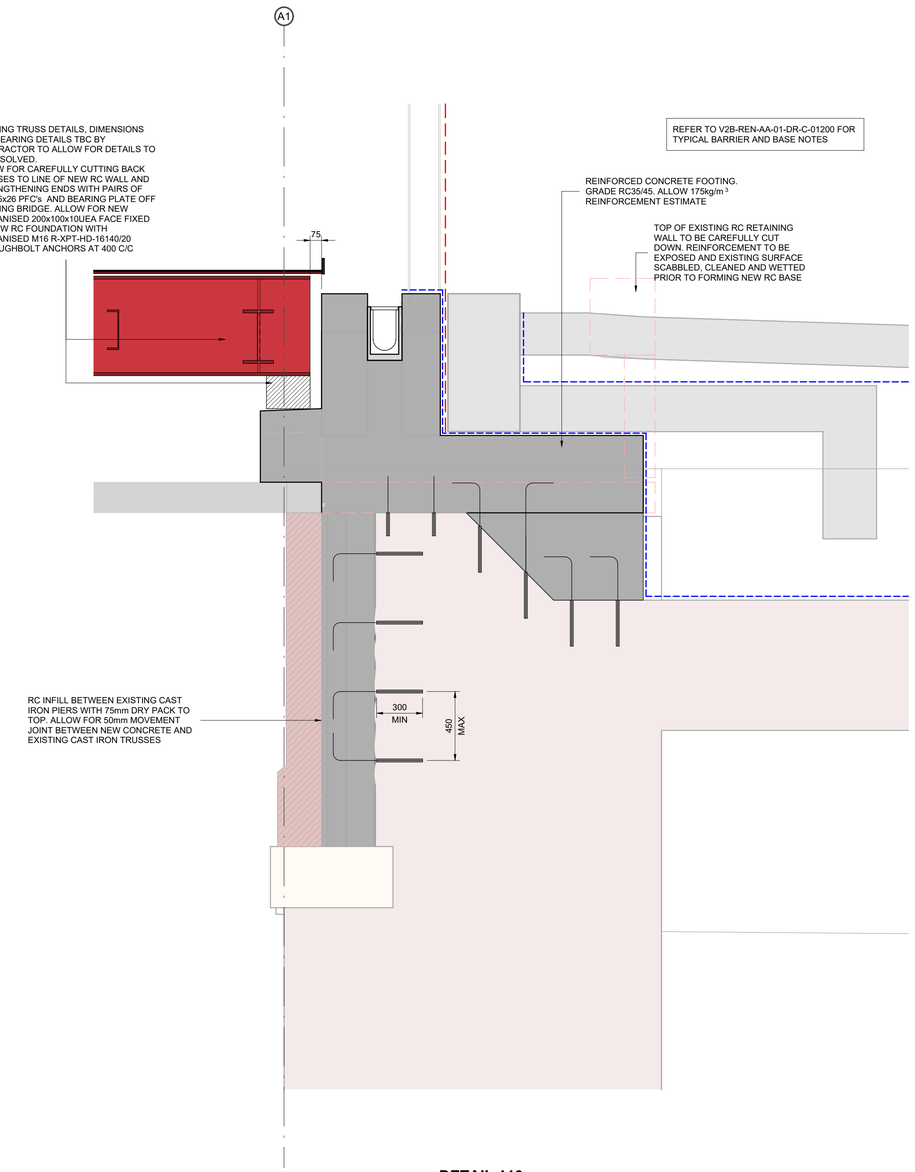
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NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



DETAIL 109



DETAIL 110

RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL DETAILS (SHEET 5)

Status:

STAGE 2

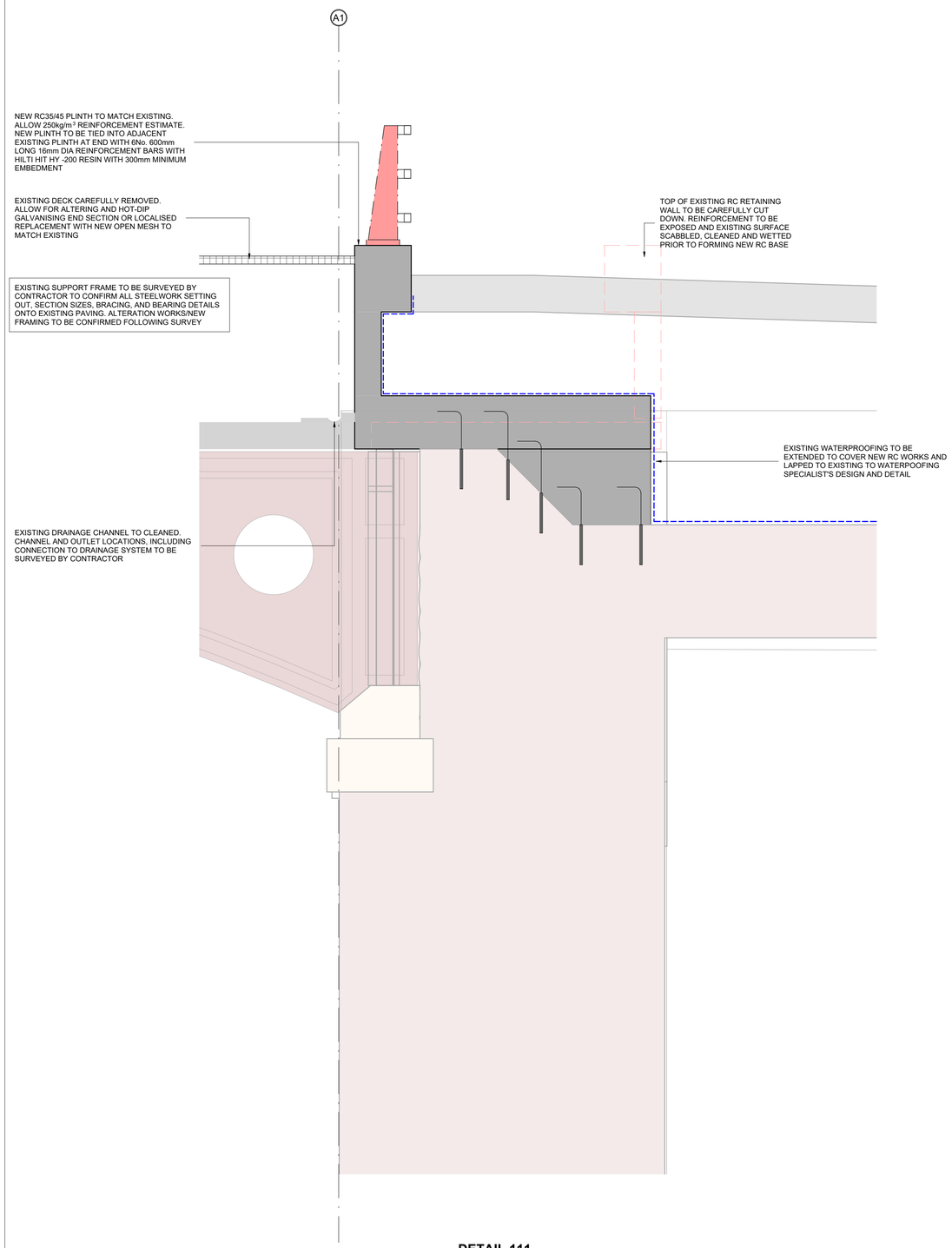
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Scale:	Project No:
1 : 20	2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	01304 -	P02

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



DETAIL 111

RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
P01	RIBA STAGE 2 ISSUE	02.04.24	AMi	KAG

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Project:

VIADUX 2B,
MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL DETAILS (SHEET 6)

Status:

STAGE 2

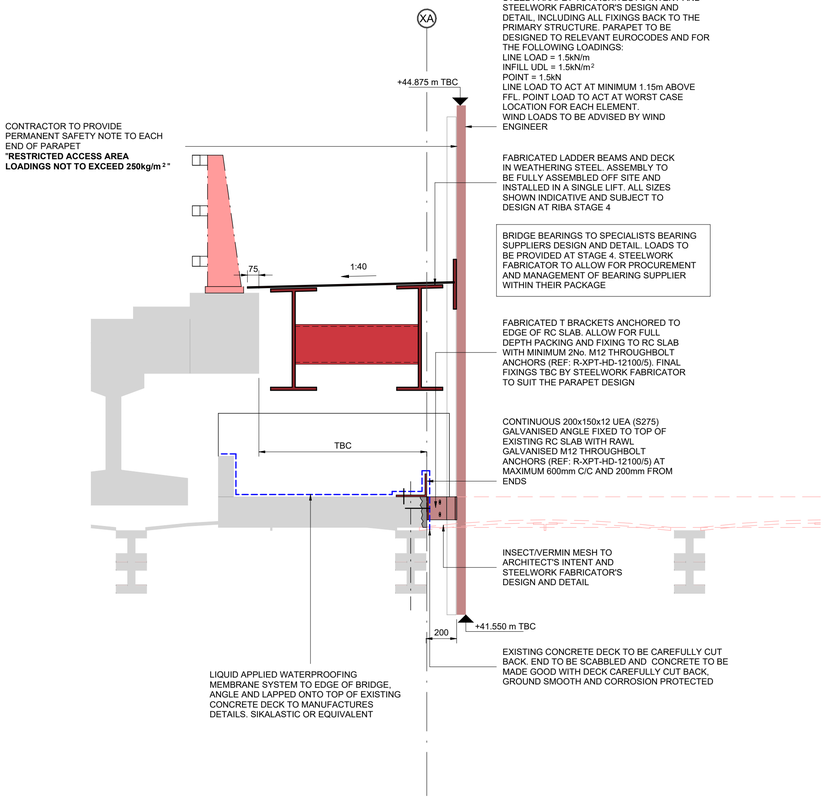
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Scale:	Project No:
1 : 20	2209-01

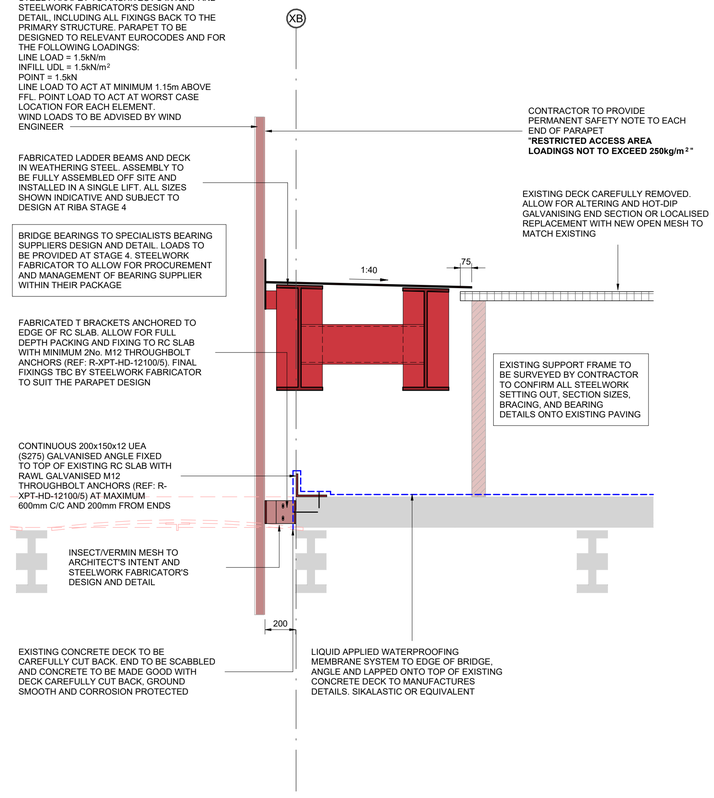
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V2B -	REN -	AA -	ZZ -	DR -	S -	01305 -	P02

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



DETAIL 120



DETAIL 121

RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

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Rev:	Description:	Date:	By:	Chkd:
P01	RIBA STAGE 2 UPDATE	06.02.25	GM	PC

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77 Dale Street
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Project:

VIADUX 2B,
MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL STEEL DETAILS (SHEET 1)

Status:

STAGE 2

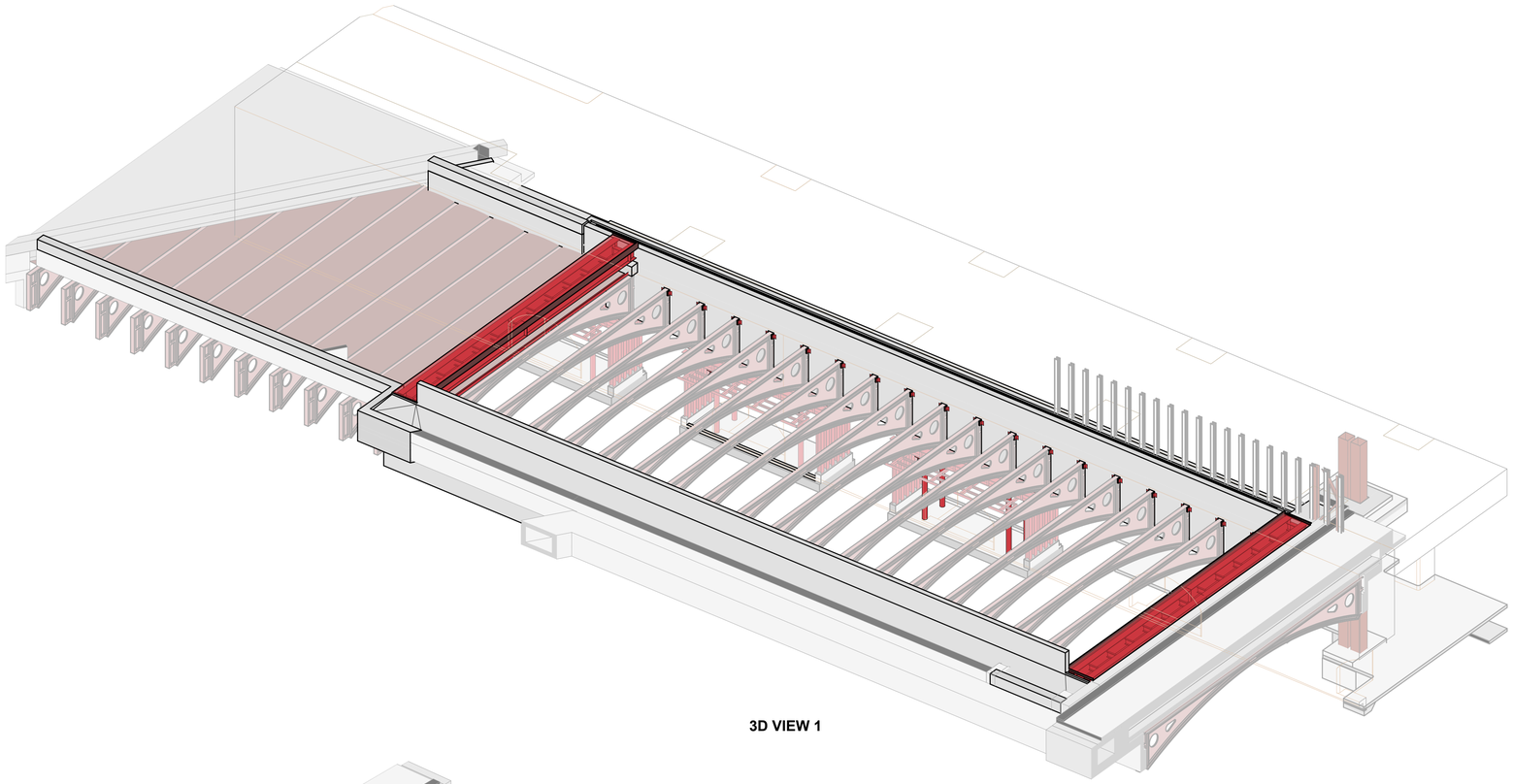
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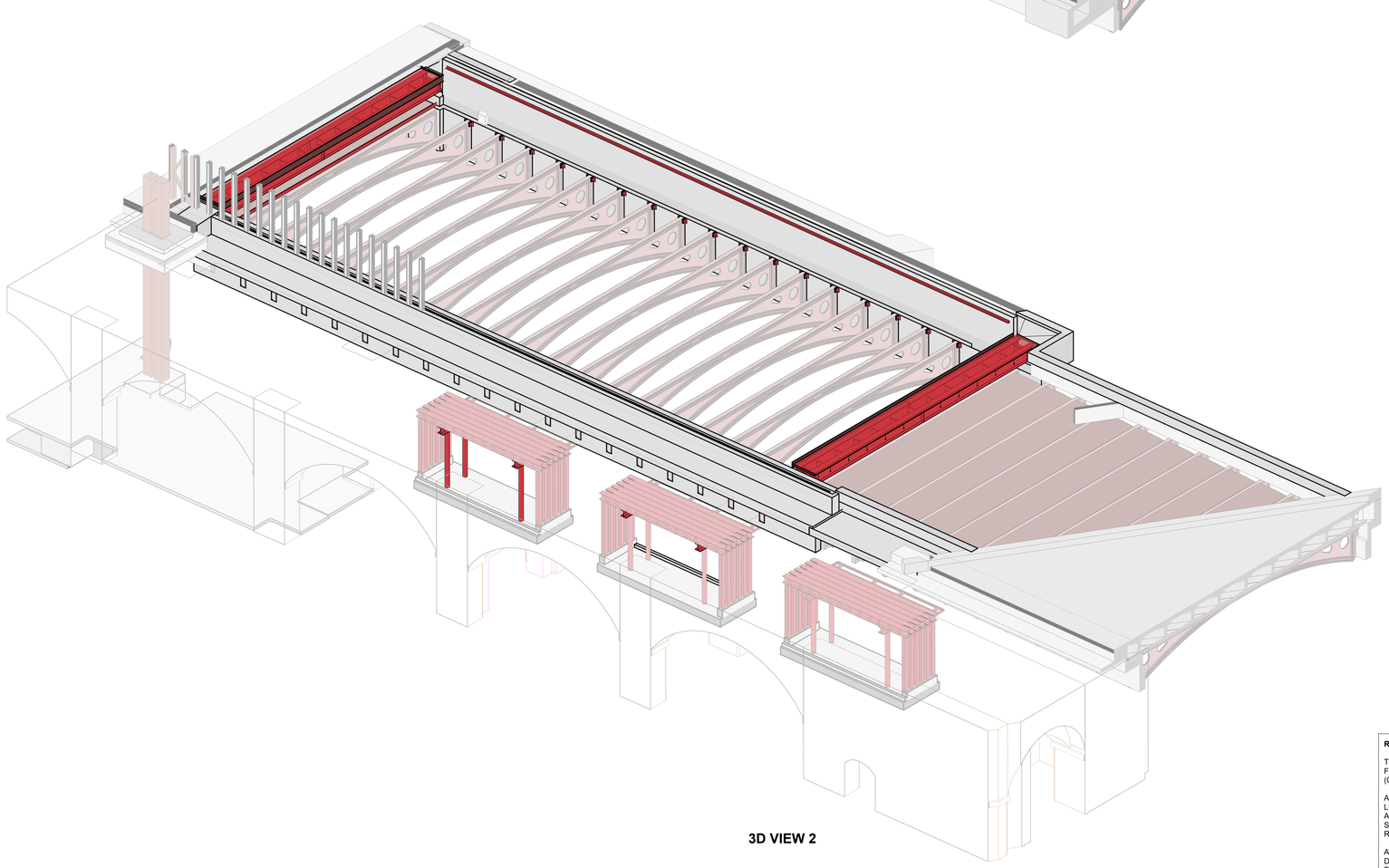
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V2B -	REN -	AA -	ZZ -	DR -	S -	01310 -	P01

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



3D VIEW 1



3D VIEW 2

RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

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P02	RIBA STAGE 2 UPDATE	06.02.25	GM	PC
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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

GBS BRIDGE DECK REMOVAL ISOMETRICS

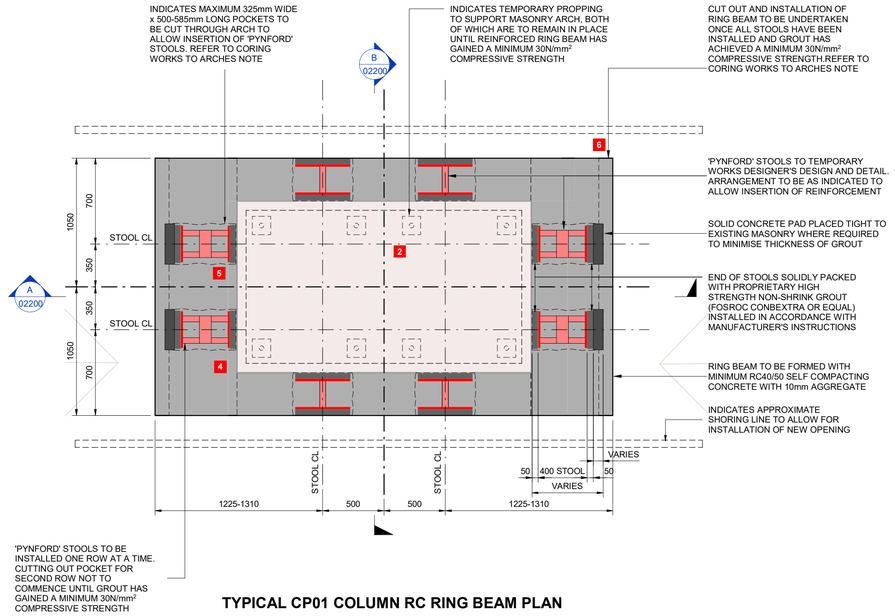
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STAGE 2

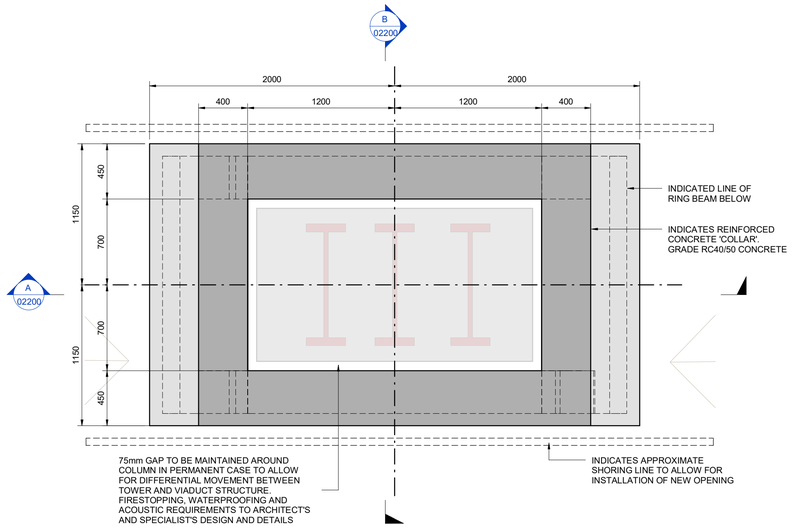
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Scale: | Project No: 2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	01350 -	P02



TYPICAL CP01 COLUMN RC RING BEAM PLAN



TYPICAL CP01 COLUMN RC COLLAR PLAN

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

WATERPROOFING

THE NEW RC STRUCTURES ARE TO BE FULLY WATERPROOFED AND LAPPED INTO THE EXISTING WATERPROOFING SYSTEMS TO MAINTAIN CONTINUITY AND PREVENT WATER INGRESS THROUGH THE VIADUCT STRUCTURE AND BRIDGES. ALL WATERPROOFING, INCLUDING LAPPING TO THE EXISTING WATERPROOFING SYSTEMS IS TO THE SPECIALIST WATERPROOFING SUPPLIER'S DESIGN AND DETAIL.
THE CONTRACTOR IS TO APPOINT A WATERPROOFING SPECIALIST AT THE BEGINNING OF RIBA STAGE 4 TO DESIGN AND DETAIL THE WATERPROOFING STRATEGY AND SYSTEM AND TO ALLOW CO-ORDINATION WITH THE DESIGN TEAM.
ALL WATERPROOFING INDICATED ON THESE DRAWINGS IS INDICATIVE ONLY AND THE FINAL LOCATION AND DETAILS ARE TO BE TO THE ARCHITECT'S INTENT AND WATERPROOFING SPECIALIST'S DESIGN.

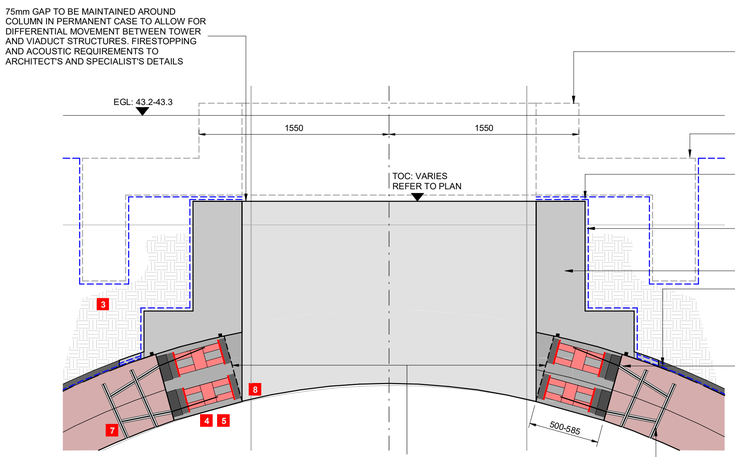
CORING WORKS TO ARCHES

ALL CORING AND SAWING WORKS TO FORM POCKETS AND OPENINGS WITHIN THE ARCHES ARE TO USE NON-PERCUSSIVE TECHNIQUES TO MINIMISE DISTURBANCE TO THE GRADE II LISTED STRUCTURE. THE CONTRACTOR IS TO SEEK EARLY INPUT FROM CORING SPECIALISTS AND CONFIRM THAT THE PROPOSED INTERVENTION WORKS ARE FEASIBLE WITHIN THE ZONES SHOWN. METHOD STATEMENTS FOR THE CORING WORKS MAY ALSO BE REQUIRED FOR THE LISTED BUILDING CONSENT.

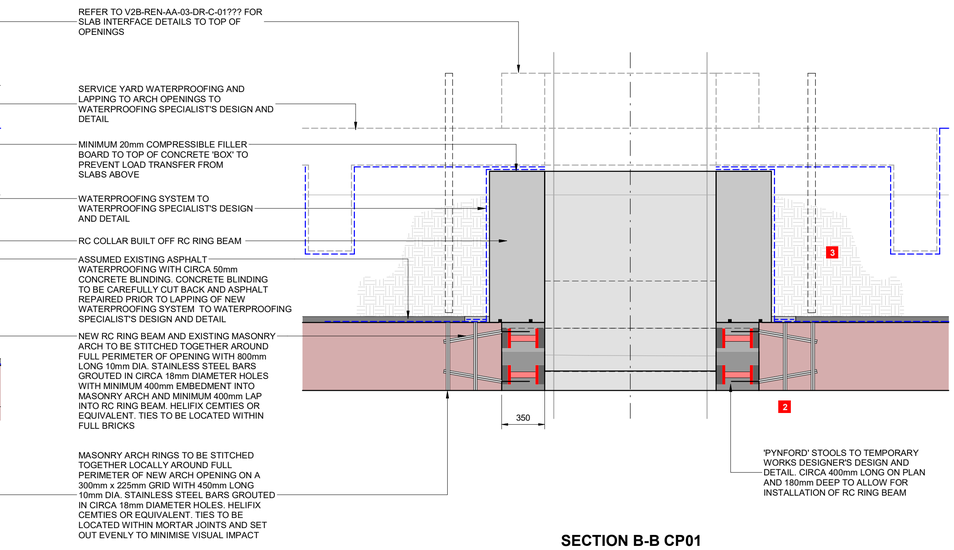
OUTLINE CONSTRUCTION METHODOLOGY
STAGE ACTIVITY

1. INSTALL MOVEMENT AND MONITORING EQUIPMENT WITHIN ARCHES TO SUIT REQUIREMENTS OF MOVEMENT AND MONITORING SPECIFICATION
2. INSTALL TEMPORARY PROPPING TO SUPPORT MASONRY ARCH BETWEEN PIERS AND BELOW SECTION TO BE REMOVED. TO REMAIN IN PLACE UNTIL WORKS ARE COMPLETE AND CONCRETE HAS GAINED SUFFICIENT STRENGTH
3. REMOVE FILL TO INDICATED ZONES. REFER TO DRAWNG V2B-REN-AA-03-DR-S-02100 FOR EXTENT OF PERMITTED EXCAVATION. DO NOT OVER EXCAVATE
4. FORM POCKETS WITHIN THE ARCH TO ALLOW INSERTION OF PINFORD STOOLS. END OF STOOLS TO BE SOLIDLY PACKED WITH PROPRIETARY HIGH STRENGTH NON-SHRINK GROUT
5. CUTTING OUT POCKET FOR SECOND ROW NOT TO COMMENCE UNTIL GROUT HAS GAINED A MINIMUM 30N/mm² COMPRESSIVE STRENGTH
6. ONCE ALL PINFORD STOOLS ARE INSTALLED WITH 30N/mm² GROUT, FORM THE OPENING TO ALLOW FOR INSTALLATION OF THE RC RING BEAM
7. INSTALL STAINLESS STEEL STITCHING BARS BETWEEN THE NEW RC RING BEAM AND EXISTING MASONRY ARCH
8. FORM THE RING BEAM WITH A FLUSH FACE AS INDICATED
9. FORM THE RC COLLAR, INSTALL ALL WATERPROOFING AS INDICATED AND BACKFILL USING HA TYPE 1 MATERIAL IN ACCORDANCE WITH HIGHWAYS SPECIFICATION

ALL PROPPING AND ASSOCIATED TEMPORARY WORKS IS TO BE TO THE TEMPORARY WORKS DESIGNER'S DESIGN AND DETAIL AND TO BE AGREED WITH THE PRINCIPAL CONTRACTOR'S TEMPORARY WORKS CO-ORDINATOR



SECTION A-A CP01



SECTION B-B CP01

RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

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P02	RIBA STAGE 2 UPDATE	24.01.25	GM	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Drawing Title:

BLOCK A COLUMN PENETRATION DETAIL TYPE CP01

Status:

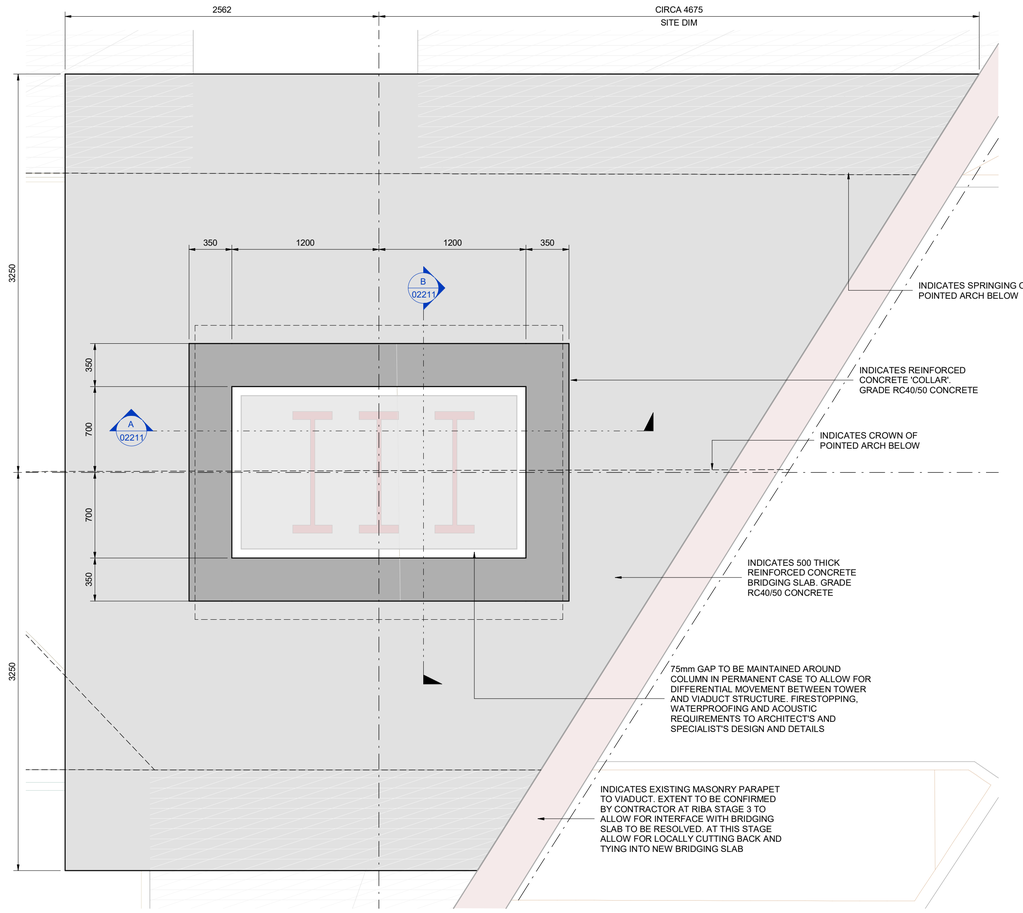
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
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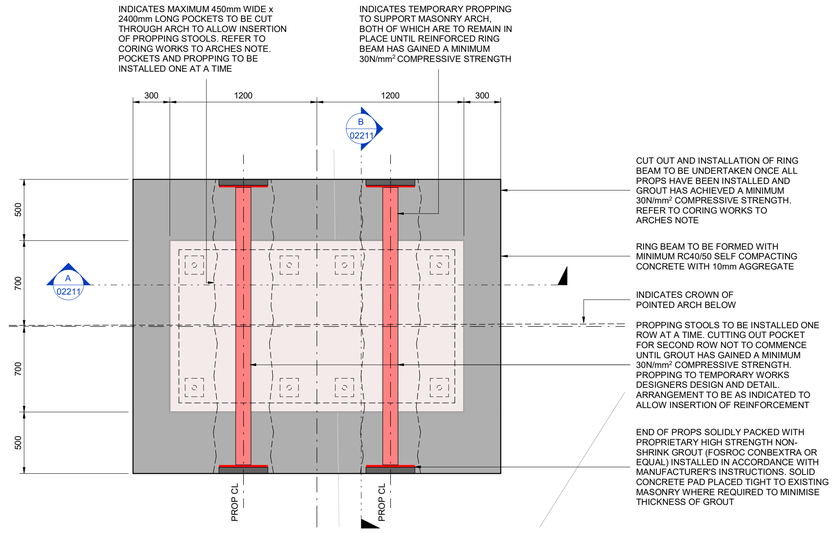
Scale: 1 : 25 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

V2B - REN - AA - ZZ - DR - S - 02200 - P02



TYPICAL CP02 COLUMN RC COLLAR PLAN



TYPICAL CP02 COLUMN RC RING BEAM PLAN

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

WATERPROOFING

THE NEW RC STRUCTURES ARE TO BE FULLY WATERPROOFED AND LAPPED INTO THE EXISTING WATERPROOFING SYSTEMS TO MAINTAIN CONTINUITY AND PREVENT WATER INGRESS THROUGH THE VIADUCT STRUCTURE AND BRIDGES. ALL WATERPROOFING, INCLUDING LAPPING TO THE EXISTING WATERPROOFING SYSTEMS IS TO THE SPECIALIST WATERPROOFING SUPPLIER'S DESIGN AND DETAIL.
THE CONTRACTOR IS TO APPOINT A WATERPROOFING SPECIALIST AT THE BEGINNING OF RIBA STAGE 4 TO DESIGN AND DETAIL THE WATERPROOFING STRATEGY AND SYSTEM AND TO ALLOW CO-ORDINATION WITH THE DESIGN TEAM.
ALL WATERPROOFING INDICATED ON THESE DRAWINGS IS INDICATIVE ONLY AND THE FINAL LOCATION AND DETAILS ARE TO BE TO THE ARCHITECT'S INTENT AND WATERPROOFING SPECIALIST'S DESIGN.

CORING WORKS TO ARCHES

ALL CORING AND SAWING WORKS TO FORM POCKETS AND OPENINGS WITHIN THE ARCHES ARE TO USE NON-PERCUSSIVE TECHNIQUES TO MINIMISE DISTURBANCE TO THE GRADE II LISTED STRUCTURE. THE CONTRACTOR IS TO SEEK EARLY INPUT FROM CORING SPECIALISTS AND CONFIRM THAT THE PROPOSED INTERVENTION WORKS ARE FEASIBLE WITHIN THE ZONES SHOWN. METHOD STATEMENTS FOR THE CORING WORKS MAY ALSO BE REQUIRED FOR THE LISTED BUILDING CONSENT.

RIBA STAGE 2

THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	24.01.25	GM	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Carvers Warehouse
77 Dale Street
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Project:

VIADUX 2B,
MANCHESTER

Drawing Title:

BLOCK A
COLUMN PENETRATION DETAIL
TYPE CP02

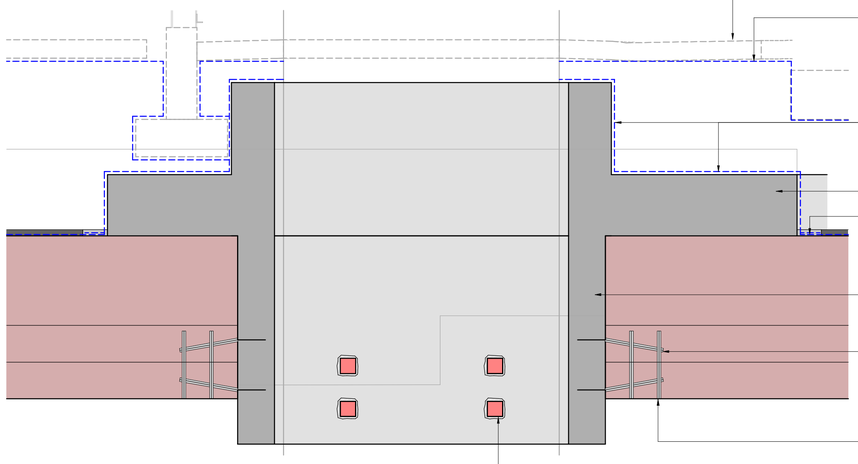
Status:

STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

Scale: 1 : 25 | Project No: 2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	02210 -	P02



REFER TO **V2B-REN-AA-03-DR-C-01???** FOR SLAB INTERFACE TO TOP OF OPENING

SERVICE YARD WATERPROOFING AND LAPPING TO ARCH OPENINGS TO WATERPROOFING SPECIALIST'S DESIGN AND DETAIL

WATERPROOFING SYSTEM, INCLUDING WATER RESISTING CONCRETE, TO WATERPROOFING SPECIALIST'S DESIGN AND DETAIL

RC COLLAR AND BRIDGING SLAB

ASSUMED EXISTING ASPHALT WATERPROOFING WITH CIRCA 50mm CONCRETE BLINDING. CONCRETE BLINDING TO BE CAREFULLY CUT BACK AND ASPHALT REPAIRED PRIOR TO LAPPING OF NEW WATERPROOFING SYSTEM TO WATERPROOFING SPECIALIST'S DESIGN AND DETAIL

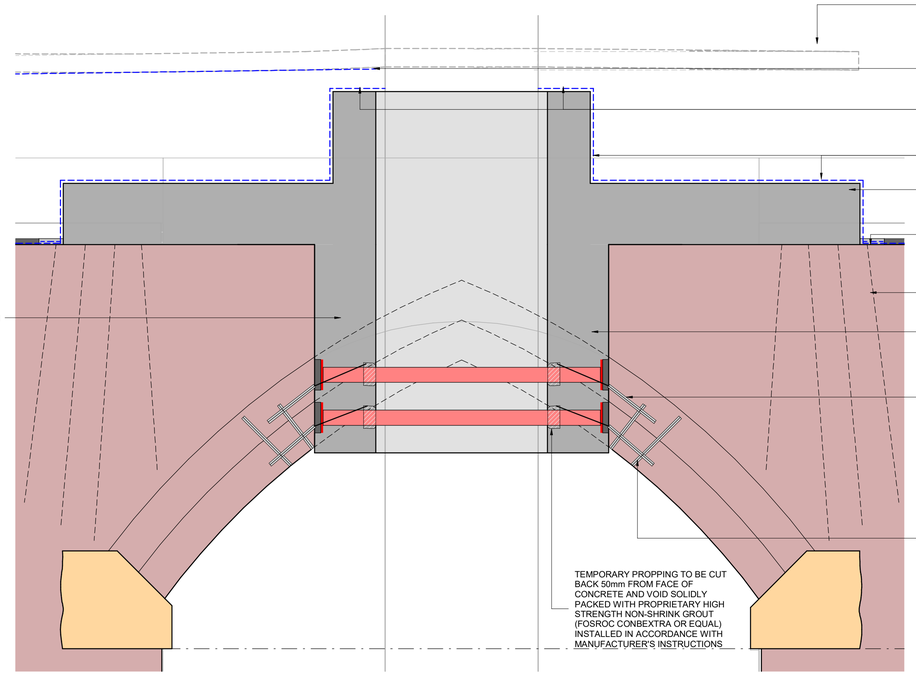
NEW RC RING BEAM

NEW RC RING BEAM AND EXISTING MASONRY ARCH TO BE STITCHED TOGETHER AROUND FULL PERIMETER OF OPENING WITH 800mm LONG 10mm DIA. STAINLESS STEEL BARS GROUTED IN CIRCA 18mm DIAMETER HOLES WITH MINIMUM 400mm EMBEDMENT INTO MASONRY ARCH AND MINIMUM 400mm LAP INTO RC RING BEAM. HELIFIX CEMTIES OR EQUIVALENT. TIES TO BE LOCATED WITHIN FULL BRICKS

MASONRY ARCH TO BE STITCHED TOGETHER LOCALLY AROUND FULL PERIMETER OF NEW ARCH OPENING ON A 300m x 225mm GRID WITH 450mm LONG 10mm DIA. STAINLESS STEEL BARS GROUTED IN CIRCA 18mm DIAMETER HOLES. HELIFIX CEMTIES OR EQUIVALENT. TIES TO BE LOCATED WITHIN FULL BRICKS AND SET OUT EVENLY TO MINIMISE VISUAL IMPACT

TEMPORARY PROPPING TO BE CUT BACK 50mm FROM FACE OF CONCRETE AND VOID SOLIDLY PACKED WITH PROPRIETARY HIGH STRENGTH NON-SHRINK GROUT (FOSROC CONBEXTRA OR EQUAL) INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS

SECTION A-A



REFER TO **V2B-REN-AA-03-DR-C-01???** FOR SLAB INTERFACE TO TOP OF OPENING

SERVICE YARD WATERPROOFING AND LAPPING TO ARCH OPENINGS TO WATERPROOFING SPECIALISTS DESIGN AND DETAIL

MINIMUM 20mm COMPRESSIBLE FILLER BOARD TO TOP OF CONCRETE 'COLLAR' TO PREVENT LOAD TRANSFER FROM SLAB ABOVE

WATERPROOFING SYSTEM, INCLUDING WATER RESISTING CONCRETE, TO WATERPROOFING SPECIALISTS DESIGN AND DETAIL

RC COLLAR AND BRIDGING SLAB

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ALLOW FOR INSPECTION AND CONSOLIDATION GROUTING TO EXISTING BRICK BACKING BENEATH ENDS OF RC SADDLE BEAM ABOVE PIERS

NEW RC RING BEAM

NEW RC RING BEAM AND EXISTING MASONRY ARCH TO BE STITCHED TOGETHER AROUND FULL PERIMETER OF OPENING WITH 800mm LONG 10mm DIA. STAINLESS STEEL BARS GROUTED IN CIRCA 18mm DIAMETER HOLES WITH MINIMUM 400mm EMBEDMENT INTO MASONRY ARCH AND MINIMUM 400mm LAP INTO RC RING BEAM. HELIFIX CEMTIES OR EQUIVALENT. TIES TO BE LOCATED WITHIN FULL BRICKS

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FACE OF AS CAST RC RING BEAM TO BE SCABBLED AND EXTENDED WITH PRORIETARY GROUT (FOSROC RENDERROC OR EQUIVALENT) TO FORM FLUSH SURFACE. ALLOW FOR B10 LACERS TO INFILL SECTION WITH B8 ANCHOR BARS FIXED INTO RC RING BEAM AT 300mm C/C WITH MINIMUM 100mm EMBEDMENT AND FIXED WITH RAWL R-KEM II RESIN

TEMPORARY PROPPING TO BE CUT BACK 50mm FROM FACE OF CONCRETE AND VOID SOLIDLY PACKED WITH PROPRIETARY HIGH STRENGTH NON-SHRINK GROUT (FOSROC CONBEXTRA OR EQUAL) INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS

SECTION B-B

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	24.01.25	GM	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

BLOCK A COLUMN PENETRATION DETAIL TYPE CP02

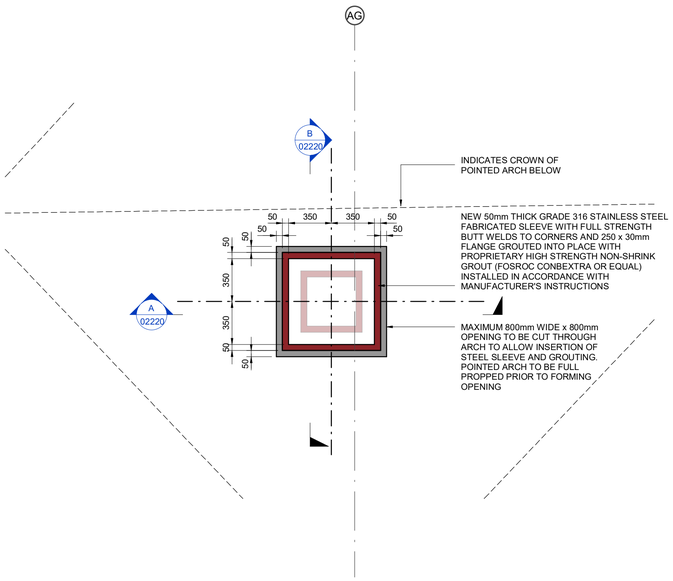
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STAGE 2

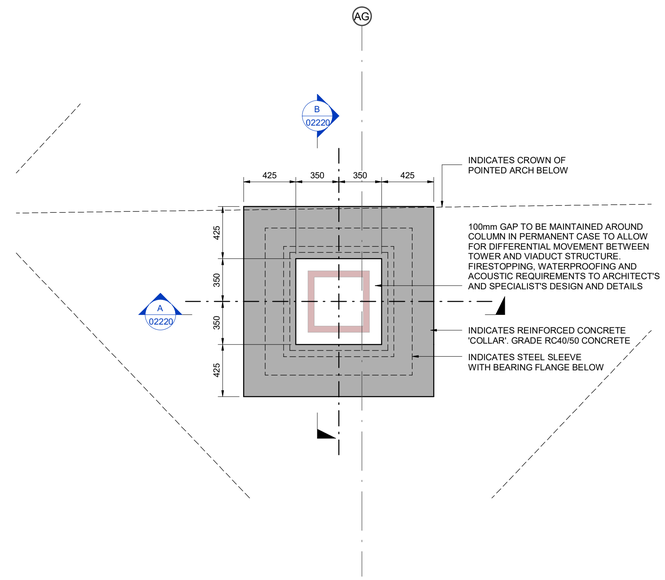
Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

Scale: 1 : 25 | Project No: 2209-01

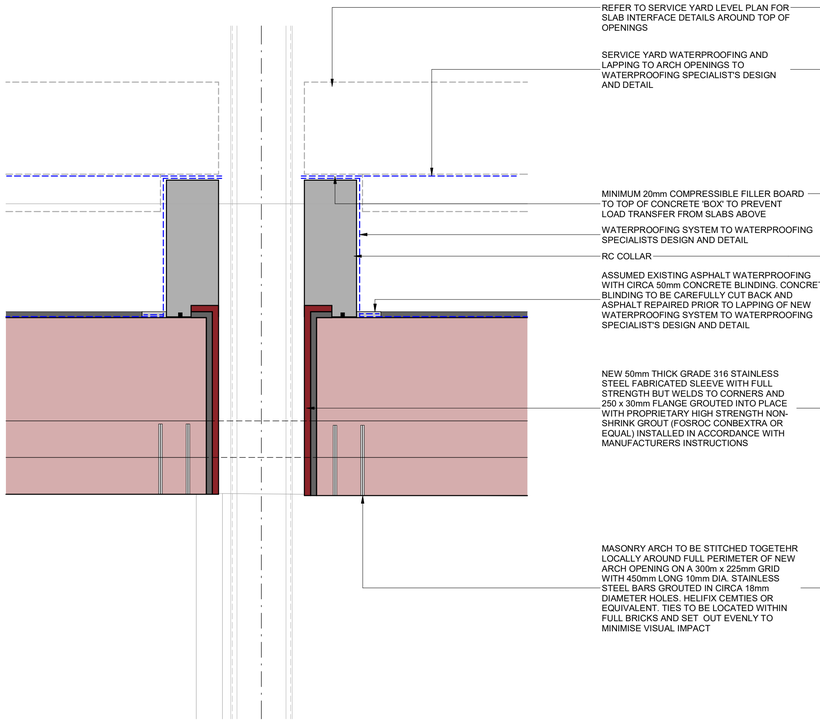
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V2B -	REN -	AA -	ZZ -	DR -	S -	02211 -	P02



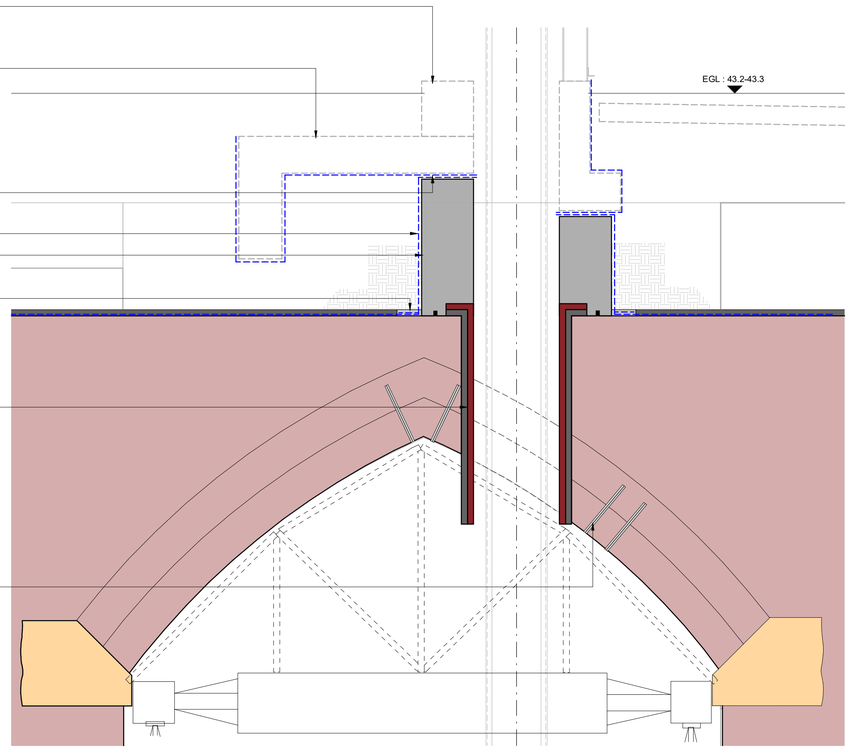
TYPICAL CP03 COLUMN RC RING BEAM PLAN



TYPICAL CP03 COLUMN RC COLLAR PLAN



SECTION A-A



SECTION B-B

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	24.01.25	GM	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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M1 2HG

Project:
VIADUX 2B,
MANCHESTER

Drawing Title:
BLOCK A
COLUMN PENETRATION DETAIL
TYPE CP03

Status:
STAGE 2

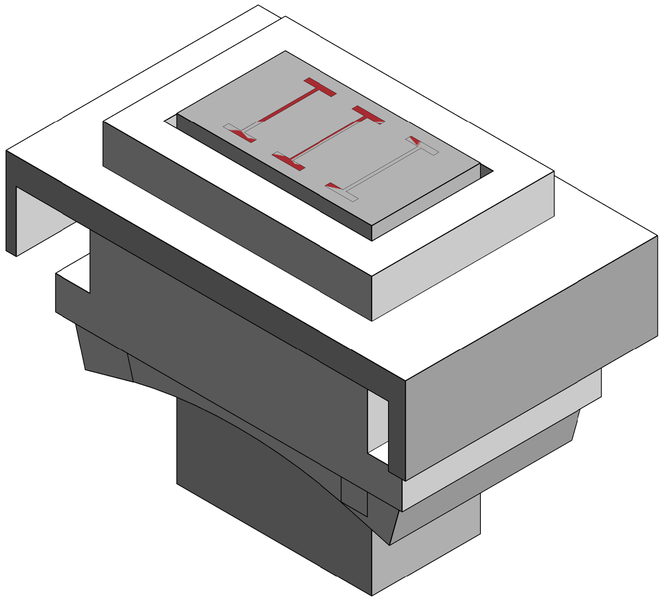
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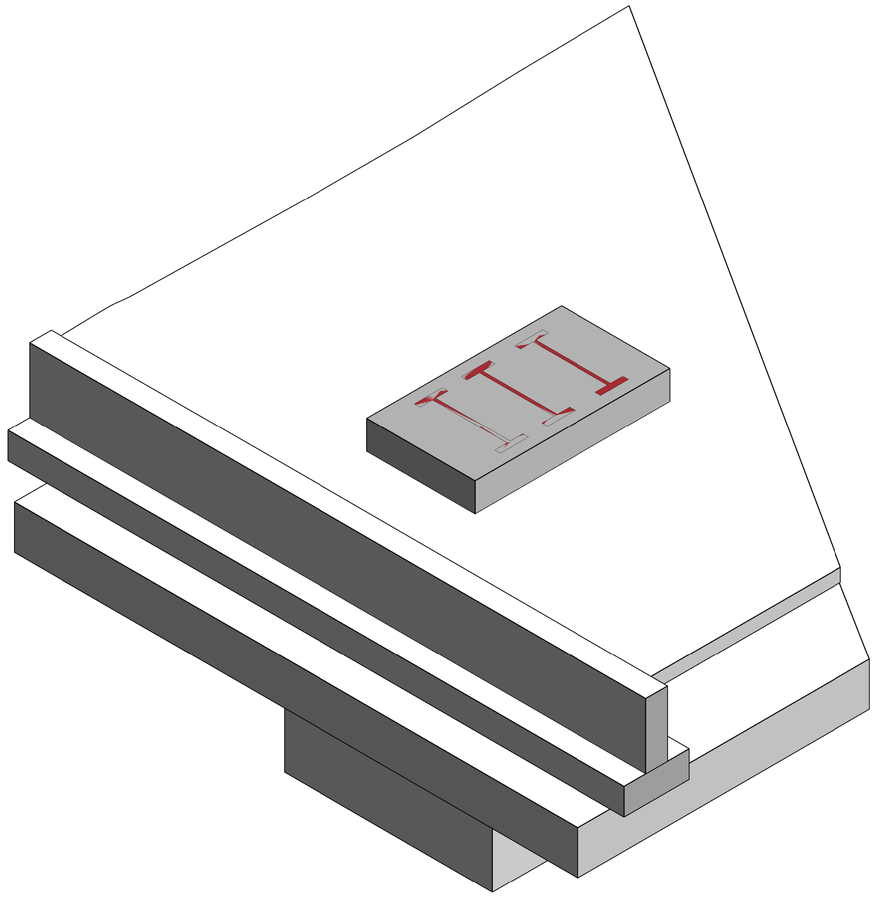
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V2B - REN - AA - ZZ - DR - S - 02220 - P02

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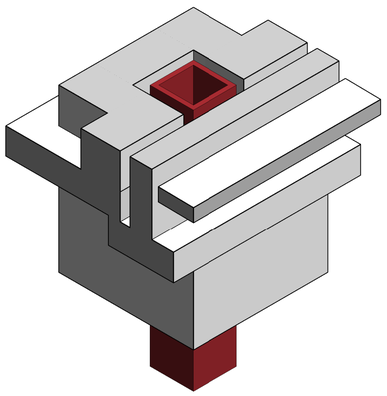
1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



3D VIEW COLUMN PENETRATION CP01



3D VIEW COLUMN PENETRATION CP02



3D VIEW COLUMN PENETRATION CP03

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	24.01.25	GM	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Project:

VIADUX 2B,
MANCHESTER

Drawing Title:

BLOCK A
COLUMN TYPES ISOMETRICS

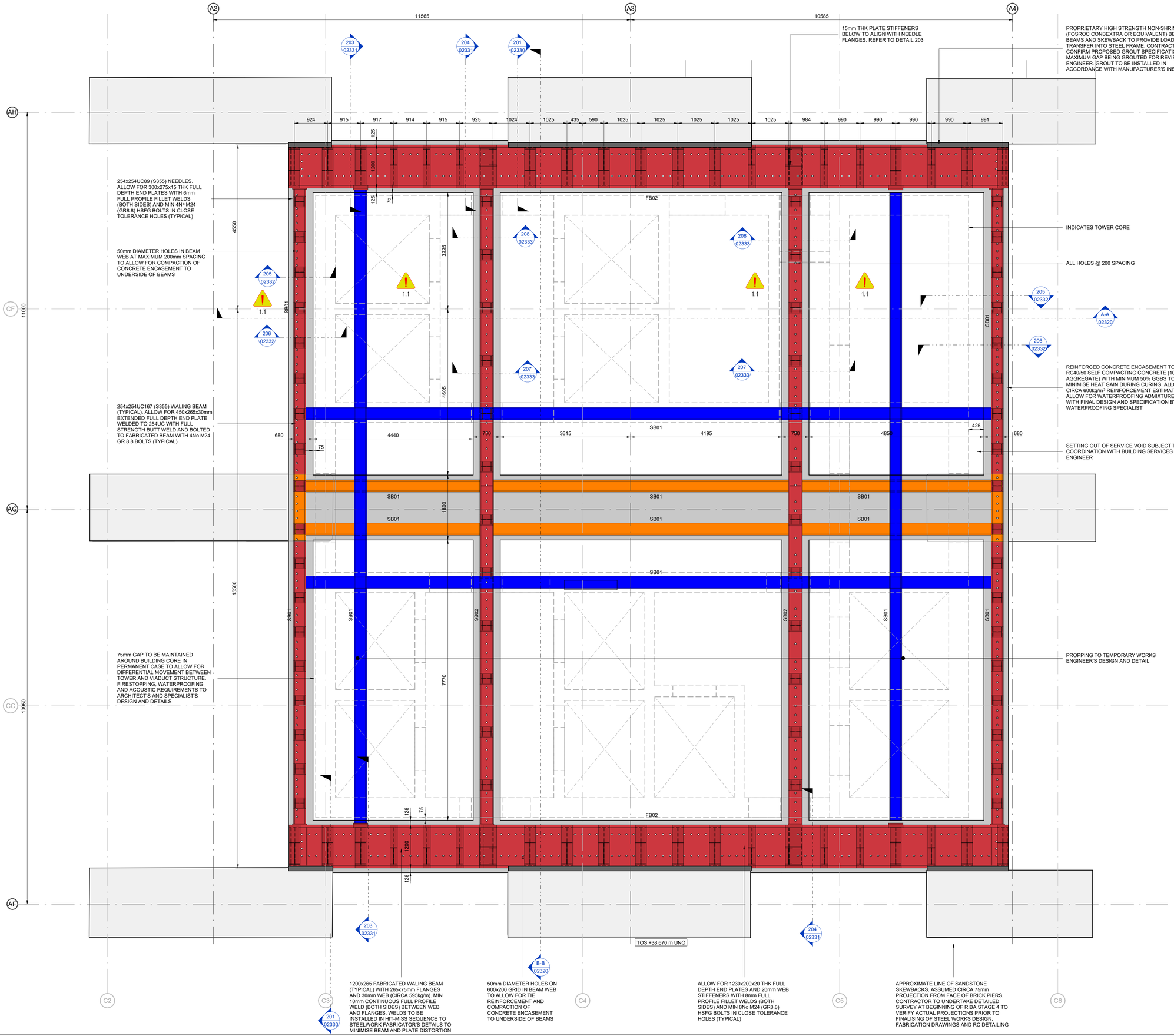
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STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

Scale: | Project No: 2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	02250 -	P02



NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

LISTED BUILDING CONSENT
ALL INTERVENTION WORKS TO THE GRADE II LISTED ARCHES WILL BE SUBJECT TO LISTED BUILDING CONSENT. THE CONTRACTOR IS TO ALLOW FOR THE DESIGN AND THIRD PARTY APPROVALS WITHIN THEIR PROGRAMME. NO WORKS TO THE EXISTING ARCHES ARE TO BE UNDERTAKEN WITHOUT APPROVAL FROM THE CONSERVATION OFFICER

VIADUCT SETTING OUT & SURVEYS
PRIOR TO THE RIBA STAGE 4 DESIGN THE CONTRACTOR IS TO SURVEY THE EXISTING MASONRY PIERS, INCLUDING LINE, LEVEL AND PROJECTION OF THE SKEWBACKS AND CONFIRM THE FINDINGS TO THE ENGINEER

CORING WORKS TO ARCHES
ALL CORING AND SAWING WORKS TO FORM POCKETS AND OPENINGS WITHIN THE ARCHES ARE TO USE NON-PERCUSSIVE TECHNIQUES TO MINIMISE DISTURBANCE TO THE GRADE II LISTED STRUCTURE. THE CONTRACTOR IS TO SEEK EARLY INPUT FROM CORING SPECIALISTS AND CONFIRM THAT THE PROPOSED INTERVENTION WORKS ARE FEASIBLE WITHIN THE ZONES SHOWN. METHOD STATEMENTS FOR THE CORING WORKS MAY ALSO BE REQUIRED FOR THE LISTED BUILDING CONSENT.

VIADUCT WATERPROOFING
ALLOW FOR ALL NEW STRUCTURAL ELEMENTS TO BE FULLY WATERPROOFED, INCLUDING LAPPING INTO THE EXISTING ASPHALT WATERPROOFING TO THE CROWN OF THE MASONRY STRUCTURE. THE CONTRACTOR IS TO APPOINT A WATERPROOFING SPECIALIST TO UNDERTAKE THE DESIGN AND DETAILING OF THE WATERPROOFING SYSTEM AND INTERFACE WITH THE EXISTING. THE CONTRACTOR IS TO ALSO ALLOW FOR UNBLOCKING AND LINING ALL EXISTING DRAINAGE WITHIN THE EXISTING PIERS.

STEELWORK CONNECTION
ALL STEELWORK CONNECTIONS AND ALLOWANCES INDICATED ON THE DRAWINGS ARE INDICATIVE ONLY. FINAL DESIGN AND DETAILING OF ALL STEELWORK CONNECTIONS BY STEELWORK FABRICATOR.
TO MINIMISE MOVEMENT OF THE EXISTING VIADUCT STRUCTURE HSFG BOLTS ARE PROPOSED TO ALL SHEAR CONNECTIONS. THE FINAL CONSTRUCTION METHODOLOGY TO MINIMISE MOVEMENT OF THE EXISTING STRUCTURE IS TO BE DEVELOPED BY THE CONTRACTOR AND AGREED WITH THE ENGINEER.

STEEL AND CONCRETE SETTING OUT
ALL SETTING OUT IS INDICATIVE ONLY TO ALLOW FOR HIGH LEVEL COSTING. FINAL SETTING OUT OF THE LIFT CORE OPENING STEEL FRAME AND REINFORCED CONCRETE IS TO BE CONFIRMED AT RIBA STAGE 4 FOLLOWING FINALISATION OF MAIN TOWER CORES WALLS AND VIADUCT SURVEY.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

1.1 **ARCH PROPPING**
TEMPORARY PROPPING TO TEMPORARY WORKS ENGINEER'S DESIGN AND DETAIL. THE CONTRACTOR IS TO INSTALL THE PROPPING TO BOTTOM FRAME PRIOR TO REMOVAL OF THE FILL ABOVE THE ARCHES. TEMPORARY PROPPING IS TO REMAIN IN PLACE FOR THE FULL DURATION OF THE CORE PENETRATION CONSTRUCTION WORKS, INCLUDING DURING FORMATION OF THE REINFORCEMENT CONCRETE ENCASEMENT. REMOVAL OF THE TEMPORARY PROPPING IS ONLY TO BE UNDERTAKEN ONCE THE REINFORCEMENT CONCRETE ENCASEMENT IS COMPLETE AND HAS GAINED FULL STRENGTH. REMOVAL OF THE PROPPING PRIOR TO COMPLETION OF THE RC WORKS COULD RESULT IN EXCESSIVE MOVEMENT OF THE ARCHES AND COLLAPSE

KEY:

- INDICATES NEW STEEL BEAMS INSTALLED PRIOR TO MASONRY PIER REMOVAL AND RETAINED IN THE PERMANENT CONDITION
- INDICATES NEW STEEL BEAMS INSTALLED AFTER THE REMOVAL OF THE CENTRAL MASONRY PIER AND RETAINED IN THE PERMANENT CONDITION
- INDICATES TEMPORARY STEELWORK TO TEMPORARY WORKS DESIGNER'S DESIGN AND DETAIL

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P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Manchester
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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

BLOCK A VIADUCT CORE PENETRATION LOWER RING BEAM LEVEL

Status:

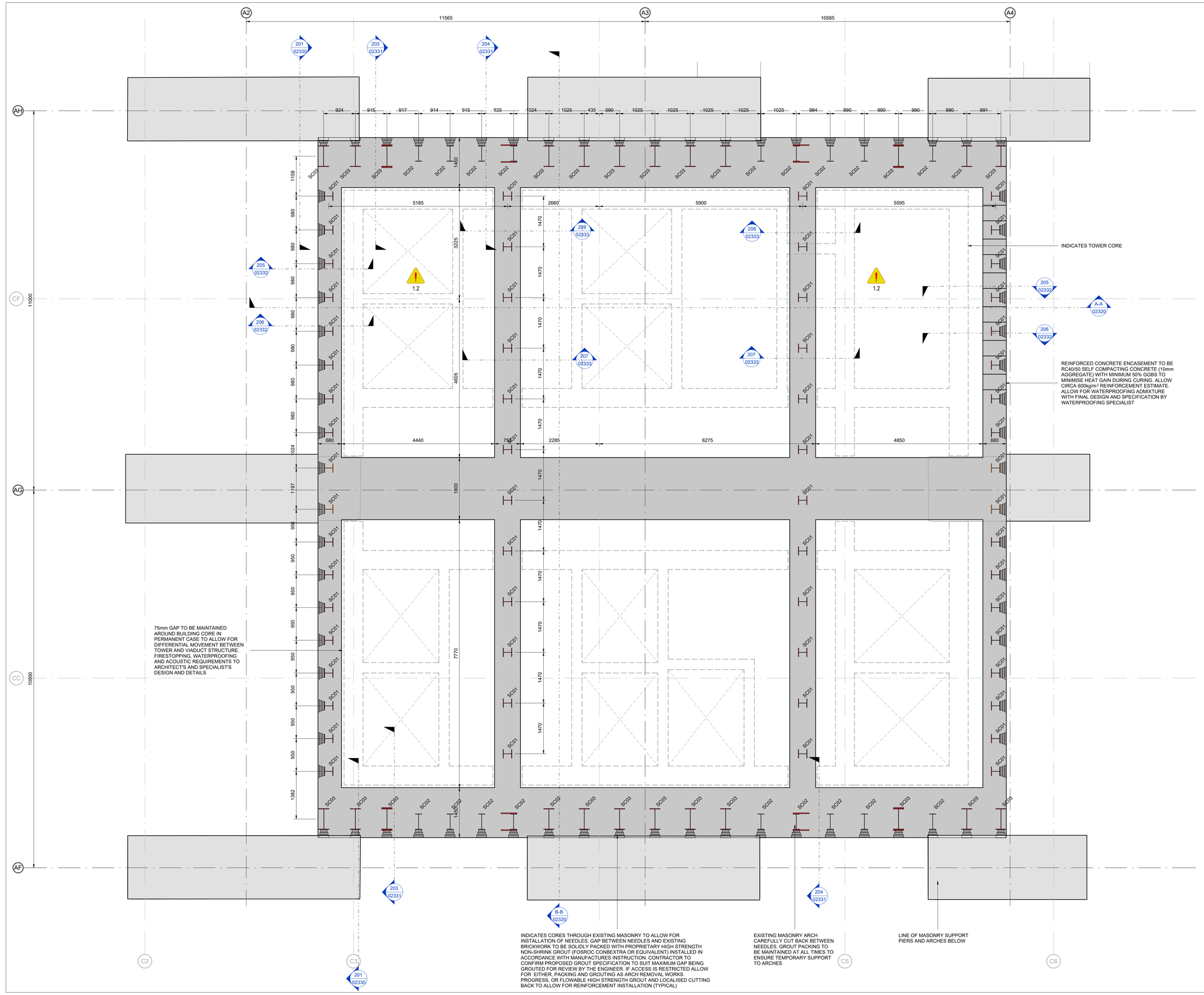
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

Scale: 1 : 50 Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

V2B - REN - AA - ZZ - DR - S - 02300 - P02



NOTES:

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ALL STEELWORK CONNECTIONS AND ALLOWANCES INDICATED ON THE DRAWINGS ARE INDICATIVE ONLY. FINAL DESIGN AND DETAILING OF ALL STEELWORK CONNECTIONS BY STEELWORK FABRICATOR.
TO MINIMISE MOVEMENT OF THE EXISTING VIADUCT STRUCTURE HSFG BOLTS ARE PROPOSED TO ALL SHEAR CONNECTIONS. THE FINAL CONSTRUCTION METHODOLOGY TO MINIMISE MOVEMENT OF THE EXISTING STRUCTURE IS TO BE DEVELOPED BY THE CONTRACTOR AND AGREED WITH THE ENGINEER.

STEEL AND CONCRETE SETTING OUT
ALL SETTING OUT IS INDICATIVE ONLY TO ALLOW FOR HIGH LEVEL COSTING. FINAL SETTING OUT OF THE LIFT CORE OPENING STEEL FRAME AND REINFORCED CONCRETE IS TO BE CONFIRMED AT RIBA STAGE 4 FOLLOWING FINALISATION OF MAIN TOWER CORES WALLS AND VIADUCT SURVEY.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

1.2 **ARCH PROPPING**
TEMPORARY PROPPING TO TEMPORARY WORKS ENGINEERS DESIGN AND DETAIL. THE CONTRACTOR IS TO INSTALL VERTICAL PROPPING TO THE UNDERSIDE OF EXISTING ARCH PRIOR TO REMOVAL OF FILL, ALTERATION WORKS AND DEMOLITION OF EXISTING ARCH

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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

Project:
VIADUX 2B, MANCHESTER

Drawing Title:
BLOCK A
VIADUCT CORE PENETRATION
VERTICAL NEEDLE PLAN

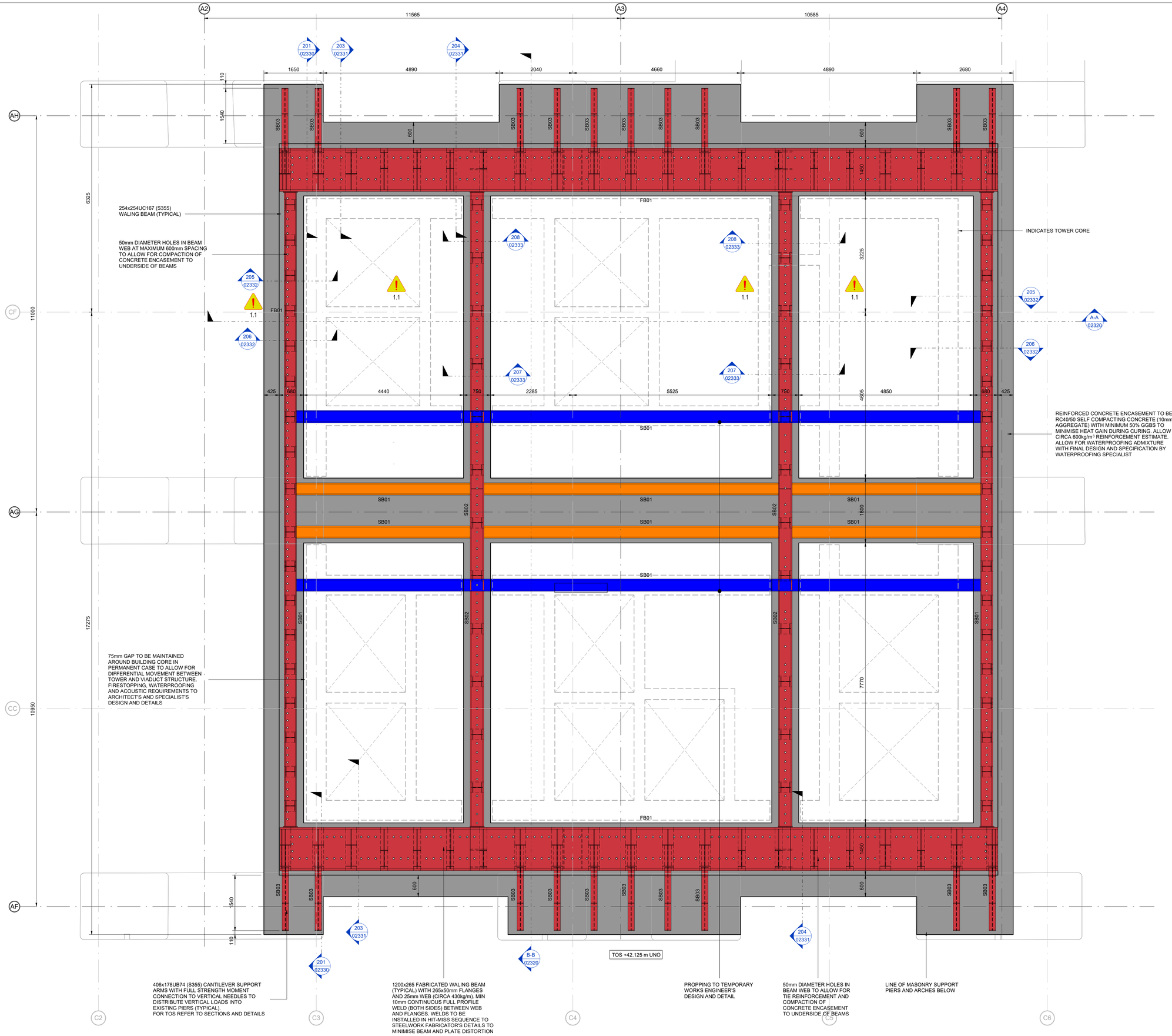
Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

Scale: 1 : 50 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

V2B - REN - AA - ZZ - DR - S - 02301 - P02



NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

LISTED BUILDING CONSENT
ALL INTERVENTION WORKS TO THE GRADE II LISTED ARCHES WILL BE SUBJECT TO LISTED BUILDING CONSENT. THE CONTRACTOR IS TO ALLOW FOR THE DESIGN AND THIRD PARTY APPROVALS WITHIN THEIR PROGRAMME. NO WORKS TO THE EXISTING ARCHES ARE TO BE UNDERTAKEN WITHOUT APPROVAL FROM THE CONSERVATION OFFICER

VIADUCT SETTING OUT & SURVEYS
PRIOR TO THE RIBA STAGE 4 DESIGN THE CONTRACTOR IS TO SURVEY THE EXISTING MASONRY PIERS, INCLUDING LINE, LEVEL AND PROJECTION OF THE SKEWBACKS AND CONFIRM THE FINDINGS TO THE ENGINEER

CORING WORKS TO ARCHES
ALL CORING AND SAWING WORKS TO FORM POCKETS AND OPENINGS WITHIN THE ARCHES ARE TO USE NON-PERCUSSIVE TECHNIQUES TO MINIMISE DISTURBANCE TO THE GRADE II LISTED STRUCTURE. THE CONTRACTOR IS TO SEEK EARLY INPUT FROM CORING SPECIALISTS AND CONFIRM THAT THE PROPOSED INTERVENTION WORKS ARE FEASIBLE WITHIN THE ZONES SHOWN. METHOD STATEMENTS FOR THE CORING WORKS MAY ALSO BE REQUIRED FOR THE LISTED BUILDING CONSENT.

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ALLOW FOR ALL NEW STRUCTURAL ELEMENTS TO BE FULLY WATERPROOFED, INCLUDING LAPPING INTO THE EXISTING ASPHALT WATERPROOFING TO THE CROWN OF THE MASONRY STRUCTURE. THE CONTRACTOR IS TO APPOINT A WATERPROOFING SPECIALIST TO UNDERTAKE THE DESIGN AND DETAILING OF THE WATERPROOFING SYSTEM AND INTERFACE WITH THE EXISTING. THE CONTRACTOR IS TO ALSO ALLOW FOR UNBLOCKING AND LINING ALL EXISTING DRAINAGE WITHIN THE EXISTING PIERS.

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KEY:

- INDICATES NEW STEEL BEAMS INSTALLED PRIOR TO MASONRY PIER REMOVAL AND RETAINED IN THE PERMANENT CONDITION
- INDICATES NEW STEEL BEAMS INSTALLED AFTER THE REMOVAL OF THE CENTRAL MASONRY PIER AND RETAINED IN THE PERMANENT CONDITION
- INDICATES TEMPORARY STEELWORK TO TEMPORARY WORKS DESIGNER'S DESIGN AND DETAIL

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P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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

Project:

VIADUX 2B, MANCHESTER

Drawing Title:

BLOCK A
VIADUCT CORE PENETRATION
UPPER RING BEAM LEVEL

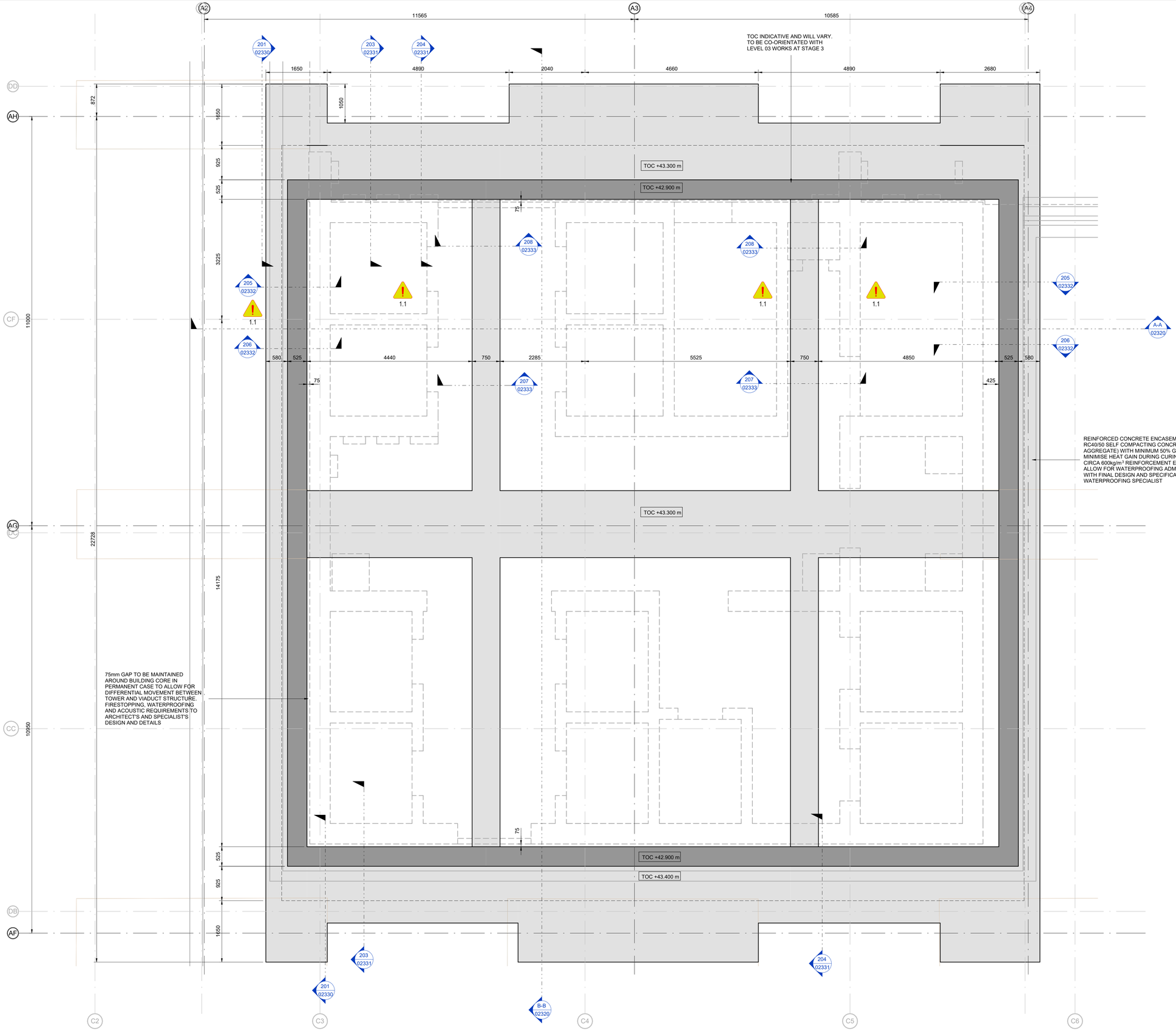
Status:

STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

Scale: 1 : 50 Project No: 2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	02302 -	P02



REINFORCED CONCRETE ENCASEMENT TO BE RC40/50 SELF COMPACTING CONCRETE (10mm AGGREGATE) WITH MINIMUM 50% GGBS TO MINIMISE HEAT GAIN DURING CURING. ALLOW CIRCA 600kg/m³ REINFORCEMENT ESTIMATE. ALLOW FOR WATERPROOFING ADMIXTURE WITH FINAL DESIGN AND SPECIFICATION BY WATERPROOFING SPECIALIST

NOTES:

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P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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

Project:
VIADUX 2B, MANCHESTER

Drawing Title:
BLOCK A VIADUCT CORE PENETRATION UPSTAND LEVEL

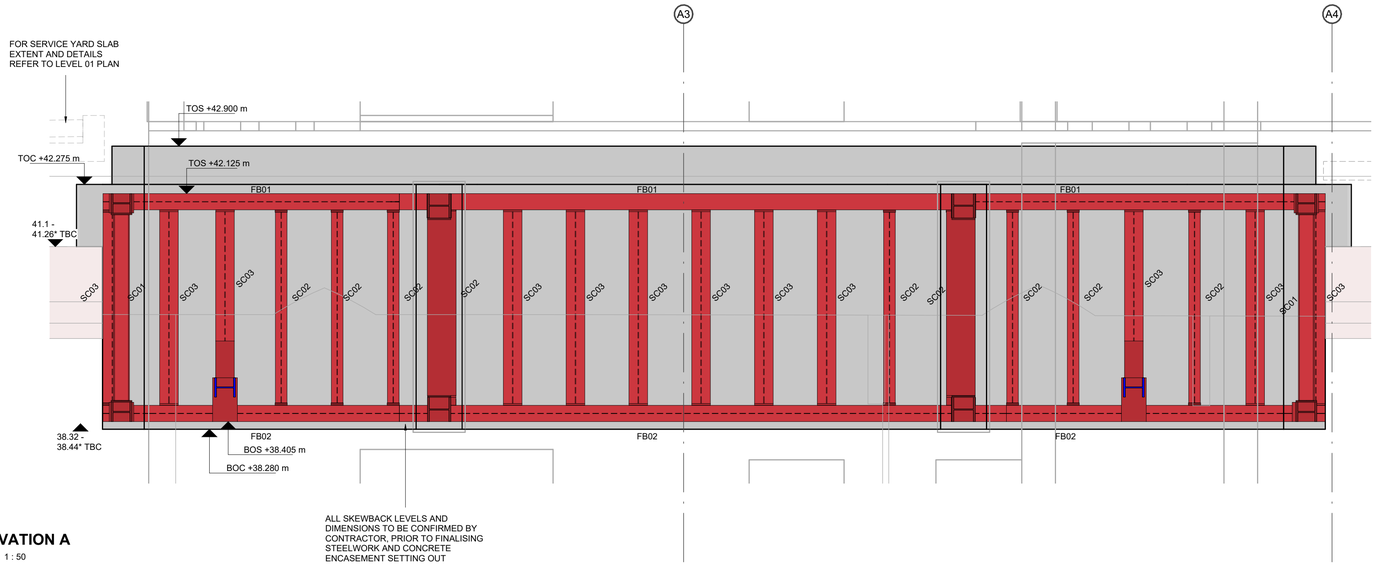
Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

Scale: 1 : 50 | Project No: 2209-01

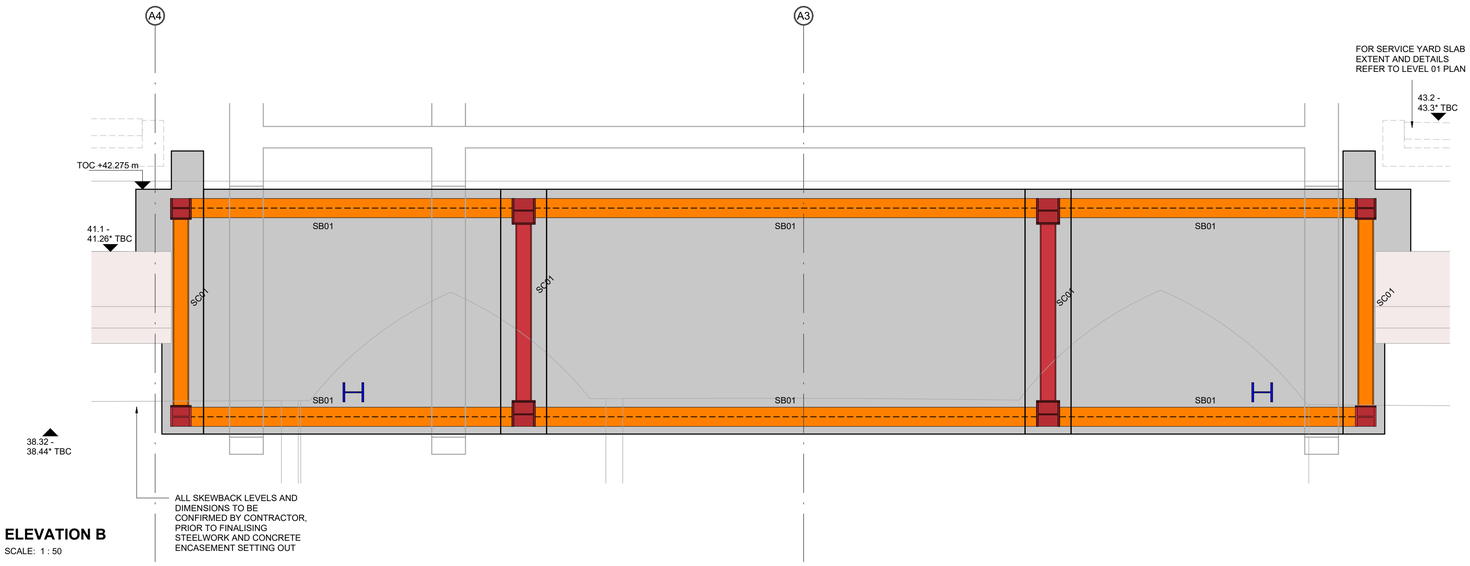
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V2B - REN - AA - ZZ - DR - S - 02303 - P02



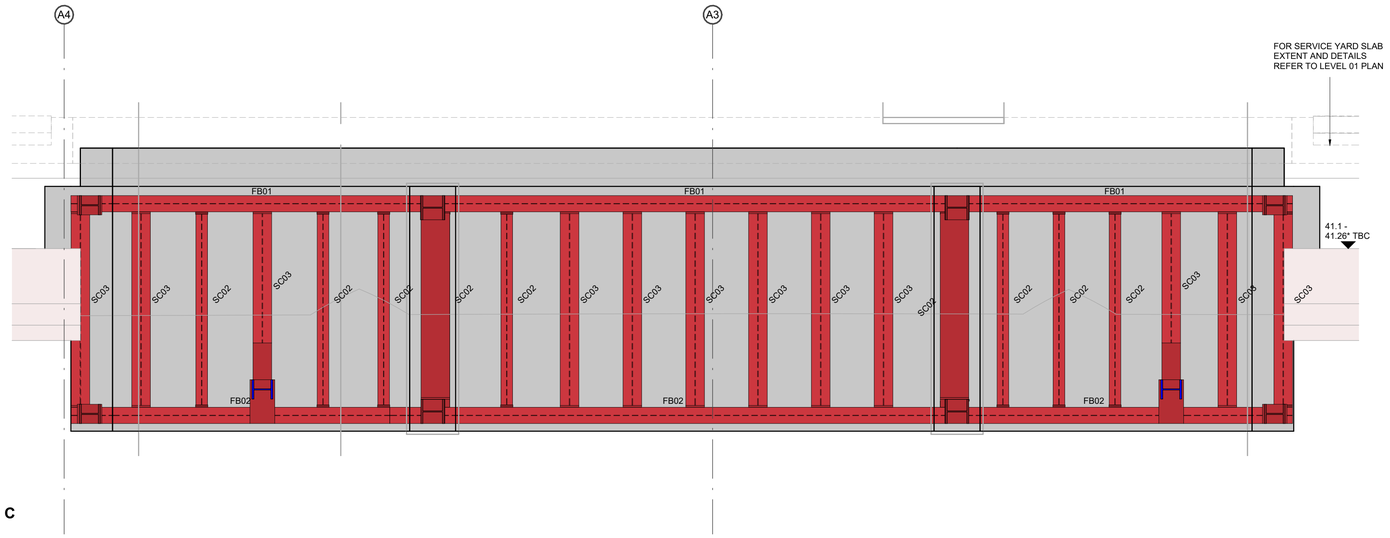
ELEVATION A

SCALE: 1 : 50



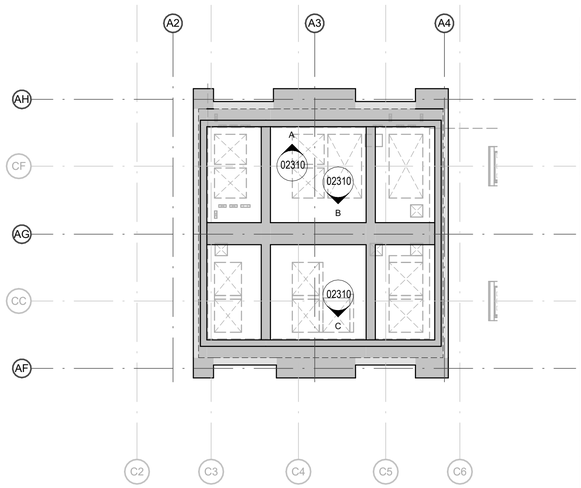
ELEVATION B

SCALE: 1 : 50



ELEVATION C

SCALE: 1 : 50



KEY PLAN

NOTES:

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

Renaissance Associates Ltd
Carvers Warehouse
77 Dale Street
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Project:
VIADUX 2B, MANCHESTER

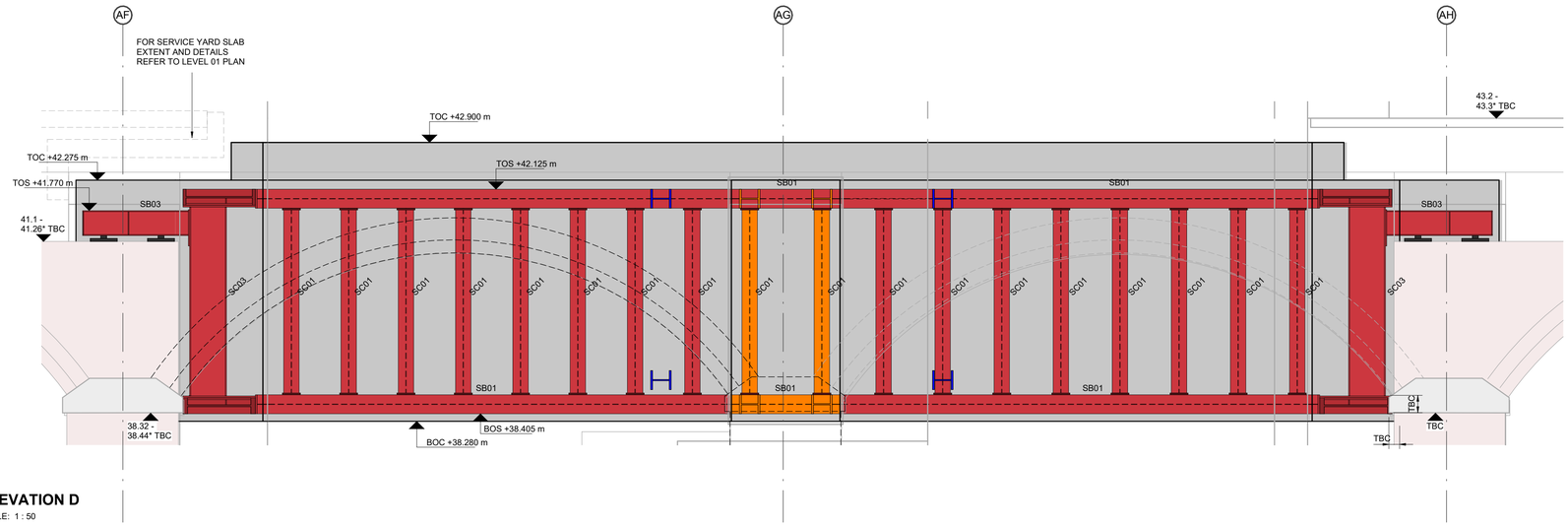
Drawing Title:
BLOCK A VIADUX CORE PENETRATION ELEVATIONS SHEET 1

Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

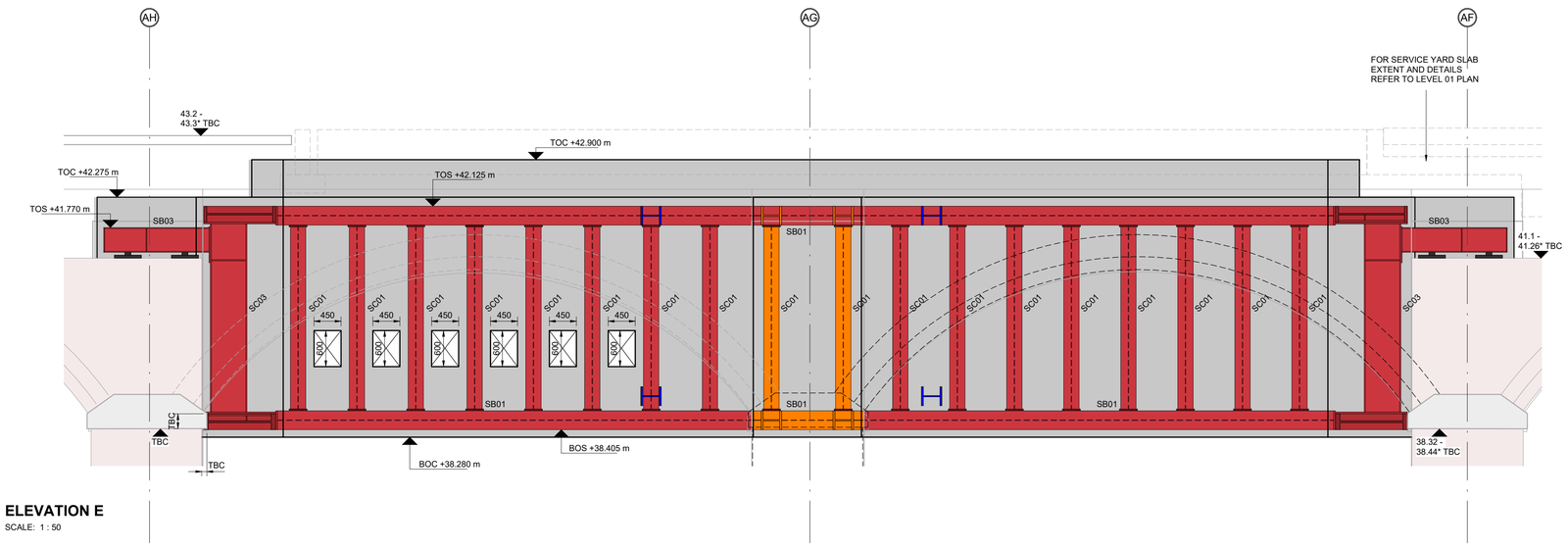
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Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	02310 -	P02



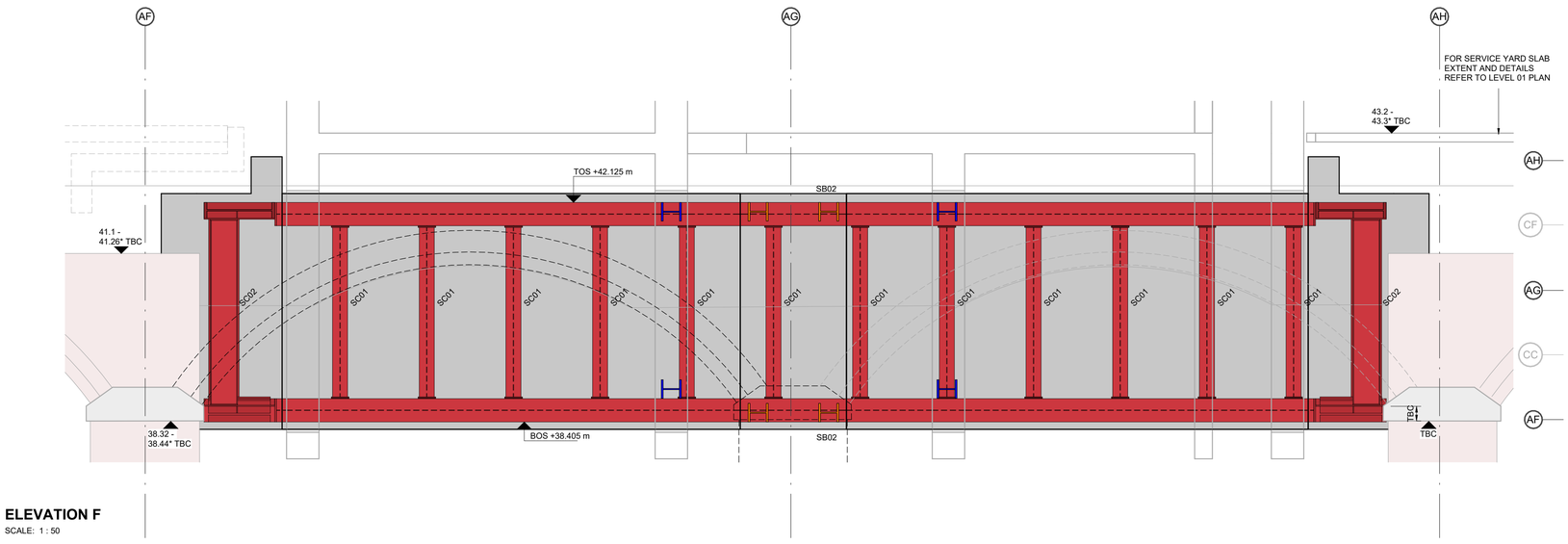
ELEVATION D

SCALE: 1 : 50



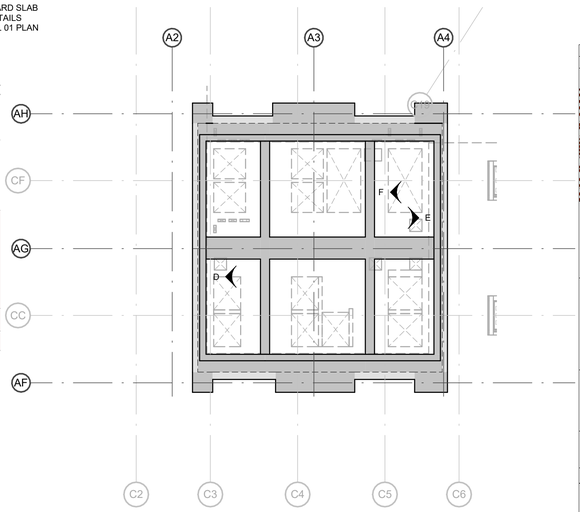
ELEVATION E

SCALE: 1 : 50



ELEVATION F

SCALE: 1 : 50



KEY PLAN

NOTES:

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77 Dale Street
Manchester
M1 2HG

Project:

VIADUX 2B, MANCHESTER

Drawing Title:

BLOCK A VIADUX CORE PENETRATION ELEVATIONS SHEET 2

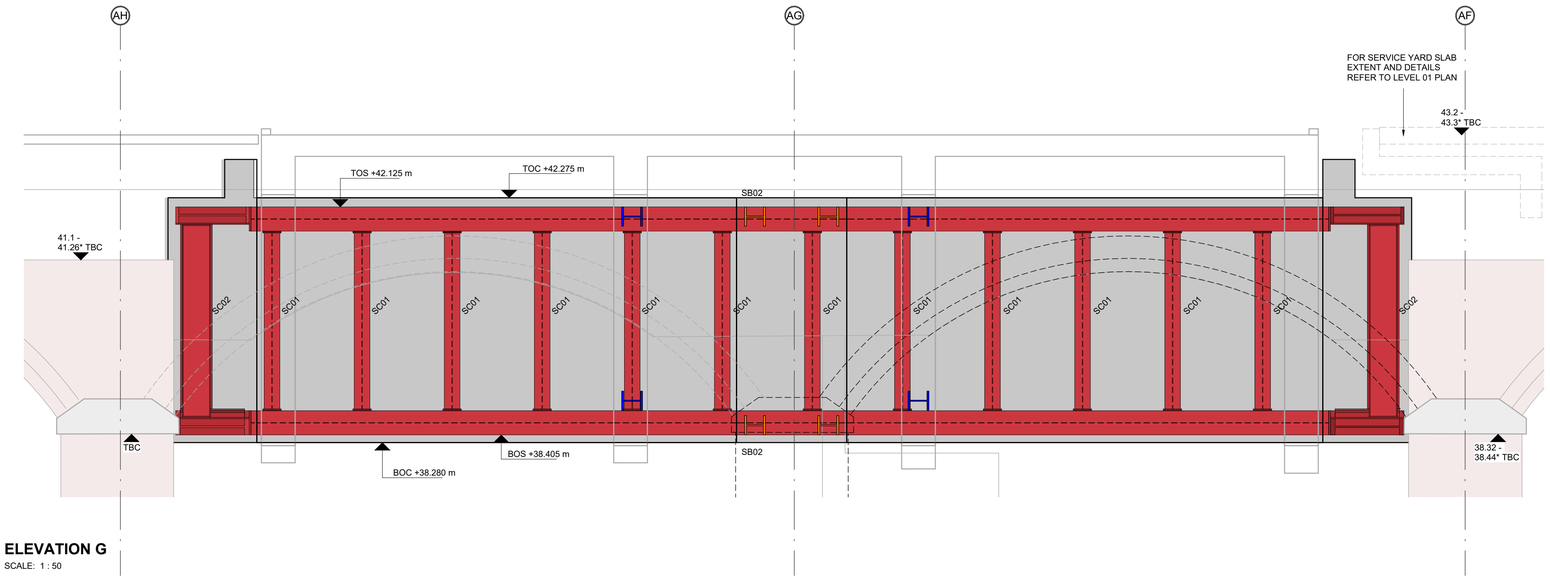
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STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

Scale: As indicated | Project No: 2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	02311 -	P02

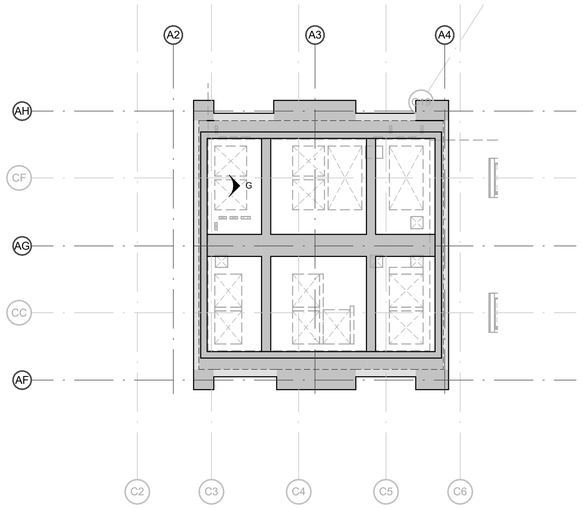


ELEVATION G

SCALE: 1 : 50

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.



KEY PLAN

Rev:	Description:	Date:	By:	Chkd:
P01	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC

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Project:

VIADUX 2B,
MANCHESTER

Drawing Title:

BLOCK A
VIADUX CORE PENETRATION
ELEVATIONS SHEET 3

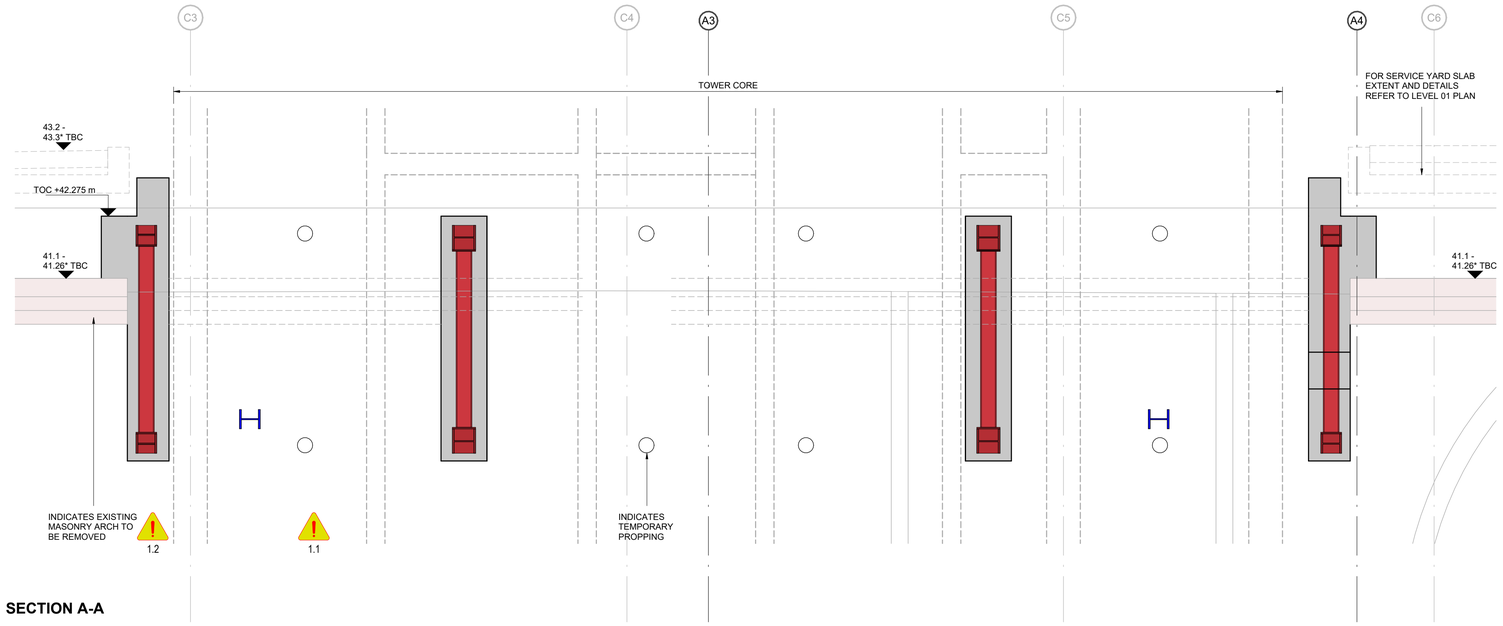
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STAGE 2

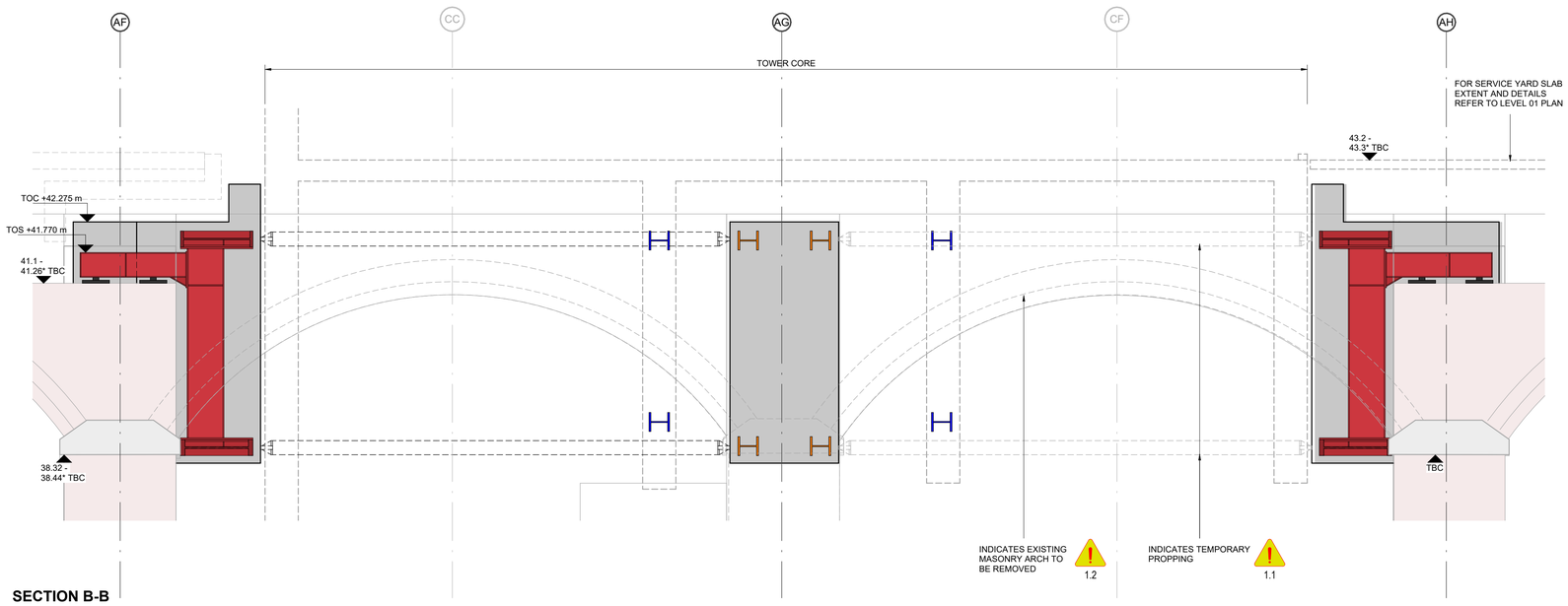
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Scale:	Project No:
As indicated	2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	02312 -	P01



SECTION A-A



SECTION B-B

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

LISTED BUILDING CONSENT
ALL INTERVENTION WORKS TO THE GRADE II LISTED ARCHES WILL BE SUBJECT TO LISTED BUILDING CONSENT. THE CONTRACTOR IS TO ALLOW FOR THE DESIGN AND THIRD PARTY APPROVALS WITHIN THEIR PROGRAMME. NO WORKS TO THE EXISTING ARCHES ARE TO BE UNDERTAKEN WITHOUT APPROVAL FROM THE CONSERVATION OFFICER

VIADUCT SETTING OUT & SURVEYS
PRIOR TO THE RIBA STAGE 4 DESIGN THE CONTRACTOR IS TO SURVEY THE EXISTING MASONRY PIERS, INCLUDING LINE, LEVEL AND PROJECTION OF THE SKEWBACKS AND CONFIRM THE FINDINGS TO THE ENGINEER

CORING WORKS TO ARCHES
ALL CORING AND SAWING WORKS TO FORM POCKETS AND OPENINGS WITHIN THE ARCHES ARE TO USE NON-PERCUSSIVE TECHNIQUES TO MINIMISE DISTURBANCE TO THE GRADE II LISTED STRUCTURE. THE CONTRACTOR IS TO SEEK EARLY INPUT FROM CORING SPECIALISTS AND CONFIRM THAT THE PROPOSED INTERVENTION WORKS ARE FEASIBLE WITHIN THE ZONES SHOWN. METHOD STATEMENTS FOR THE CORING WORKS MAY ALSO BE REQUIRED FOR THE LISTED BUILDING CONSENT.

VIADUCT WATERPROOFING
ALLOW FOR ALL NEW STRUCTURAL ELEMENTS TO BE FULLY WATERPROOFED, INCLUDING LAPPING INTO THE EXISTING ASPHALT WATERPROOFING TO THE CROWN OF THE MASONRY STRUCTURE. THE CONTRACTOR IS TO APPOINT A WATERPROOFING SPECIALIST TO UNDERTAKE THE DESIGN AND DETAILING OF THE WATERPROOFING SYSTEM AND INTERFACE WITH THE EXISTING. THE CONTRACTOR IS TO ALSO ALLOW FOR UNBLOCKING AND LINING ALL EXISTING DRAINAGE WITHIN THE EXISTING PIERS.

STEELWORK CONNECTION
ALL STEELWORK CONNECTIONS AND ALLOWANCES INDICATED ON THE DRAWINGS ARE INDICATIVE ONLY. FINAL DESIGN AND DETAILING OF ALL STEELWORK CONNECTIONS BY STEELWORK FABRICATOR.
TO MINIMISE MOVEMENT OF THE EXISTING VIADUCT STRUCTURE HSFG BOLTS ARE PROPOSED TO ALL SHEAR CONNECTIONS. THE FINAL CONSTRUCTION METHODOLOGY TO MINIMISE MOVEMENT OF THE EXISTING STRUCTURE IS TO BE DEVELOPED BY THE CONTRACTOR AND AGREED WITH THE ENGINEER.

STEEL AND CONCRETE SETTING OUT
ALL SETTING OUT IS INDICATIVE ONLY TO ALLOW FOR HIGH LEVEL COSTING. FINAL SETTING OUT OF THE LIFT CORE OPENING STEEL FRAME AND REINFORCED CONCRETE IS TO BE CONFIRMED AT RIBA STAGE 4 FOLLOWING FINALISATION OF MAIN TOWER CORES WALLS AND VIADUCT SURVEY.

KEY

BOS: 38.400* INDICATES APPROXIMATE DIMENSION FOR OUTLINE COSTING ONLY. FINAL SETTING OUT TO BE CONFIRMED FOLLOWING DETAILED DIMENSION SURVEY OF SKEWBACKS BY CONTRACTOR

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

1.1 **ARCH PROPPING**
TEMPORARY PROPPING TO TEMPORARY WORKS ENGINEER'S DESIGN AND DETAIL. THE CONTRACTOR IS TO INSTALL THE PROPPING TO BOTTOM FRAME PRIOR TO REMOVAL OF THE FILL ABOVE THE ARCHES. TEMPORARY PROPPING IS TO REMAIN IN PLACE FOR THE FULL DURATION OF THE CORE PENETRATION CONSTRUCTION WORKS, INCLUDING DURING FORMATION OF THE REINFORCEMENT CONCRETE ENCASEMENT. REMOVAL OF THE TEMPORARY PROPPING IS ONLY TO BE UNDERTAKEN ONCE THE REINFORCEMENT CONCRETE ENCASEMENT IS COMPLETE AND HAS GAINED FULL STRENGTH. REMOVAL OF THE PROPPING PRIOR TO COMPLETION OF THE RC WORKS COULD RESULT IN EXCESSIVE MOVEMENT OF THE ARCHES AND COLLAPSE

1.2 **ARCH PROPPING**
TEMPORARY PROPPING TO TEMPORARY WORKS ENGINEERS DESIGN AND DETAIL. THE CONTRACTOR IS TO INSTALL VERTICAL PROPPING TO THE UNDERSIDE OF EXISTING ARCH PRIOR TO REMOVAL OF FILL, ALTERATION WORKS AND DEMOLITION OF EXISTING ARCH

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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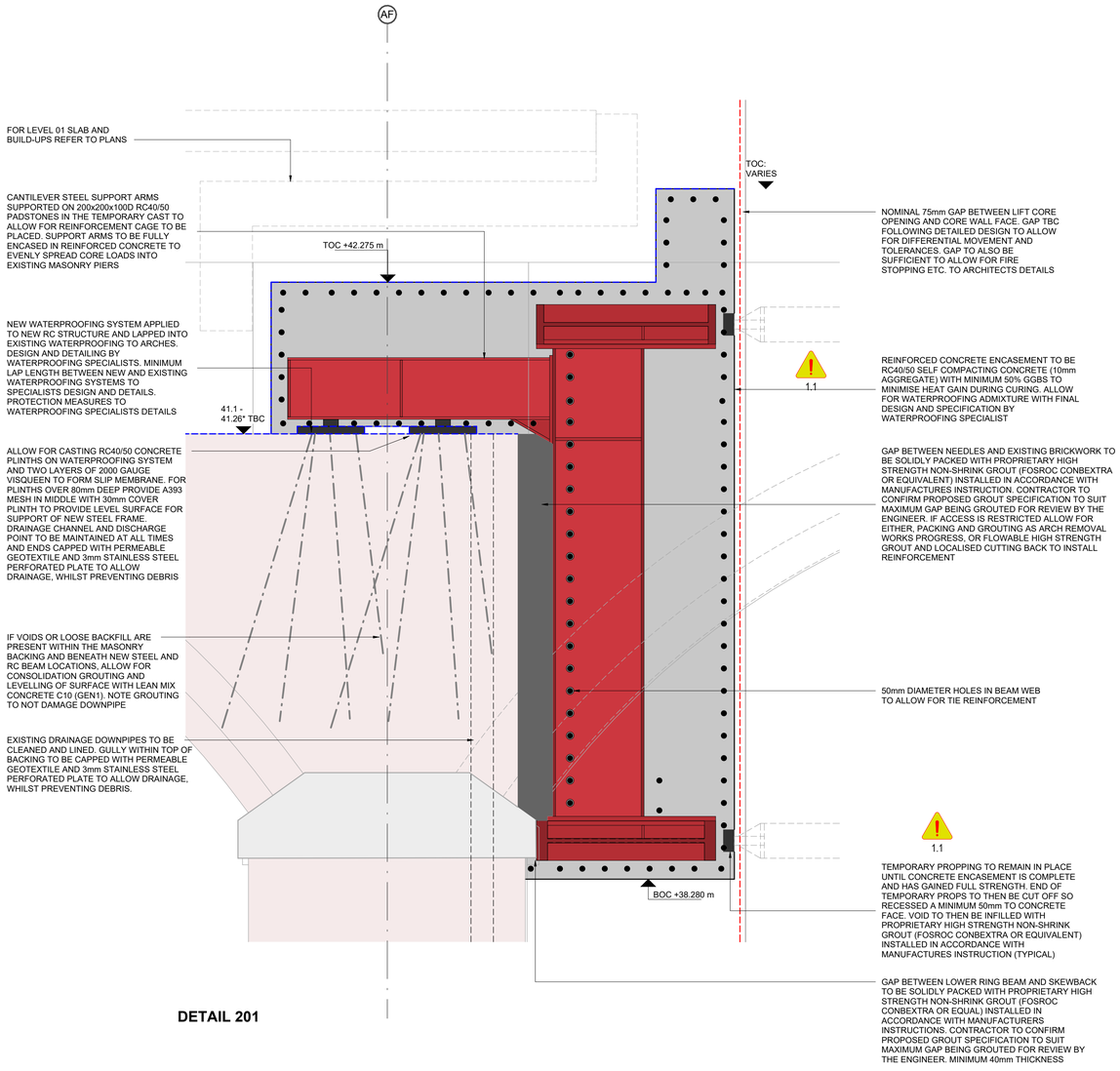
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BLOCK A
VIADUCT CORE PENETRATION SECTIONS SHEET 1

Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

Scale: 1 : 50 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:
V2B - REN - AA - ZZ - DR - S - 02320 - P02



DETAIL 201

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

LISTED BUILDING CONSENT
ALL INTERVENTION WORKS TO THE GRADE II LISTED ARCHES WILL BE SUBJECT TO LISTED BUILDING CONSENT. THE CONTRACTOR IS TO ALLOW FOR THE DESIGN AND THIRD PARTY APPROVALS WITHIN THEIR PROGRAMME. NO WORKS TO THE EXISTING ARCHES ARE TO BE UNDERTAKEN WITHOUT APPROVAL FROM THE CONSERVATION OFFICER

VIADUCT SETTING OUT & SURVEYS
PRIOR TO THE RIBA STAGE 4 DESIGN THE CONTRACTOR IS TO SURVEY THE EXISTING MASONRY PIERS, INCLUDING LINE, LEVEL AND PROJECTION OF THE SKEWBACKS AND CONFIRM THE FINDINGS TO THE ENGINEER

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ALL CORING AND SAWING WORKS TO FORM POCKETS AND OPENINGS WITHIN THE ARCHES ARE TO USE NON-PERCUSSIVE TECHNIQUES TO MINIMISE DISTURBANCE TO THE GRADE II LISTED STRUCTURE. THE CONTRACTOR IS TO SEEK EARLY INPUT FROM CORING SPECIALISTS AND CONFIRM THAT THE PROPOSED INTERVENTION WORKS ARE FEASIBLE WITHIN THE ZONES SHOWN. METHOD STATEMENTS FOR THE CORING WORKS MAY ALSO BE REQUIRED FOR THE LISTED BUILDING CONSENT.

VIADUCT WATERPROOFING
ALLOW FOR ALL NEW STRUCTURAL ELEMENTS TO BE FULLY WATERPROOFED, INCLUDING LAPPING INTO THE EXISTING ASPHALT WATERPROOFING TO THE CROWN OF THE MASONRY STRUCTURE. THE CONTRACTOR IS TO APPOINT A WATERPROOFING SPECIALIST TO UNDERTAKE THE DESIGN AND DETAILING OF THE WATERPROOFING SYSTEM AND INTERFACE WITH THE EXISTING. THE CONTRACTOR IS TO ALSO ALLOW FOR UNBLOCKING AND LINING ALL EXISTING DRAINAGE WITHIN THE EXISTING PIERS.

STEELWORK CONNECTION
ALL STEELWORK CONNECTIONS AND ALLOWANCES INDICATED ON THE DRAWINGS ARE INDICATIVE ONLY. FINAL DESIGN AND DETAILING OF ALL STEELWORK CONNECTIONS BY STEELWORK FABRICATOR.
TO MINIMISE MOVEMENT OF THE EXISTING VIADUCT STRUCTURE HSFG BOLTS ARE PROPOSED TO ALL SHEAR CONNECTIONS. THE FINAL CONSTRUCTION METHODOLOGY TO MINIMISE MOVEMENT OF THE EXISTING STRUCTURE IS TO BE DEVELOPED BY THE CONTRACTOR AND AGREED WITH THE ENGINEER.

STEEL AND CONCRETE SETTING OUT
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KEY

BOS: 38.400* INDICATES APPROXIMATE DIMENSION FOR OUTLINE COSTING ONLY. FINAL SETTING OUT TO BE CONFIRMED FOLLOWING DETAILED DIMENSION SURVEY OF SKEWBACKS BY CONTRACTOR

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

1.1 **ARCH PROPPING**
TEMPORARY PROPPING TO TEMPORARY WORKS ENGINEER'S DESIGN AND DETAIL. THE CONTRACTOR IS TO INSTALL THE PROPPING TO BOTTOM FRAME PRIOR TO REMOVAL OF THE FILL ABOVE THE ARCHES. TEMPORARY PROPPING IS TO REMAIN IN PLACE FOR THE FULL DURATION OF THE CORE PENETRATION CONSTRUCTION WORKS, INCLUDING DURING FORMATION OF THE REINFORCEMENT CONCRETE ENCASEMENT. REMOVAL OF THE TEMPORARY PROPPING IS ONLY TO BE UNDERTAKEN ONCE THE REINFORCEMENT CONCRETE ENCASEMENT IS COMPLETE AND HAS GAINED FULL STRENGTH. REMOVAL OF THE PROPPING PRIOR TO COMPLETION OF THE RC WORKS COULD RESULT IN EXCESSIVE MOVEMENT OF THE ARCHES AND COLLAPSE

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

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P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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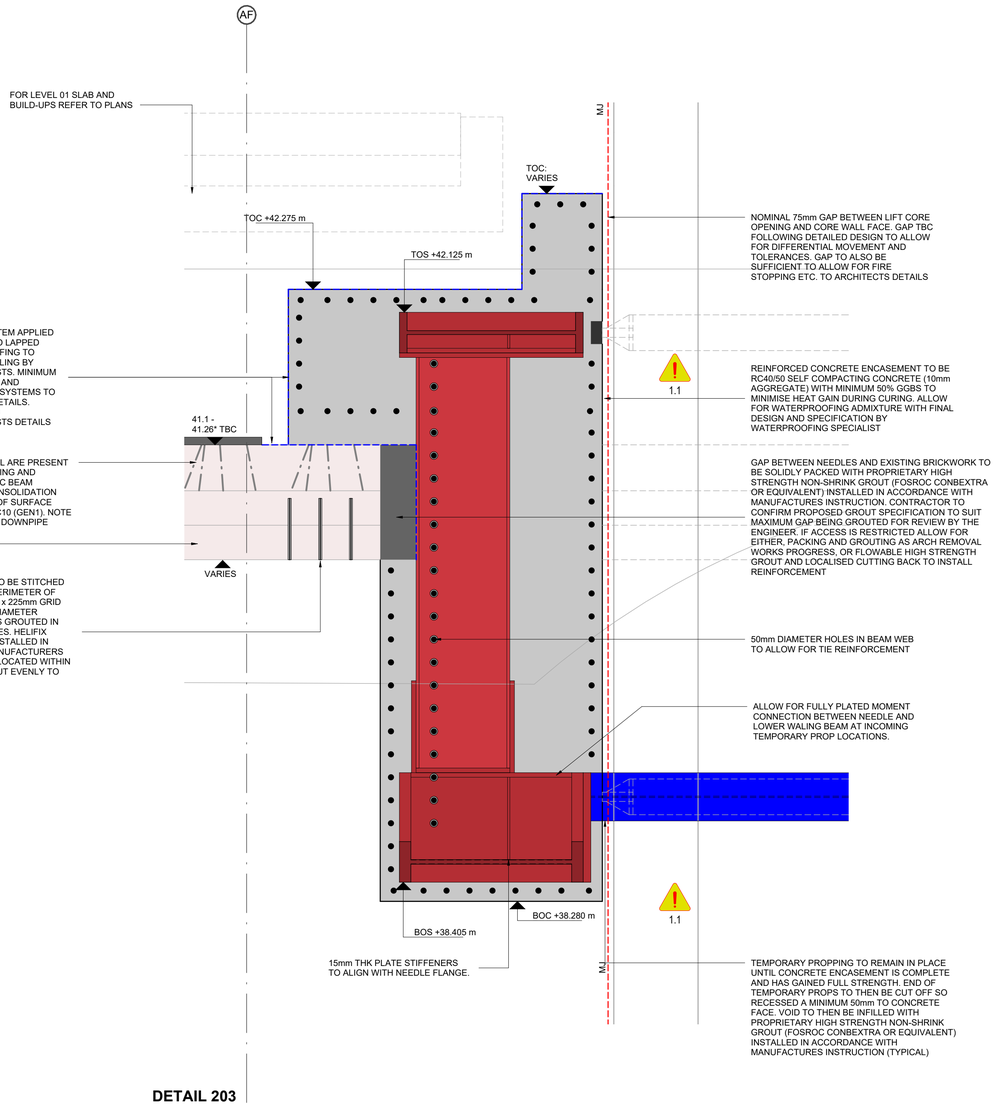
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BLOCK A
VIADUCT CORE PENETRATION DETAILS SHEET 1

Status:
STAGE 2

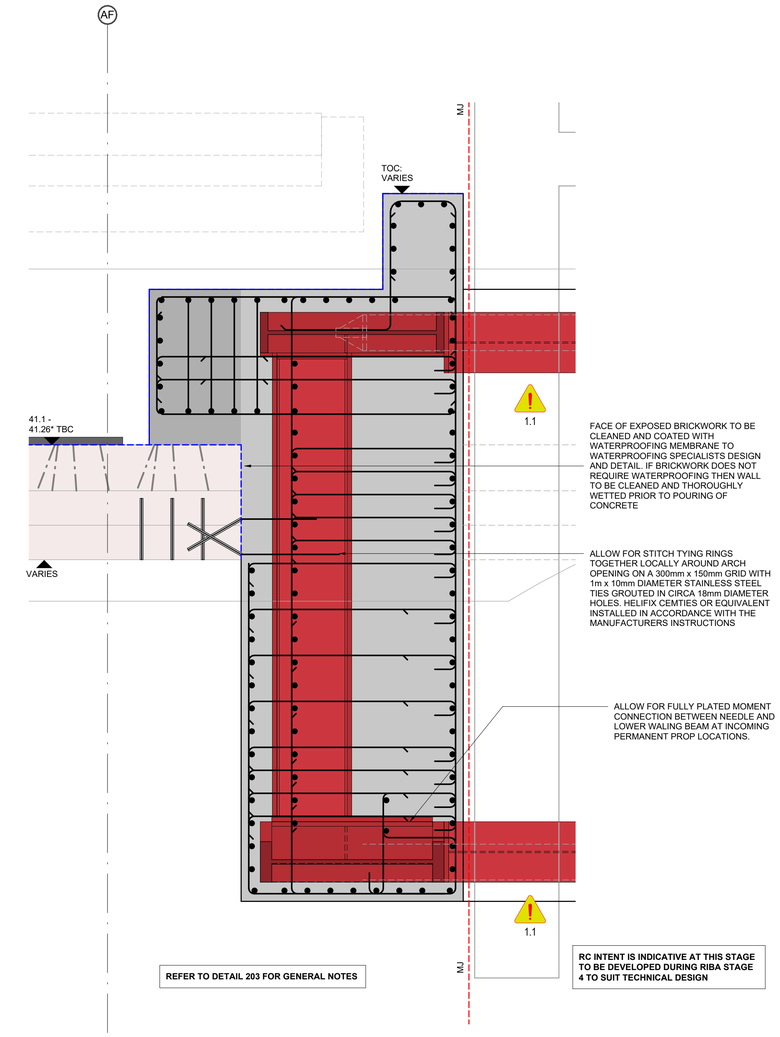
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Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	02330 -	P02



DETAIL 203



REFER TO DETAIL 203 FOR GENERAL NOTES

RC INTENT IS INDICATIVE AT THIS STAGE TO BE DEVELOPED DURING RIBA STAGE 4 TO SUIT TECHNICAL DESIGN

DETAIL 204

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

LISTED BUILDING CONSENT
ALL INTERVENTION WORKS TO THE GRADE II LISTED ARCHES WILL BE SUBJECT TO LISTED BUILDING CONSENT. THE CONTRACTOR IS TO ALLOW FOR THE DESIGN AND THIRD PARTY APPROVALS WITHIN THEIR PROGRAMME. NO WORKS TO THE EXISTING ARCHES ARE TO BE UNDERTAKEN WITHOUT APPROVAL FROM THE CONSERVATION OFFICER

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PRIOR TO THE RIBA STAGE 4 DESIGN THE CONTRACTOR IS TO SURVEY THE EXISTING MASONRY PIERS, INCLUDING LINE, LEVEL AND PROJECTION OF THE SKEWBACKS AND CONFIRM THE FINDINGS TO THE ENGINEER

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STEELWORK CONNECTION
ALL STEELWORK CONNECTIONS AND ALLOWANCES INDICATED ON THE DRAWINGS ARE INDICATIVE ONLY. FINAL DESIGN AND DETAILING OF ALL STEELWORK CONNECTIONS BY STEELWORK FABRICATOR.
TO MINIMISE MOVEMENT OF THE EXISTING VIADUCT STRUCTURE HSFG BOLTS ARE PROPOSED TO ALL SHEAR CONNECTIONS. THE FINAL CONSTRUCTION METHODOLOGY TO MINIMISE MOVEMENT OF THE EXISTING STRUCTURE IS TO BE DEVELOPED BY THE CONTRACTOR AND AGREED WITH THE ENGINEER.

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KEY

BOS: 38.400* INDICATES APPROXIMATE DIMENSION FOR OUTLINE COSTING ONLY. FINAL SETTING OUT TO BE CONFIRMED FOLLOWING DETAILED DIMENSION SURVEY OF SKEWBACKS BY CONTRACTOR

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

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RIBA STAGE 2
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P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
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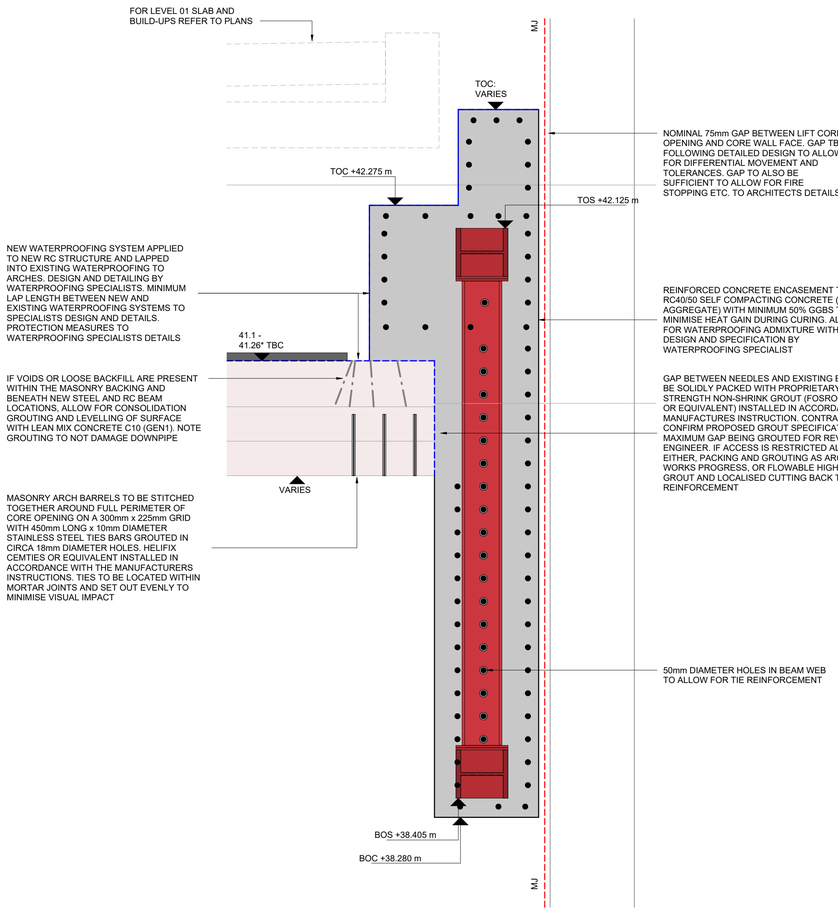
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Status:
STAGE 2

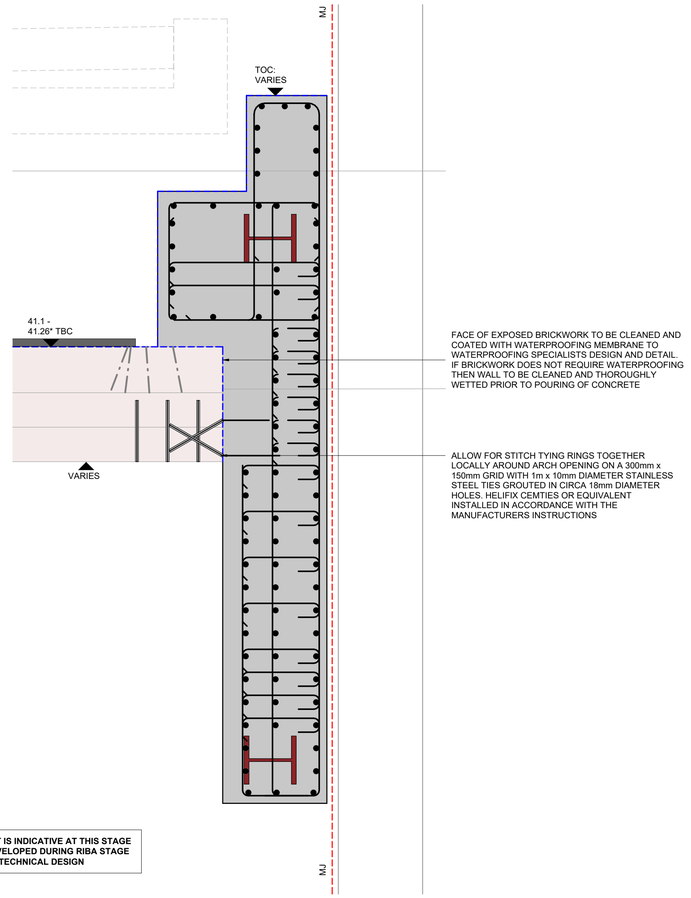
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Scale: 1 : 20 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:
V2B - REN - AA - ZZ - DR - S - 02331 - P02



DETAIL 205



DETAIL 206

RC INTENT IS INDICATIVE AT THIS STAGE TO BE DEVELOPED DURING RIBA STAGE 4 TO SUIT TECHNICAL DESIGN

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

LISTED BUILDING CONSENT
ALL INTERVENTION WORKS TO THE GRADE II LISTED ARCHES WILL BE SUBJECT TO LISTED BUILDING CONSENT. THE CONTRACTOR IS TO ALLOW FOR THE DESIGN AND THIRD PARTY APPROVALS WITHIN THEIR PROGRAMME. NO WORKS TO THE EXISTING ARCHES ARE TO BE UNDERTAKEN WITHOUT APPROVAL FROM THE CONSERVATION OFFICER

VIADUCT SETTING OUT & SURVEYS
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CORING WORKS TO ARCHES
ALL CORING AND SAWING WORKS TO FORM POCKETS AND OPENINGS WITHIN THE ARCHES ARE TO USE NON-PERCUSSIVE TECHNIQUES TO MINIMISE DISTURBANCE TO THE GRADE II LISTED STRUCTURE. THE CONTRACTOR IS TO SEEK EARLY INPUT FROM CORING SPECIALISTS AND CONFIRM THAT THE PROPOSED INTERVENTION WORKS ARE FEASIBLE WITHIN THE ZONES SHOWN. METHOD STATEMENTS FOR THE CORING WORKS MAY ALSO BE REQUIRED FOR THE LISTED BUILDING CONSENT.

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KEY

BOS: 38.400* INDICATES APPROXIMATE DIMENSION FOR OUTLINE COSTING ONLY. FINAL SETTING OUT TO BE CONFIRMED FOLLOWING DETAILED DIMENSION SURVEY OF SKEWBACKS BY CONTRACTOR

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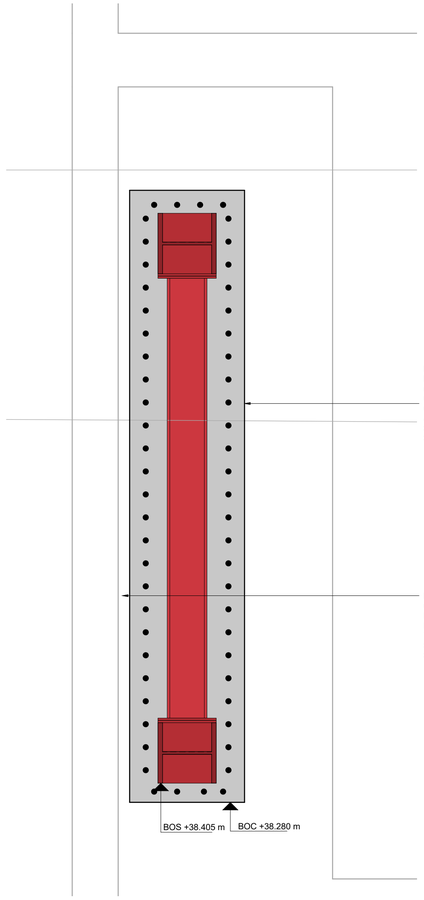
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BLOCK A
VIADUCT CORE PENETRATION DETAILS SHEET 3

Status:
STAGE 2

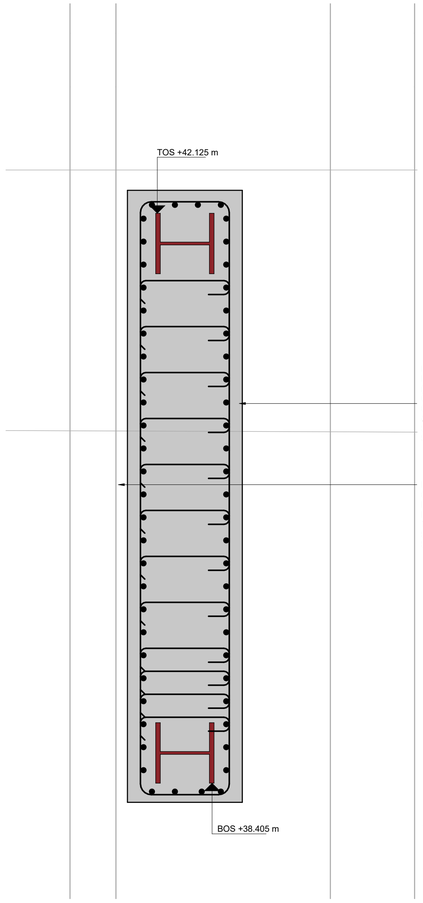
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Scale: 1 : 20 | Project No: 2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	02332 -	P02



DETAIL 207



RC INTENT IS INDICATIVE AT THIS STAGE TO BE DEVELOPED DURING RIBA STAGE 4 TO SUIT TECHNICAL DESIGN

DETAIL 208

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

LISTED BUILDING CONSENT
ALL INTERVENTION WORKS TO THE GRADE II LISTED ARCHES WILL BE SUBJECT TO LISTED BUILDING CONSENT. THE CONTRACTOR IS TO ALLOW FOR THE DESIGN AND THIRD PARTY APPROVALS WITHIN THEIR PROGRAMME. NO WORKS TO THE EXISTING ARCHES ARE TO BE UNDERTAKEN WITHOUT APPROVAL FROM THE CONSERVATION OFFICER

VIADUCT SETTING OUT & SURVEYS
PRIOR TO THE RIBA STAGE 4 DESIGN THE CONTRACTOR IS TO SURVEY THE EXISTING MASONRY PIERS, INCLUDING LINE, LEVEL AND PROJECTION OF THE SKEWBACKS AND CONFIRM THE FINDINGS TO THE ENGINEER

CORING WORKS TO ARCHES
ALL CORING AND SAWING WORKS TO FORM POCKETS AND OPENINGS WITHIN THE ARCHES ARE TO USE NON-PERCUSSIVE TECHNIQUES TO MINIMISE DISTURBANCE TO THE GRADE II LISTED STRUCTURE. THE CONTRACTOR IS TO SEEK EARLY INPUT FROM CORING SPECIALISTS AND CONFIRM THAT THE PROPOSED INTERVENTION WORKS ARE FEASIBLE WITHIN THE ZONES SHOWN. METHOD STATEMENTS FOR THE CORING WORKS MAY ALSO BE REQUIRED FOR THE LISTED BUILDING CONSENT.

VIADUCT WATERPROOFING
ALLOW FOR ALL NEW STRUCTURAL ELEMENTS TO BE FULLY WATERPROOFED, INCLUDING LAPPING INTO THE EXISTING ASPHALT WATERPROOFING TO THE CROWN OF THE MASONRY STRUCTURE. THE CONTRACTOR IS TO APPOINT A WATERPROOFING SPECIALIST TO UNDERTAKE THE DESIGN AND DETAILING OF THE WATERPROOFING SYSTEM AND INTERFACE WITH THE EXISTING. THE CONTRACTOR IS TO ALSO ALLOW FOR UNBLOCKING AND LINING ALL EXISTING DRAINAGE WITHIN THE EXISTING PIERS.

STEELWORK CONNECTION
ALL STEELWORK CONNECTIONS AND ALLOWANCES INDICATED ON THE DRAWINGS ARE INDICATIVE ONLY. FINAL DESIGN AND DETAILING OF ALL STEELWORK CONNECTIONS BY STEELWORK FABRICATOR.
TO MINIMISE MOVEMENT OF THE EXISTING VIADUCT STRUCTURE HSFG BOLTS ARE PROPOSED TO ALL SHEAR CONNECTIONS. THE FINAL CONSTRUCTION METHODOLOGY TO MINIMISE MOVEMENT OF THE EXISTING STRUCTURE IS TO BE DEVELOPED BY THE CONTRACTOR AND AGREED WITH THE ENGINEER.

STEEL AND CONCRETE SETTING OUT
ALL SETTING OUT IS INDICATIVE ONLY TO ALLOW FOR HIGH LEVEL COSTING. FINAL SETTING OUT OF THE LIFT CORE OPENING STEEL FRAME AND REINFORCED CONCRETE IS TO BE CONFIRMED AT RIBA STAGE 4 FOLLOWING FINALISATION OF MAIN TOWER CORES WALLS AND VIADUCT SURVEY.

KEY

BOS: 38.400* INDICATES APPROXIMATE DIMENSION FOR OUTLINE COSTING ONLY. FINAL SETTING OUT TO BE CONFIRMED FOLLOWING DETAILED DIMENSION SURVEY OF SKEWBACKS BY CONTRACTOR

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Project:
VIADUX 2B,
MANCHESTER

Drawing Title:
BLOCK A
VIADUCT CORE PENETRATION DETAILS SHEET 4

Status:
STAGE 2

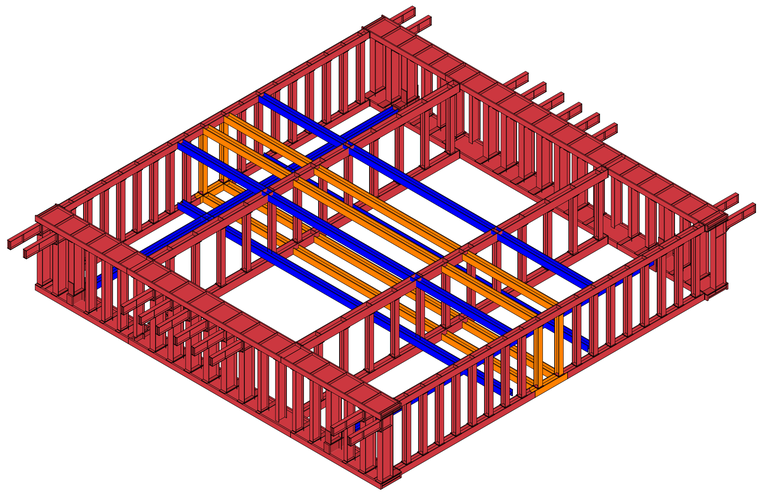
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Scale: 1 : 20 | Project No: 2209-01

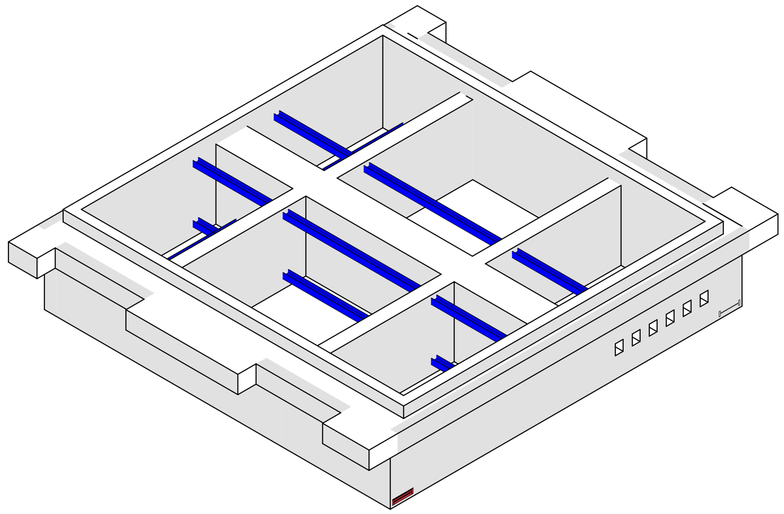
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V2B - REN - AA - ZZ - DR - S - 02333 - P02

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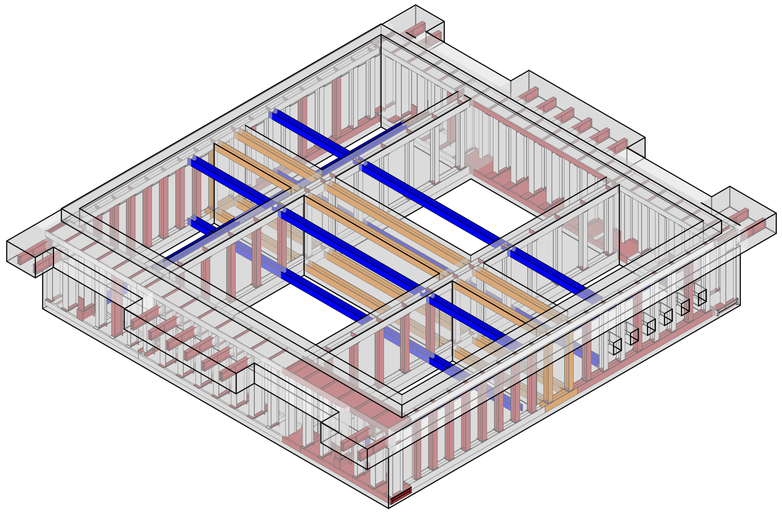
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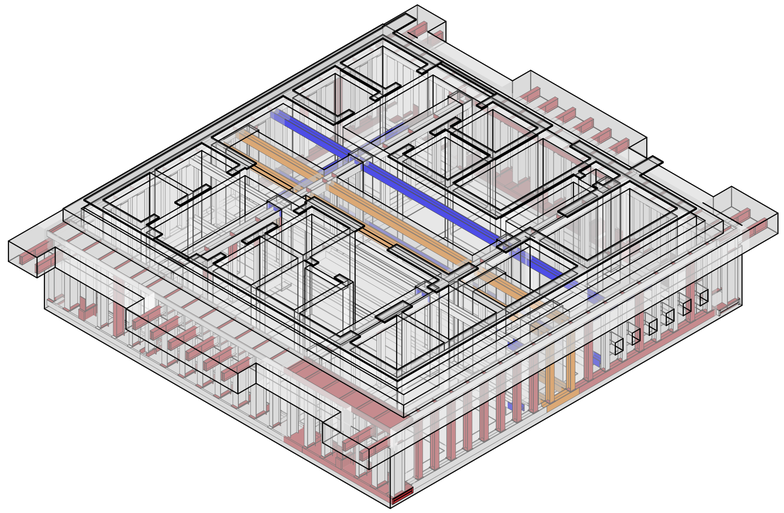
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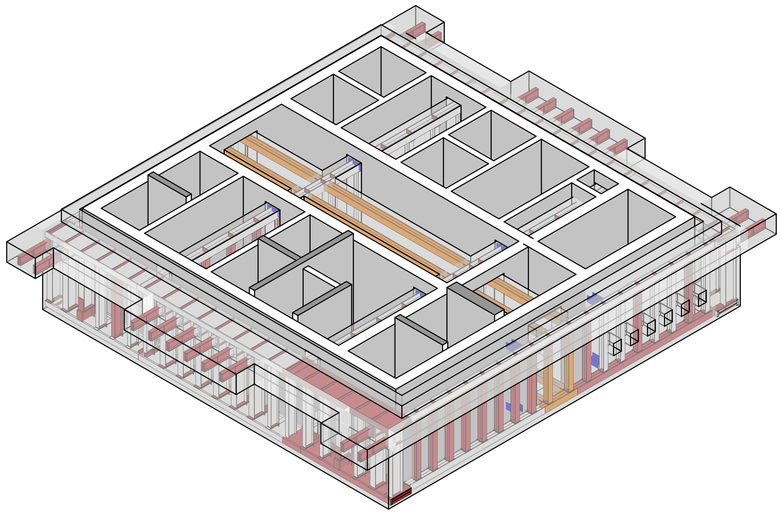
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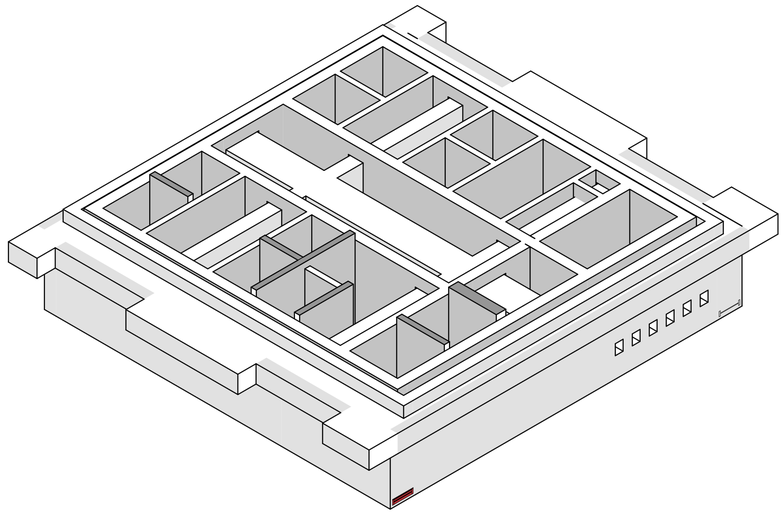
CORE FRAMING 3D VIEW 3



CORE FRAMING 3D VIEW 4



CORE FRAMING 3D VIEW 5



CORE FRAMING 3D VIEW 6

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Project:

VIADUX 2B,
MANCHESTER

Drawing Title:

BLOCK A
VIADUCT CORE PENETRATION
ISOMETRIC

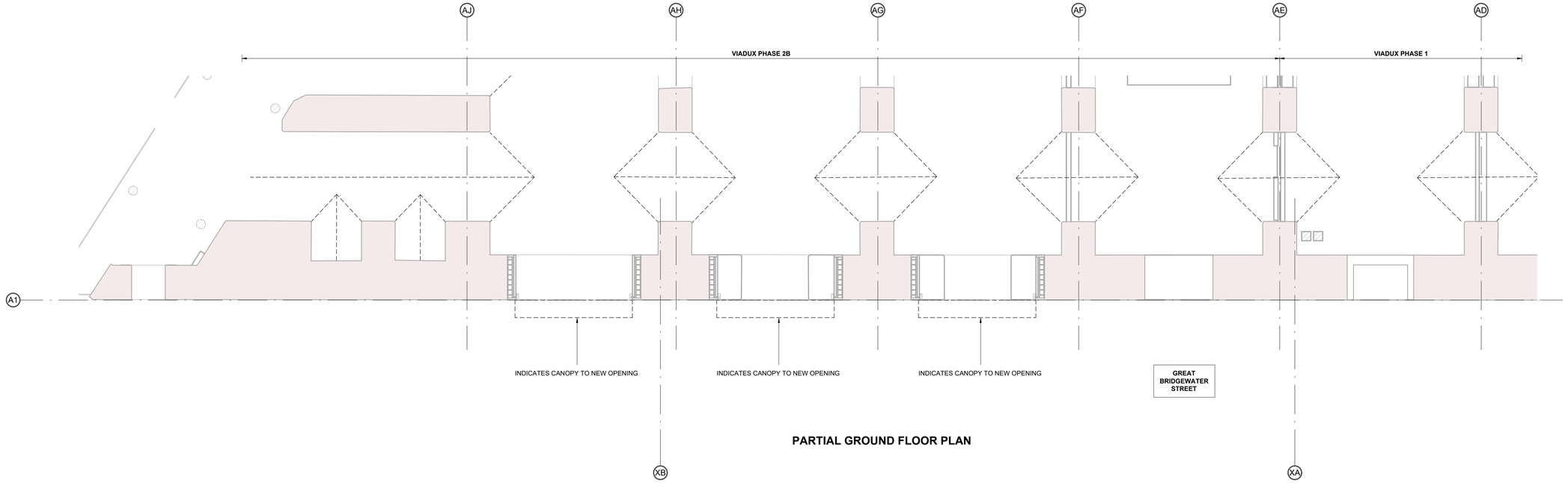
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STAGE 2

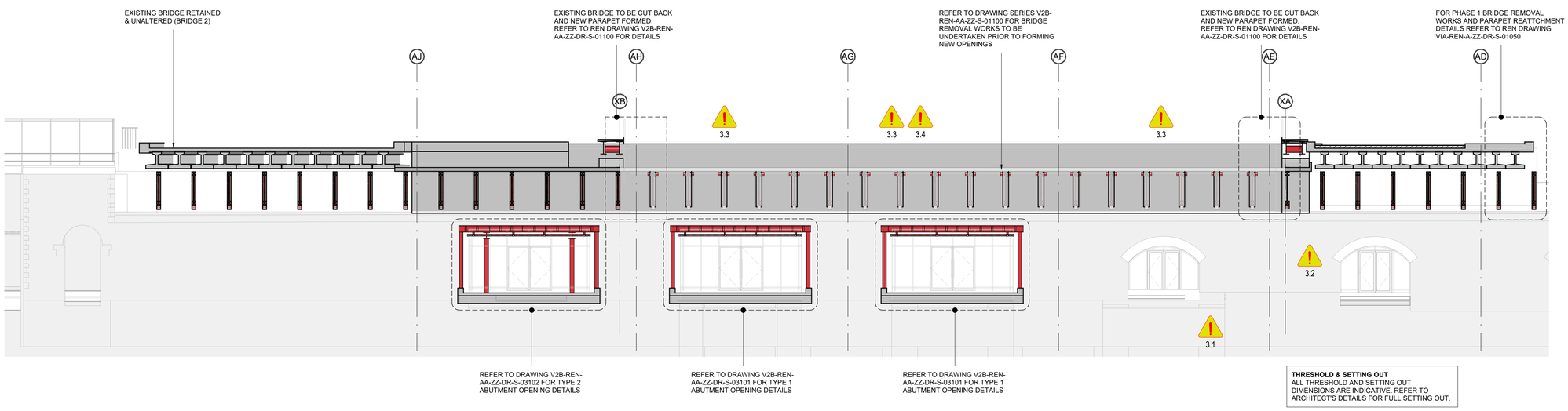
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Scale: | Project No: 2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	02340 -	P02



PARTIAL GROUND FLOOR PLAN



PARTIAL GROUND FLOOR ELEVATION

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.
2. ALL STEELWORK TO BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITION OF THE 'NATIONAL STRUCTURAL STEELWORK SPECIFICATION' AND RENAISSANCE PROJECT STEELWORK SPECIFICATION.
3. ALL STEELWORK TO BE S355 J2 U.N.O. FINAL SUBGRADE IS TO BE CONFIRMED DURING TECHNICAL DESIGN WITH INPUT FROM THE STEELWORK FABRICATOR ONCE THE CONNECTION DETAILS ARE KNOWN.
4. CONCRETE TO FOUNDATIONS AND ENCASEMENT TO STEELWORK TO BE RC35/45.
5. WHERE FEASIBLE EXISTING GOOD QUALITY MASONRY UNITS ARE TO BE SALVAGED AND CLEANED FOR REUSE WITHIN THE WORKS. THE GLAZED BRICKS TO GREAT BRIDGEWATER STREET ARE TO ALSO BE SALVAGED AND REUSED FOR REINSTATEMENT OF BRICKWORK AROUND THE NEW OPENINGS.
6. WHERE NEW BRICKS ARE REQUIRED THAT ARE NOT EXPOSED IN THE FINISHED WORKS THESE ARE TO BE SOLID CLASS B CLAY ENGINEERING BRICKS. ALL EXPOSED MASONRY TO BE SUITABLY SOURCED TO MATCH EXISTING.
7. NO CEMENT BASED MORTAR IS PERMITTED FOR USE WITHIN REINSTATEMENT WORKS OF MASONRY. ALLOW FOR NEW AND REPAIR WORKS UNDERTAKEN TO BE WITH A LIME MORTAR.
   HLM 3.5 - GENERAL MASONRY WORKS 150mm ABOVE GROUND LEVEL
   HLM 5.0 - WORKS BELOW GROUND
   FINAL MORTAR SPECIFICATION TO BE IN ACCORDANCE WITH THE HERITAGE ARCHITECTS SPECIFICATION AND SUBJECT TO AGREEMENT WITH THE ENGINEER.
8. PACKING WORKS BETWEEN STEELWORK AND EXISTING MASONRY TO BE UNDERTAKEN WITH NON-SHRINK PROPRIETARY GROUT INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

3.1 **DAMAGE TO EXISTING SERVICES**
THERE ARE SHALLOW SERVICES WITHIN THE PAVEMENT. THE CONTRACTOR AND THEIR TEMPORARY WORKS ENGINEER TO CONFIRM LOCATION ON SITE AND DESIGN WORKS TO MINIMISE THE RISK OF DAMAGE. DUE TO THE HIGH PROPPING LOADS IT MAY BE NECESSARY TO SPLIT DUCT SERVICES AND CAST TEMPORARY SPREADER SLABS.

3.2 **DAMAGE TO EXISTING VIADUCT STRUCTURE**
THE CONTRACTOR IS ADOPT WORKING METHODS TO MINIMISE MOVEMENT AND VIBRATION TO THE EXISTING ARCHES. THE CONTRACTOR IS ALSO TO ALLOW FOR VIBRATION AND MOVEMENT MONITORING DURING THE WORKS WITHIN THE ARCHES.

3.3 **OVER-STRESSING NEW FRAME OPENINGS**
THE EXISTING BRIDGE REMOVAL IS TO BE COMPLETED PRIOR TO FORMING THE NEW OPENINGS WITHIN THE EXISTING BRIDGE ABUTMENT. THE CONTRACTOR IS TO SEQUENCE THE WORK TO ENSURE THIS AND FORMATION OF THE OPENING WHILST THE BRIDGE IS IN PLACE IS NOT PERMITTED.

3.4 **TEMPORARY PROPPING TO FORM OPENING**
THE ABUTMENT OPENINGS WILL REQUIRE SIGNIFICANT TEMPORARY WORKS DUE TO THE RETAINED STRUCTURE ABOVE. THE CONTRACTOR IS TO ALLOW FOR SPECIALIST BESPOKE TEMPORARY WORKS AND EARLY APPOINTMENT OF THEIR TEMPORARY WORKS ENGINEER TO DEVELOP THE DETAILS AND CONSTRUCTION METHODOLOGY.

STEELWORK CONNECTIONS
ALL STEELWORK TO STEELWORK AND STEELWORK TO CONCRETE CONNECTIONS ARE TO BE TO THE STEELWORK FABRICATOR'S DESIGN AND DETAIL BASED ON CONNECTION LOADS TO BE PROVIDED AT RIBA STAGE 5. ALL CONNECTIONS SHOWN ARE INDICATIVE ONLY. THEY ARE INTENDED TO COMMUNICATE THE CONNECTION PRINCIPLES ASSUMED WITHIN THE DESIGN OF THE PERMANENT STEELWORK AND TO ALLOW FOR FURTHER CO-ORDINATION.
WHERE ALTERATIONS TO THE CONNECTION PRINCIPLES ARE PROPOSED BY THE STEELWORK FABRICATOR THESE WILL BE SUBJECT TO REVIEW BY RENAISSANCE AND THE STEELWORK FABRICATOR'S DETAILED DESIGN.

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

renaissance
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77 Dale Street
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Project:
VIADUX 2B, MANCHESTER

Drawing Title:
GBS ABUTMENT OPENING LOCATION PLAN & ELEVATION

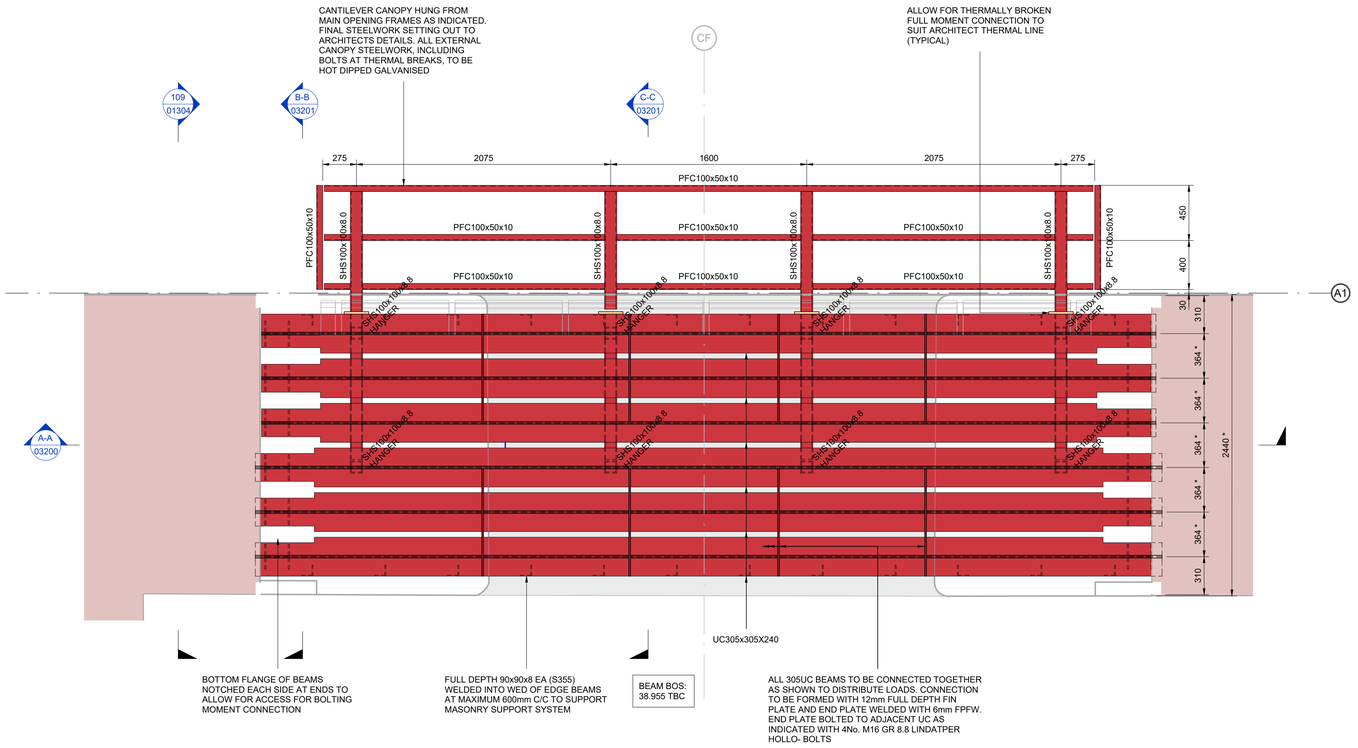
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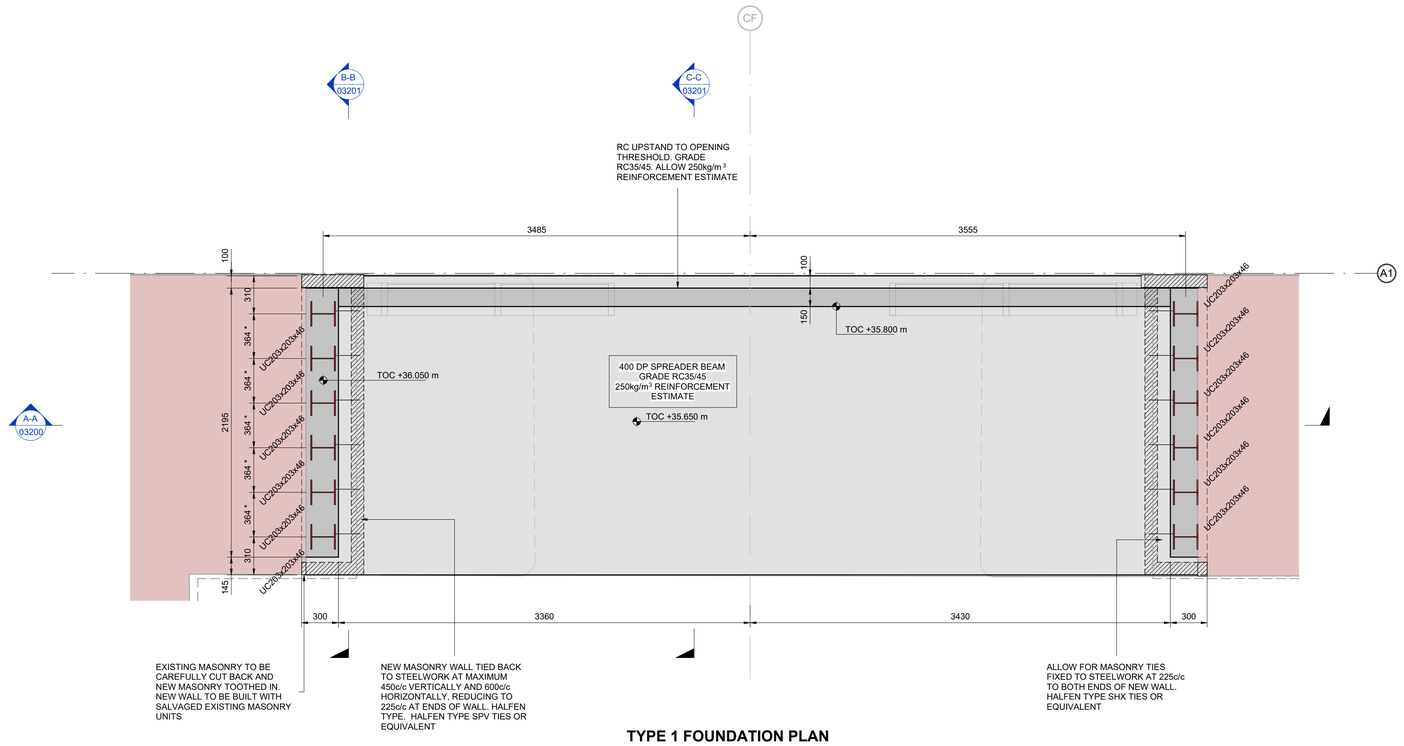
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Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

V2B - REN - AA - ZZ - DR - S - 03100 - P02



TYPE 1 STEEL BEAM PLAN



TYPE 1 FOUNDATION PLAN

KEY

* INDICATES DIMENSIONS AND LEVEL TO BE CONFIRMED ON SITE AND AGREE WITH THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION AND EXECUTION OF THE WORKS

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.
2. ALL STEELWORK TO BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITION OF THE 'NATIONAL STRUCTURAL STEELWORK SPECIFICATION' AND RENAISSANCE PROJECT STEELWORK SPECIFICATION.
3. ALL STEELWORK TO BE S355 J2 U.N.O. FINAL SUBGRADE IS TO BE CONFIRMED DURING TECHNICAL DESIGN WITH INPUT FROM THE STEELWORK FABRICATOR ONCE THE CONNECTION DETAILS ARE KNOWN.
4. CONCRETE TO FOUNDATIONS AND ENCASEMENT TO STEELWORK TO BE RC35/45.
5. WHERE FEASIBLE EXISTING GOOD QUALITY MASONRY UNITS ARE TO BE SALVAGED AND CLEANED FOR REUSE WITHIN THE WORKS. THE GLAZED BRICKS TO GREAT BRIDGEWATER STREET ARE TO ALSO BE SALVAGED AND REUSED FOR REINSTATEMENT OF BRICKWORK AROUND THE NEW OPENINGS.
6. WHERE NEW BRICKS ARE REQUIRED THAT ARE NOT EXPOSED IN THE FINISHED WORKS THESE ARE TO BE SOLID CLASS B CLAY ENGINEERING BRICKS. ALL EXPOSED MASONRY TO BE SUITABLY SOURCED TO MATCH EXISTING.
7. NO CEMENT BASED MORTAR IS PERMITTED FOR USE WITHIN REINSTATEMENT WORKS OF MASONRY. ALLOW FOR NEW AND REPAIR WORKS UNDERTAKEN TO BE WITH A LIME MORTAR.
   HLM 3.5 - GENERAL MASONRY WORKS 150mm ABOVE GROUND LEVEL
   HLM 5.0 - WORKS BELOW GROUND
   FINAL MORTAR SPECIFICATION TO BE IN ACCORDANCE WITH THE HERITAGE ARCHITECTS SPECIFICATION AND SUBJECT TO AGREEMENT WITH THE ENGINEER.
8. PACKING WORKS BETWEEN STEELWORK AND EXISTING MASONRY TO BE UNDERTAKEN WITH NON-SHRINK PROPRIETARY GROUT INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

3.1 **DAMAGE TO EXISTING SERVICES**
THERE ARE SHALLOW SERVICES WITHIN THE PAVEMENT. THE CONTRACTOR AND THEIR TEMPORARY WORKS ENGINEER TO CONFIRM LOCATION ON SITE AND DESIGN WORKS TO MINIMISE THE RISK OF DAMAGE. DUE TO THE HIGH PROPPING LOADS IT MAY BE NECESSARY TO SPLIT DUCT SERVICES AND CAST TEMPORARY SPREADER SLABS.

3.2 **DAMAGE TO EXISTING VIADUCT STRUCTURE**
THE CONTRACTOR IS ADOPT WORKING METHODS TO MINIMISE MOVEMENT AND VIBRATION TO THE EXISTING ARCHES. THE CONTRACTOR IS ALSO TO ALLOW FOR VIBRATION AND MOVEMENT MONITORING DURING THE WORKS WITHIN THE ARCHES.

3.3 **OVER-STRESSING NEW FRAME OPENINGS**
THE EXISTING BRIDGE REMOVAL IS TO BE COMPLETED PRIOR TO FORMING THE NEW OPENINGS WITHIN THE EXISTING BRIDGE ABUTMENT. THE CONTRACTOR IS TO SEQUENCE THE WORK TO ENSURE THIS AND FORMATION OF THE OPENING WHILST THE BRIDGE IS IN PLACE IS NOT PERMITTED.

3.4 **TEMPORARY PROPPING TO FORM OPENING**
THE ABUTMENT OPENINGS WILL REQUIRE SIGNIFICANT TEMPORARY WORKS DUE TO THE RETAINED STRUCTURE ABOVE. THE CONTRACTOR IS TO ALLOW FOR SPECIALIST BESPOKE TEMPORARY WORKS AND EARLY APPOINTMENT OF THEIR TEMPORARY WORKS ENGINEER TO DEVELOP THE DETAILS AND CONSTRUCTION METHODOLOGY.

STEELWORK PROTECTION SYSTEM
ALL STEELWORK TO RECEIVE THE FOLLOWING CORROSION PROTECTION SYSTEM:
- MINIMUM 85 mm HOT-DIP GALVANISING TO BS EN ISO 1461.

IN ADDITION ALL NON-VISIBLE STEELWORK AND STEELWORK IN CONTACT WITH GROUT AND THE EXISTING MASONRY ARCHES IS TO BE PROTECTED WITH:
- TWO COATS HEAVY DUTY BITUMENT, 200 mm TOTAL

ALL BOLTED CONNECTIONS TO BE HOT-DIP GALVANISED.
FINAL DESIGN AND TECHNICAL REQUIREMENTS TO BE DEVELOPED DURING RIBA STAGE 4.
COMPATIBILITY OF PAINT PROTECTION SYSTEMS TO GALVANISED STEELWORK TO BE CONFIRMED OR ALTERNATIVE PROPOSED BY STEEL FABRICATORS PAINT SUPPLIER.
ALL NON-ACCESSIBLE STEELWORK IS TO HAVE A MINIMUM CORROSION PROTECTION LIFE OF 60 YEARS WITH NO MAINTENANCE.

DETAILS - SURVEYS
ALL DETAILS ARE INDICATIVE ONLY TO ALLOW FOR STAGE 2 COSTING. THE DETAILS ARE DEPENDANT ON THE FINDINGS FROM THE SURVEY WORKS. THE DETAIL WILL THEREFORE BE CONFIRMED DURING RIBA STAGES 3 & 4.

FAÇADE WORKS TO GRADE II LISTED BUILDING
FOR CLEANING, LOCALISED REPAIR AND REPOINTING WORKS TO THE GRADE II LISTED VIADUCT STRUCTURE REFER TO ARCHITECTS AND HERITAGE ARCHITECTS DRAWINGS, DETAILS AND SPECIFICATION.

STEELWORK CONNECTIONS
ALL STEELWORK TO STEELWORK AND STEELWORK TO CONCRETE CONNECTIONS ARE TO BE TO THE STEELWORK FABRICATOR'S DESIGN AND DETAIL BASED ON CONNECTION LOADS TO BE PROVIDED AT RIBA STAGE 5.
ALL CONNECTIONS SHOWN ARE INDICATIVE ONLY. THEY ARE INTENDED TO COMMUNICATE THE CONNECTION PRINCIPLES ASSUMED WITHIN THE DESIGN OF THE PERMANENT STEELWORK AND TO ALLOW FOR FURTHER CO-ORDINATION.
WHERE ALTERATIONS TO THE CONNECTION PRINCIPLES ARE PROPOSED BY THE STEELWORK FABRICATOR THESE WILL BE SUBJECT TO REVIEW BY RENAISSANCE AND THE STEELWORK FABRICATOR'S DETAILED DESIGN.

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

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P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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77 Dale Street
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Project:
VIADUX 2B, MANCHESTER

Drawing Title:
GBS ABUTMENT OPENING PLANS TYPE 1

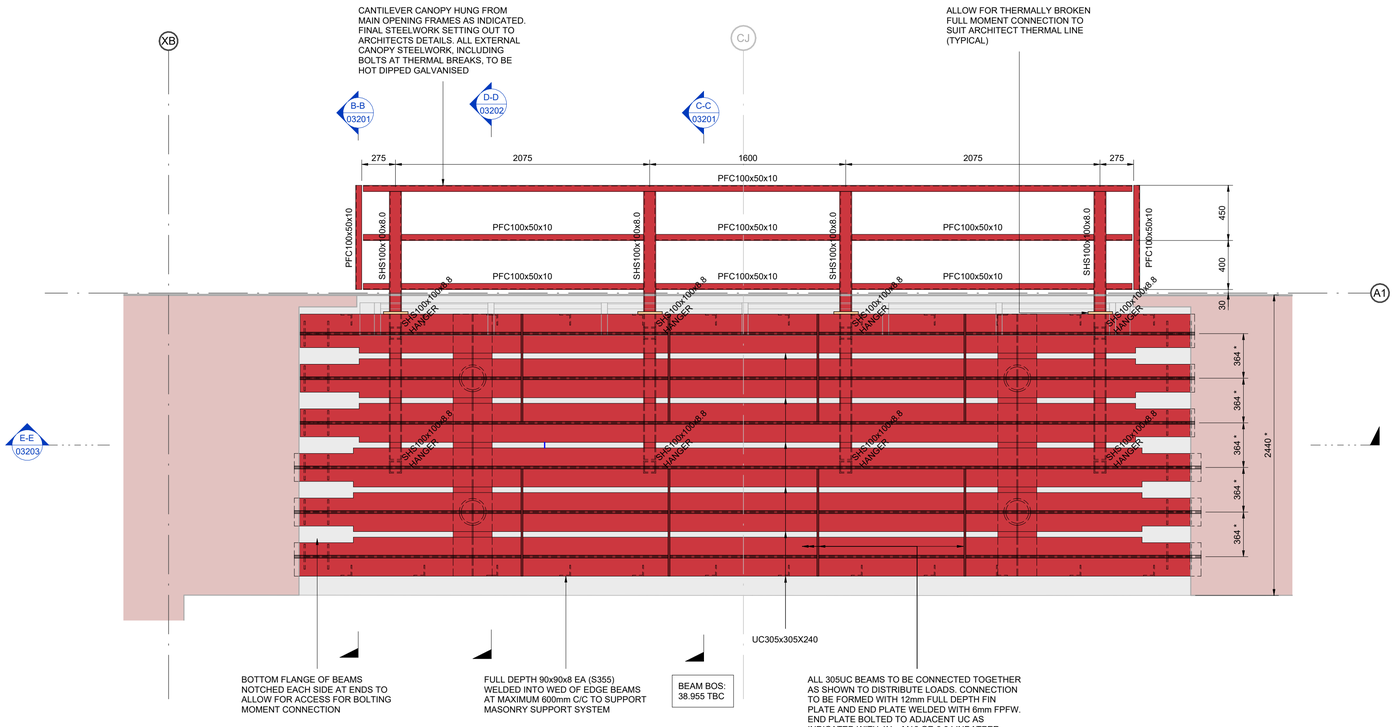
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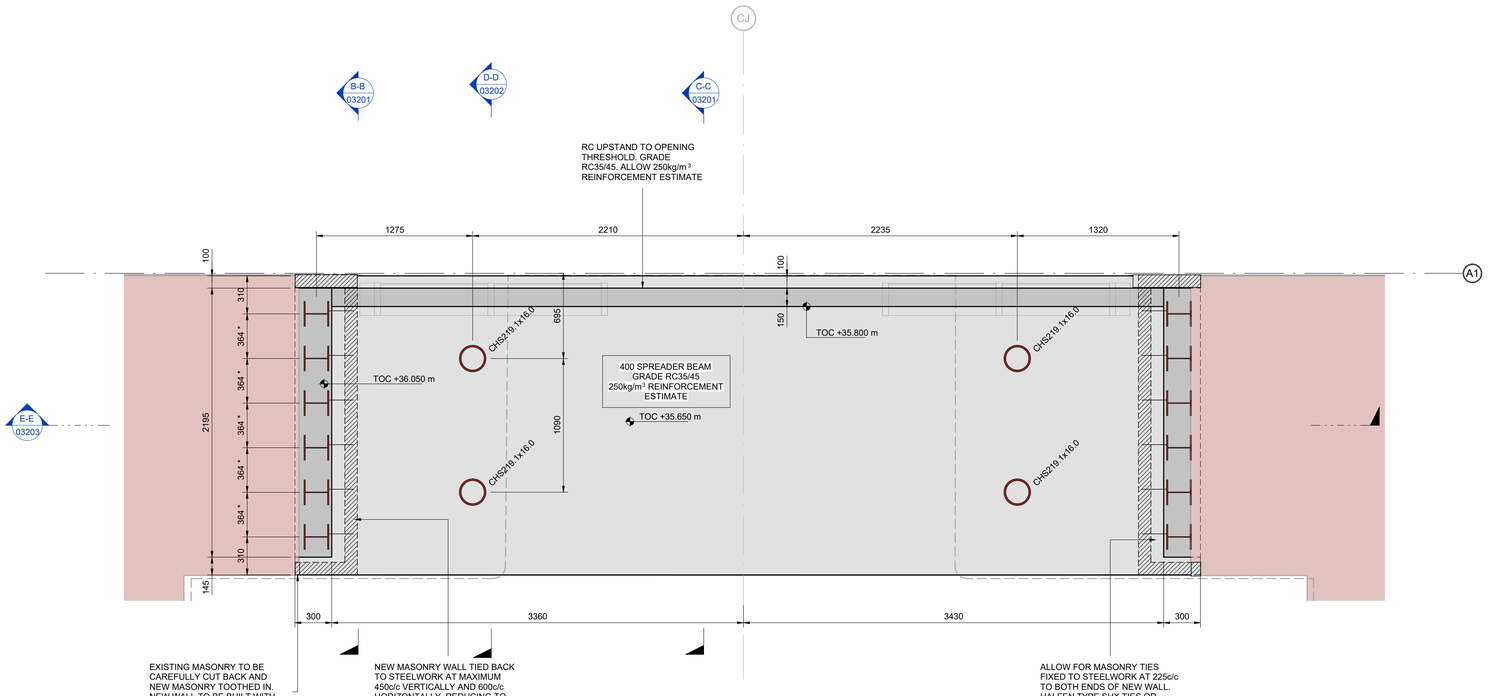
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Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

V2B - REN - AA - ZZ - DR - S - 03101 - P02



TYPE 2 STEEL BEAM PLAN



TYPE 2 FOUNDATION PLAN

KEY

* INDICATES DIMENSIONS AND LEVEL TO BE CONFIRMED ON SITE AND AGREE WITH THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION AND EXECUTION OF THE WORKS

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.
2. ALL STEELWORK TO BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITION OF THE 'NATIONAL STRUCTURAL STEELWORK SPECIFICATION' AND RENAISSANCE PROJECT STEELWORK SPECIFICATION.
3. ALL STEELWORK TO BE S355 J2 U.N.O. FINAL SUBGRADE IS TO BE CONFIRMED DURING TECHNICAL DESIGN WITH INPUT FROM THE STEELWORK FABRICATOR ONCE THE CONNECTION DETAILS ARE KNOWN.
4. CONCRETE TO FOUNDATIONS AND ENCASEMENT TO STEELWORK TO BE RC35/45.
5. WHERE FEASIBLE EXISTING GOOD QUALITY MASONRY UNITS ARE TO BE SALVAGED AND CLEANED FOR REUSE WITHIN THE WORKS. THE GLAZED BRICKS TO GREAT BRIDGEWATER STREET ARE TO ALSO BE SALVAGED AND REUSED FOR REINSTATEMENT OF BRICKWORK AROUND THE NEW OPENINGS.
6. WHERE NEW BRICKS ARE REQUIRED THAT ARE NOT EXPOSED IN THE FINISHED WORKS THESE ARE TO BE SOLID CLASS B CLAY ENGINEERING BRICKS. ALL EXPOSED MASONRY TO BE SUITABLY SOURCED TO MATCH EXISTING.
7. NO CEMENT BASED MORTAR IS PERMITTED FOR USE WITHIN REINSTATEMENT WORKS OF MASONRY. ALLOW FOR NEW AND REPAIR WORKS UNDERTAKEN TO BE WITH A LIME MORTAR.
   HLM 3.5 - GENERAL MASONRY WORKS 150mm ABOVE GROUND LEVEL
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8. PACKING WORKS BETWEEN STEELWORK AND EXISTING MASONRY TO BE UNDERTAKEN WITH NON-SHRINK PROPRIETARY GROUT INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

3.1 **DAMAGE TO EXISTING SERVICES**
THERE ARE SHALLOW SERVICES WITHIN THE PAVEMENT. THE CONTRACTOR AND THEIR TEMPORARY WORKS ENGINEER TO CONFIRM LOCATION ON SITE AND DESIGN WORKS TO MINIMISE THE RISK OF DAMAGE. DUE TO THE HIGH PROPPING LOADS IT MAY BE NECESSARY TO SPLIT DUCT SERVICES AND CAST TEMPORARY SPREADER SLABS.

3.2 **DAMAGE TO EXISTING VIADUCT STRUCTURE**
THE CONTRACTOR IS ADOPT WORKING METHODS TO MINIMISE MOVEMENT AND VIBRATION TO THE EXISTING ARCHES. THE CONTRACTOR IS ALSO TO ALLOW FOR VIBRATION AND MOVEMENT MONITORING DURING THE WORKS WITHIN THE ARCHES.

3.3 **OVER-STRESSING NEW FRAME OPENINGS**
THE EXISTING BRIDGE REMOVAL IS TO BE COMPLETED PRIOR TO FORMING THE NEW OPENINGS WITHIN THE EXISTING BRIDGE ABUTMENT. THE CONTRACTOR IS TO SEQUENCE THE WORK TO ENSURE THIS AND FORMATION OF THE OPENING WHILST THE BRIDGE IS IN PLACE IS NOT PERMITTED.

3.4 **TEMPORARY PROPPING TO FORM OPENING**
THE ABUTMENT OPENINGS WILL REQUIRE SIGNIFICANT TEMPORARY WORKS DUE TO THE RETAINED STRUCTURE ABOVE. THE CONTRACTOR IS TO ALLOW FOR SPECIALIST BESPOKE TEMPORARY WORKS AND EARLY APPOINTMENT OF THEIR TEMPORARY WORKS ENGINEER TO DEVELOP THE DETAILS AND CONSTRUCTION METHODOLOGY.

STEELWORK PROTECTION SYSTEM
ALL STEELWORK TO RECEIVE THE FOLLOWING CORROSION PROTECTION SYSTEM:
- MINIMUM 85 mm HOT-DIP GALVANISING TO BS EN ISO 1461.

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- TWO COATS HEAVY DUTY BITUMENT, 200 mm TOTAL

ALL BOLTED CONNECTIONS TO BE HOT-DIP GALVANISED.
FINAL DESIGN AND TECHNICAL REQUIREMENTS TO BE DEVELOPED DURING RIBA STAGE 4.
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ALL DETAILS ARE INDICATIVE ONLY TO ALLOW FOR STAGE 2 COSTING. THE DETAILS ARE DEPENDANT ON THE FINDINGS FROM THE SURVEY WORKS. THE DETAIL WILL THEREFORE BE CONFIRMED DURING RIBA STAGES 3 & 4.

FAÇADE WORKS TO GRADE II LISTED BUILDING
FOR CLEANING, LOCALISED REPAIR AND REPOINTING WORKS TO THE GRADE II LISTED VIADUCT STRUCTURE REFER TO ARCHITECTS AND HERITAGE ARCHITECTS DRAWINGS, DETAILS AND SPECIFICATION.

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Rev:	Description:	Date:	By:	Chkd:
P01	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC

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Project:
VIADUX 2B, MANCHESTER

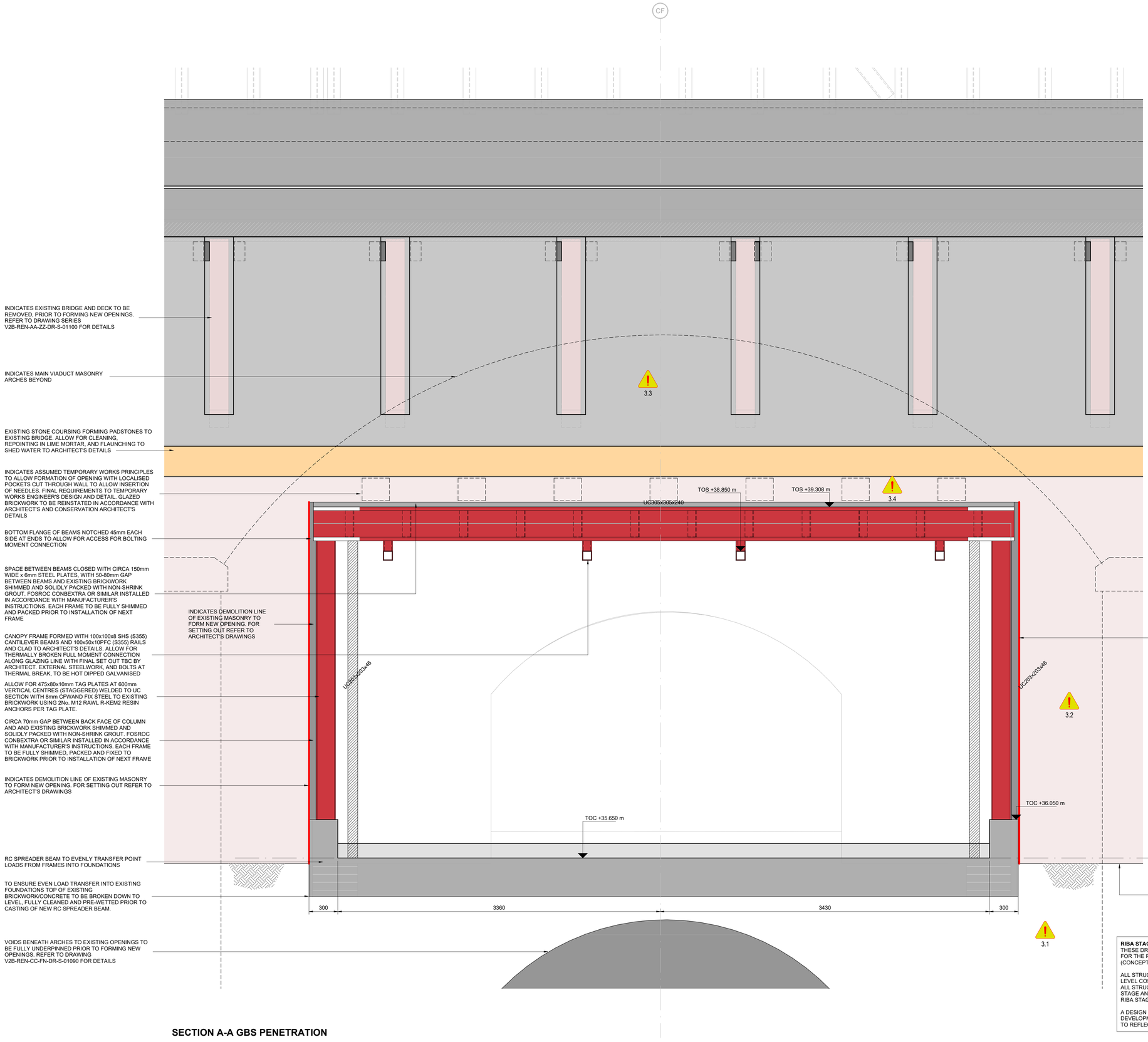
Drawing Title:
GBS ABUTMENT OPENING PLANS TYPE 2

Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	JAN 25	AMi	-	KAG

Scale: 1 : 25 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:
V2B - REN - AA - ZZ - DR - S - 03102 - P01



SECTION A-A GBS PENETRATION

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.
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3. ALL STEELWORK TO BE S355 J2 U.N.O. FINAL SUBGRADE IS TO BE CONFIRMED DURING TECHNICAL DESIGN WITH INPUT FROM THE STEELWORK FABRICATOR ONCE THE CONNECTION DETAILS ARE KNOWN.
4. CONCRETE TO FOUNDATIONS AND ENCASEMENT TO STEELWORK TO BE RC35/45.
5. WHERE FEASIBLE EXISTING GOOD QUALITY MASONRY UNITS ARE TO BE SALVAGED AND CLEANED FOR REUSE WITHIN THE WORKS. THE GLAZED BRICKS TO GREAT BRIDGEWATER STREET ARE TO ALSO BE SALVAGED AND REUSED FOR REINSTATEMENT OF BRICKWORK AROUND THE NEW OPENINGS.
6. WHERE NEW BRICKS ARE REQUIRED THAT ARE NOT EXPOSED IN THE FINISHED WORKS THESE ARE TO BE SOLID CLASS B CLAY ENGINEERING BRICKS. ALL EXPOSED MASONRY TO BE SUITABLY SOURCED TO MATCH EXISTING.
7. NO CEMENT BASED MORTAR IS PERMITTED FOR USE WITHIN REINSTATEMENT WORKS OF MASONRY. ALLOW FOR NEW AND REPAIR WORKS UNDERTAKEN TO BE WITH A LIME MORTAR.
   HLM 3.5 - GENERAL MASONRY WORKS 150mm ABOVE GROUND LEVEL
   HLM 5.0 - WORKS BELOW GROUND
   FINAL MORTAR SPECIFICATION TO BE IN ACCORDANCE WITH THE HERITAGE ARCHITECTS SPECIFICATION AND SUBJECT TO AGREEMENT WITH THE ENGINEER.
8. PACKING WORKS BETWEEN STEELWORK AND EXISTING MASONRY TO BE UNDERTAKEN WITH NON-SHRINK PROPRIETARY GROUT INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

3.1 **DAMAGE TO EXISTING SERVICES**
THERE ARE SHALLOW SERVICES WITHIN THE PAVEMENT. THE CONTRACTOR AND THEIR TEMPORARY WORKS ENGINEER TO CONFIRM LOCATION ON SITE AND DESIGN WORKS TO MINIMISE THE RISK OF DAMAGE. DUE TO THE HIGH PROPPING LOADS IT MAY BE NECESSARY TO SPLIT DUCT SERVICES AND CAST TEMPORARY SPREADER SLABS.

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THE CONTRACTOR IS ADOPT WORKING METHODS TO MINIMISE MOVEMENT AND VIBRATION TO THE EXISTING ARCHES. THE CONTRACTOR IS ALSO TO ALLOW FOR VIBRATION AND MOVEMENT MONITORING DURING THE WORKS WITHIN THE ARCHES.

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THE EXISTING BRIDGE REMOVAL IS TO BE COMPLETED PRIOR TO FORMING THE NEW OPENINGS WITHIN THE EXISTING BRIDGE ABUTMENT. THE CONTRACTOR IS TO SEQUENCE THE WORK TO ENSURE THIS AND FORMATION OF THE OPENING WHILST THE BRIDGE IS IN PLACE IS NOT PERMITTED.

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Project:
VIADUX 2B,
MANCHESTER

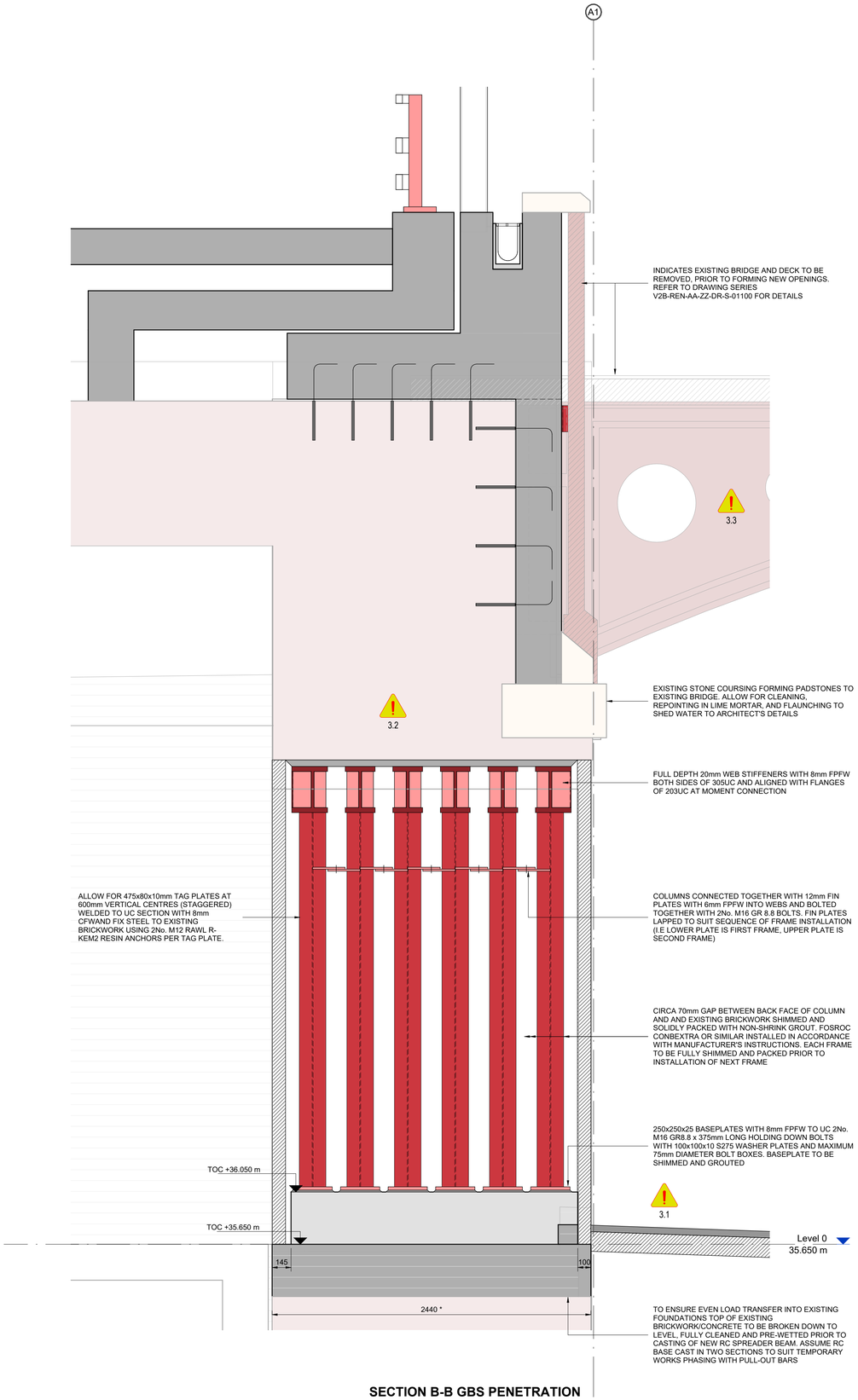
Drawing Title:
GBS ABUTMENT OPENING SECTIONS (SHEET 1)

Status:
STAGE 2

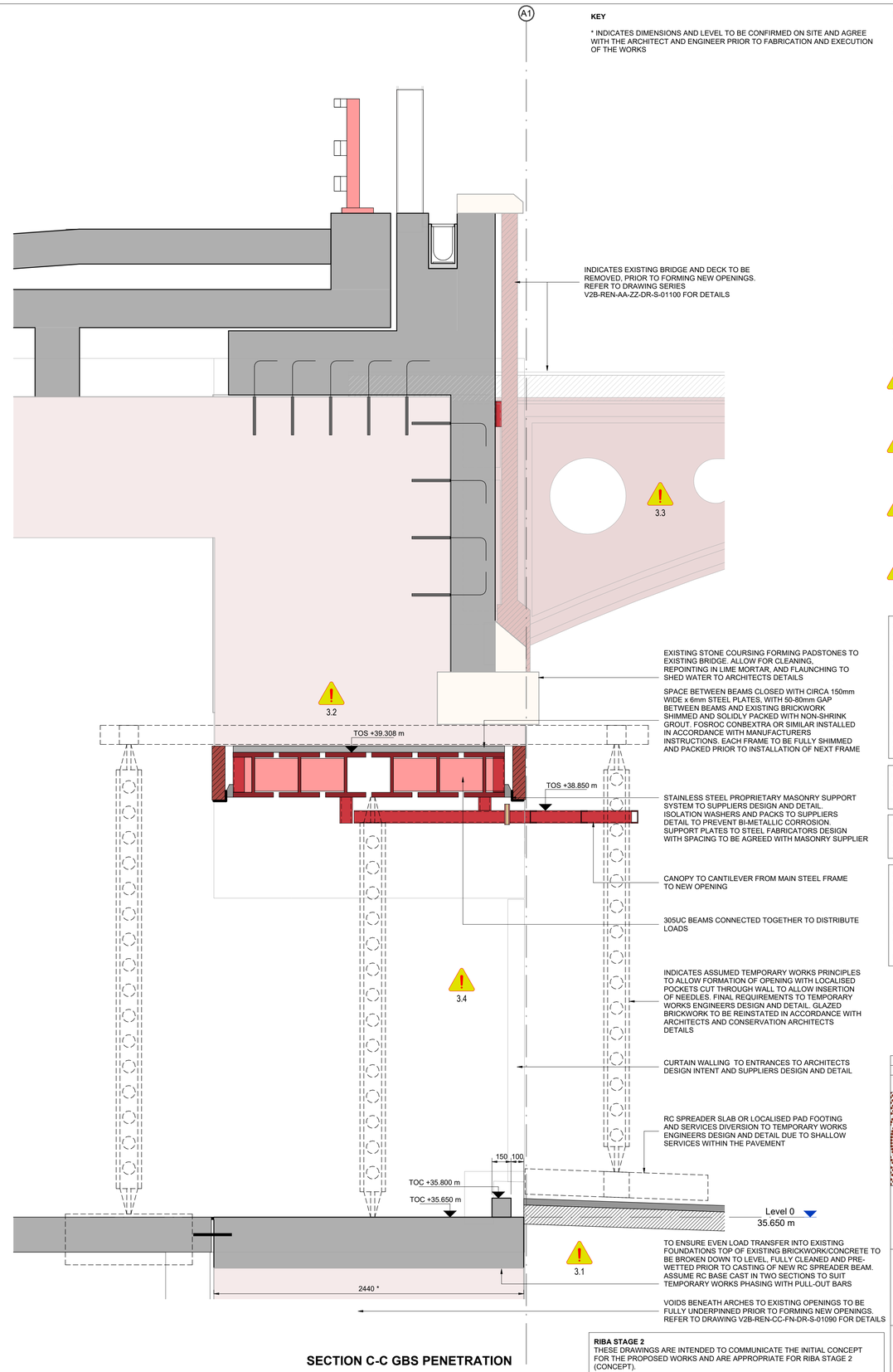
Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	JAN 25	AMi	-	KAG

Scale: 1 : 20
Project No: 2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	03200 -	P02



SECTION B-B GBS PENETRATION



SECTION C-C GBS PENETRATION

KEY

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NOTES:

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Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Project:
VIADUX 2B, MANCHESTER

Drawing Title:
GBS ABUTMENT OPENING SECTIONS (SHEET 2)

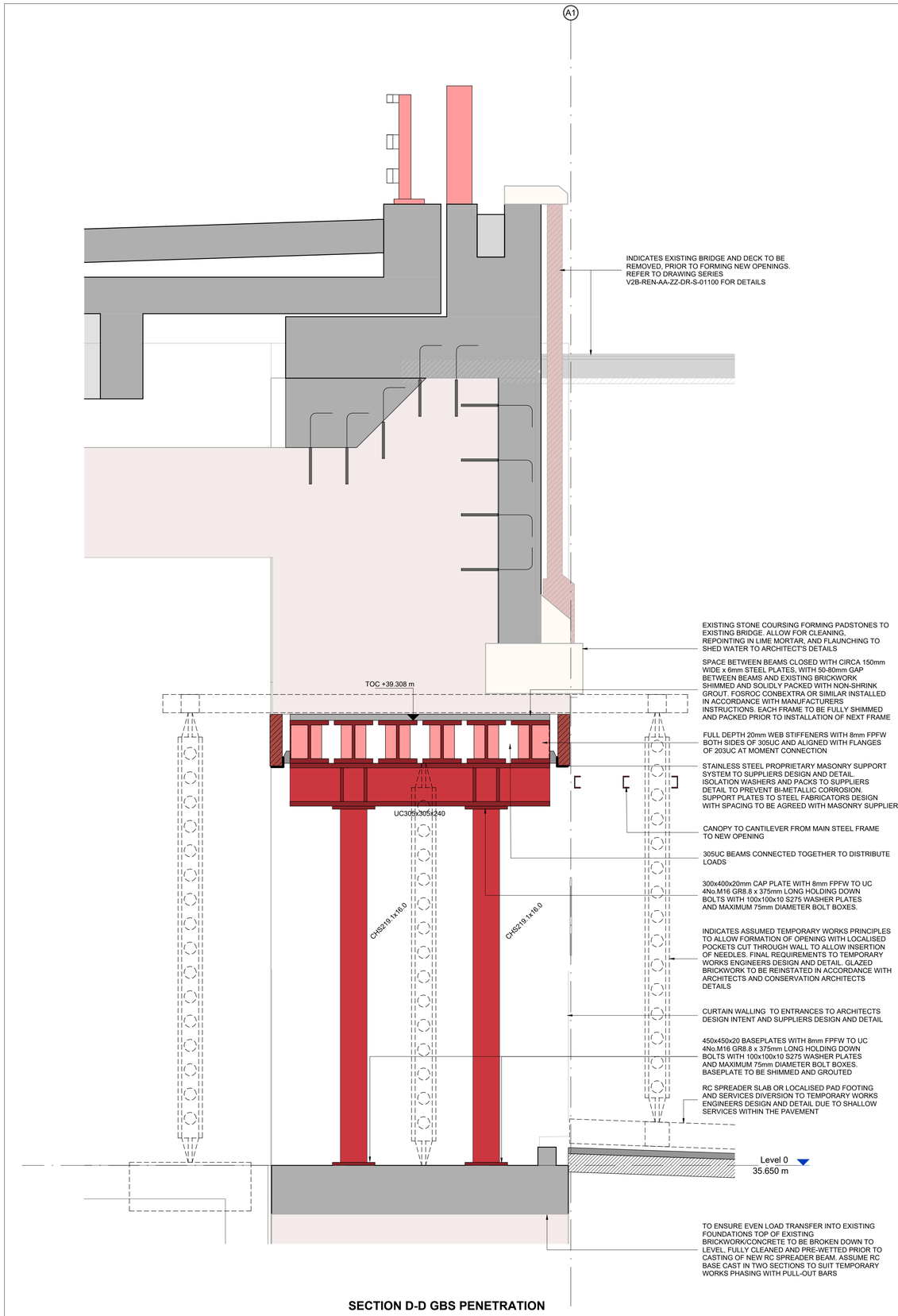
Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	JAN 25	AMi	-	KAG

Scale: 1 : 20 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

V2B - REN - AA - ZZ - DR - S - 03201 - P02



SECTION D-D GBS PENETRATION

KEY

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P01	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC

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Project:
VIADUX 2B, MANCHESTER

Drawing Title:
GBS ABUTMENT OPENING SECTIONS (SHEET 3)

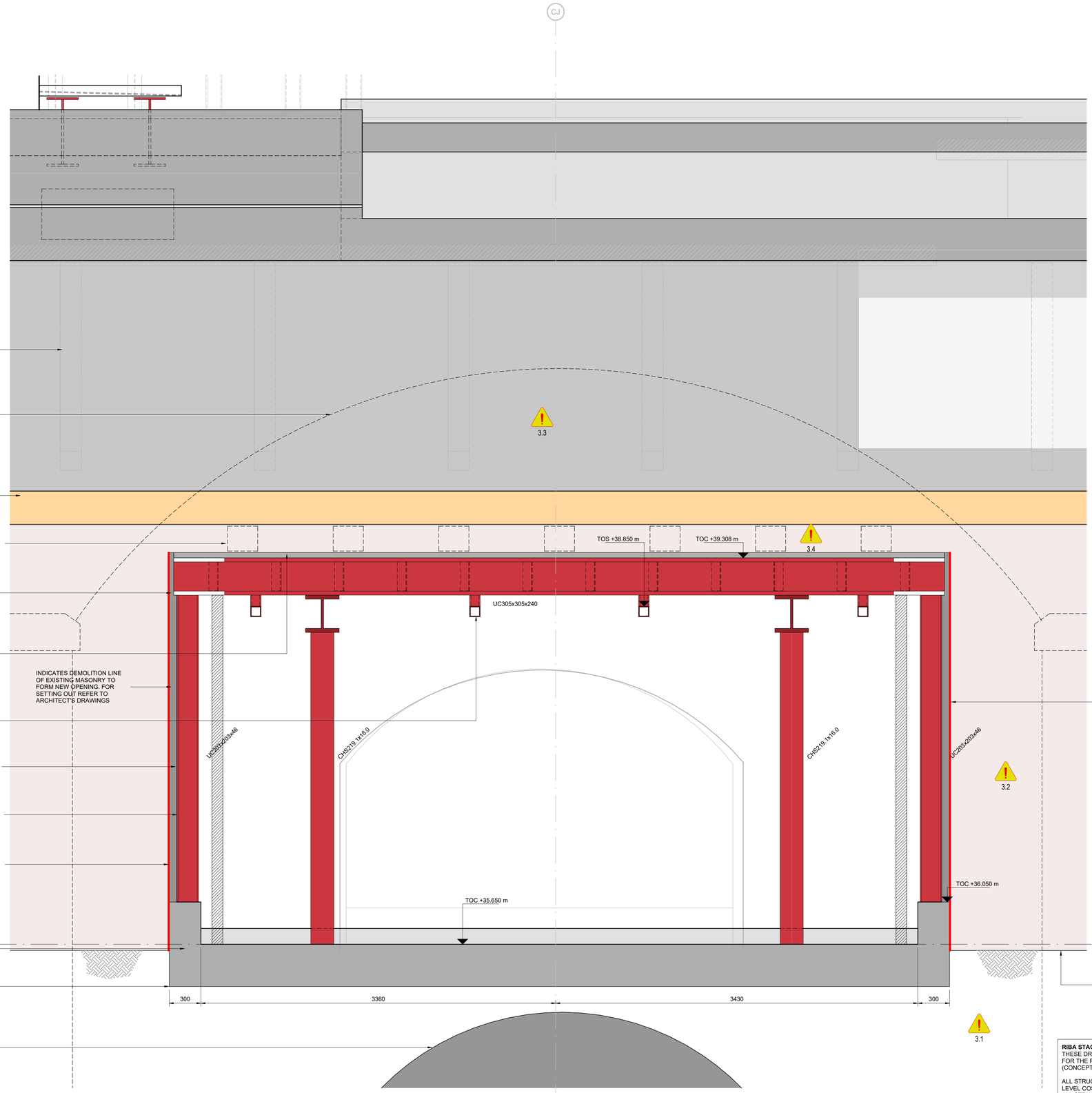
Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 25	AMi	-	PC

Scale: 1 : 20 | Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:

V2B - REN - AA - ZZ - DR - S - 03202 - P01



SECTION E-E GBS PENETRATION

NOTES:

1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.
2. ALL STEELWORK TO BE FABRICATED IN ACCORDANCE WITH THE LATEST EDITION OF THE 'NATIONAL STRUCTURAL STEELWORK SPECIFICATION' AND RENAISSANCE PROJECT STEELWORK SPECIFICATION.
3. ALL STEELWORK TO BE S355 J2 U.N.O. FINAL SUBGRADE IS TO BE CONFIRMED DURING TECHNICAL DESIGN WITH INPUT FROM THE STEELWORK FABRICATOR ONCE THE CONNECTION DETAILS ARE KNOWN.
4. CONCRETE TO FOUNDATIONS AND ENCASEMENT TO STEELWORK TO BE RC35/45.
5. WHERE FEASIBLE EXISTING GOOD QUALITY MASONRY UNITS ARE TO BE SALVAGED AND CLEANED FOR REUSE WITHIN THE WORKS. THE GLAZED BRICKS TO GREAT BRIDGEWATER STREET ARE TO ALSO BE SALVAGED AND REUSED FOR REINSTATEMENT OF BRICKWORK AROUND THE NEW OPENINGS.
6. WHERE NEW BRICKS ARE REQUIRED THAT ARE NOT EXPOSED IN THE FINISHED WORKS THESE ARE TO BE SOLID CLASS B CLAY ENGINEERING BRICKS. ALL EXPOSED MASONRY TO BE SUITABLY SOURCED TO MATCH EXISTING.
7. NO CEMENT BASED MORTAR IS PERMITTED FOR USE WITHIN REINSTATEMENT WORKS OF MASONRY. ALLOW FOR NEW AND REPAIR WORKS UNDERTAKEN TO BE WITH A LIME MORTAR.
   HLM 3.5 - GENERAL MASONRY WORKS 150mm ABOVE GROUND LEVEL
   HLM 5.0 - WORKS BELOW GROUND
   FINAL MORTAR SPECIFICATION TO BE IN ACCORDANCE WITH THE HERITAGE ARCHITECTS SPECIFICATION AND SUBJECT TO AGREEMENT WITH THE ENGINEER.
8. PACKING WORKS BETWEEN STEELWORK AND EXISTING MASONRY TO BE UNDERTAKEN WITH NON-SHRINK PROPRIETARY GROUT INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

HEALTH & SAFETY NOTES:
IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS

3.1 **DAMAGE TO EXISTING SERVICES**
THERE ARE SHALLOW SERVICES WITHIN THE PAVEMENT. THE CONTRACTOR AND THEIR TEMPORARY WORKS ENGINEER TO CONFIRM LOCATION ON SITE AND DESIGN WORKS TO MINIMISE THE RISK OF DAMAGE. DUE TO THE HIGH PROPPING LOADS IT MAY BE NECESSARY TO SPLIT DUCT SERVICES AND CAST TEMPORARY SPREADER SLABS.

3.2 **DAMAGE TO EXISTING VIADUCT STRUCTURE**
THE CONTRACTOR IS ADOPT WORKING METHODS TO MINIMISE MOVEMENT AND VIBRATION TO THE EXISTING ARCHES. THE CONTRACTOR IS ALSO TO ALLOW FOR VIBRATION AND MOVEMENT MONITORING DURING THE WORKS WITHIN THE ARCHES.

3.3 **OVER-STRESSING NEW FRAME OPENINGS**
THE EXISTING BRIDGE REMOVAL IS TO BE COMPLETED PRIOR TO FORMING THE NEW OPENINGS WITHIN THE EXISTING BRIDGE ABUTMENT. THE CONTRACTOR IS TO SEQUENCE THE WORK TO ENSURE THIS AND FORMATION OF THE OPENING WHILST THE BRIDGE IS IN PLACE IS NOT PERMITTED.

3.4 **TEMPORARY PROPPING TO FORM OPENING**
THE ABUTMENT OPENINGS WILL REQUIRE SIGNIFICANT TEMPORARY WORKS DUE TO THE RETAINED STRUCTURE ABOVE. THE CONTRACTOR IS TO ALLOW FOR SPECIALIST BESPOKE TEMPORARY WORKS AND EARLY APPOINTMENT OF THEIR TEMPORARY WORKS ENGINEER TO DEVELOP THE DETAILS AND CONSTRUCTION METHODOLOGY.

STEELWORK PROTECTION SYSTEM
ALL STEELWORK TO RECEIVE THE FOLLOWING CORROSION PROTECTION SYSTEM:
- MINIMUM 85 mm HOT-DIP GALVANISING TO BS EN ISO 1461.

IN ADDITION ALL NON-VISIBLE STEELWORK AND STEELWORK IN CONTACT WITH GROUT AND THE EXISTING MASONRY ARCHES IS TO BE PROTECTED WITH:
- TWO COATS HEAVY DUTY BITUMENT, 200 mm TOTAL

ALL BOLTED CONNECTIONS TO BE HOT-DIP GALVANISED.
FINAL DESIGN AND TECHNICAL REQUIREMENTS TO BE DEVELOPED DURING RIBA STAGE 4.
COMPATIBILITY OF PAINT PROTECTION SYSTEMS TO GALVANISED STEELWORK TO BE CONFIRMED OR ALTERNATIVE PROPOSED BY STEEL FABRICATORS PAINT SUPPLIER.
ALL NON-ACCESSIBLE STEELWORK IS TO HAVE A MINIMUM CORROSION PROTECTION LIFE OF 60 YEARS WITH NO MAINTENANCE.

DETAILS - SURVEYS
ALL DETAILS ARE INDICATIVE ONLY TO ALLOW FOR STAGE 2 COSTING. THE DETAILS ARE DEPENDANT ON THE FINDINGS FROM THE SURVEY WORKS. THE DETAIL WILL THEREFORE BE CONFIRMED DURING RIBA STAGES 3 & 4.

FAÇADE WORKS TO GRADE II LISTED BUILDING
FOR CLEANING, LOCALISED REPAIR AND REPOINTING WORKS TO THE GRADE II LISTED VIADUCT STRUCTURE REFER TO ARCHITECT'S AND HERITAGE ARCHITECT'S DRAWINGS, DETAILS AND SPECIFICATION.

STEELWORK CONNECTIONS
ALL STEELWORK TO STEELWORK AND STEELWORK TO CONCRETE CONNECTIONS ARE TO BE TO THE STEELWORK FABRICATOR'S DESIGN AND DETAIL BASED ON CONNECTION LOADS TO BE PROVIDED AT RIBA STAGE 5. ALL CONNECTIONS SHOWN ARE INDICATIVE ONLY. THEY ARE INTENDED TO COMMUNICATE THE CONNECTION PRINCIPLES ASSUMED WITHIN THE DESIGN OF THE PERMANENT STEELWORK AND TO ALLOW FOR FURTHER CO-ORDINATION.
WHERE ALTERATIONS TO THE CONNECTION PRINCIPLES ARE PROPOSED BY THE STEELWORK FABRICATOR THESE WILL BE SUBJECT TO REVIEW BY RENAISSANCE AND THE STEELWORK FABRICATOR'S DETAILED DESIGN.

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

ALL STRUCTURAL SIZES ARE INDICATIVE ONLY AND TO ASSIST WITH HIGH LEVEL COSTING BY THE PROJECT QUANTITY SURVEYOR AND CONTRACTOR. ALL STRUCTURAL SIZES AND REINFORCEMENT RATES ARE INDICATIVE AT THIS STAGE AND ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS THROUGH RIBA STAGE 3 (SPATIAL CO-ORDINATION) AND STAGE 4 (TECHNICAL DESIGN).

A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P01	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC

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Project:
VIADUX 2B, MANCHESTER

Drawing Title:
GBS ABUTMENT OPENING SECTIONS (SHEET 1) Copy 1

Status:
STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	JAN 25	AMi	-	KAG

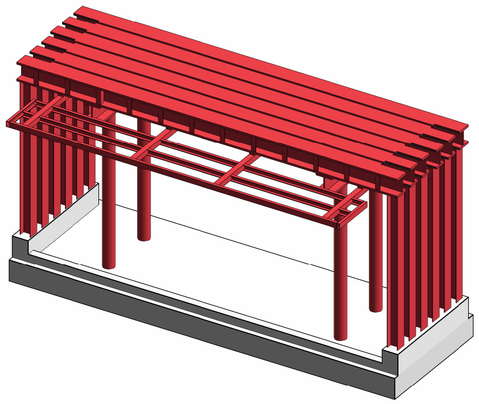
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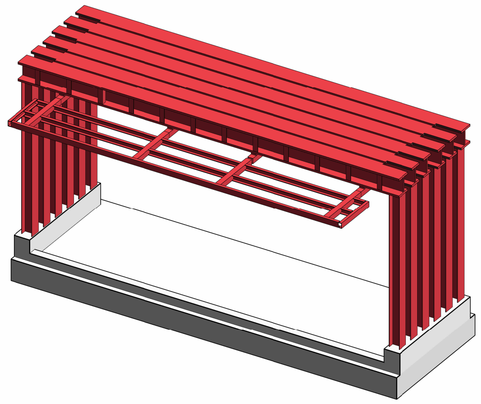
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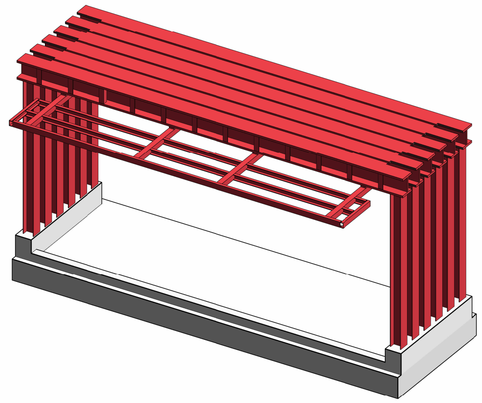
V2B - REN - AA - ZZ - DR - S - 03203 - P01

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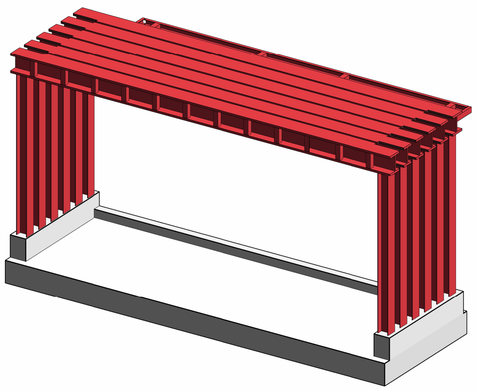
1. REFER TO DRAWING V2B-REN-AA-XX-DR-S-00010 FOR GENERAL NOTES.

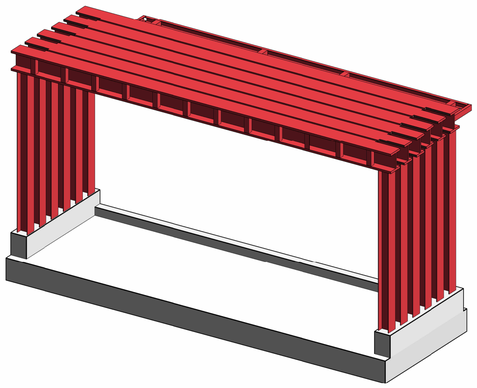


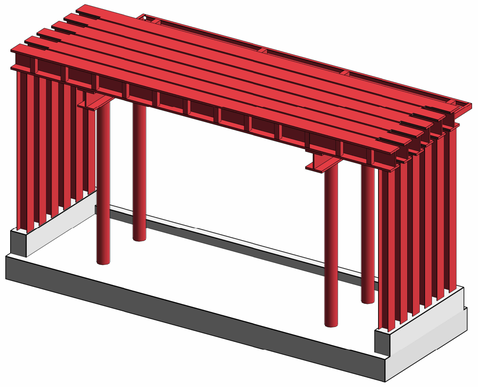




GBS OPENINGS 3D VIEW 1







GBS OPENINGS 3D VIEW 2

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED WORKS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT).

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A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA STAGE 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

Rev:	Description:	Date:	By:	Chkd:
P02	RIBA STAGE 2 UPDATE	03.03.25	AMi	PC
P01	RIBA STAGE 2 ISSUE	14.02.24	AMi	KAG

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Project:

VIADUX 2B, MANCHESTER

Drawing Title:

GBS OPENINGS ISOMETRICS

Status:

STAGE 2

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	FEB 24	AMi	-	KAG

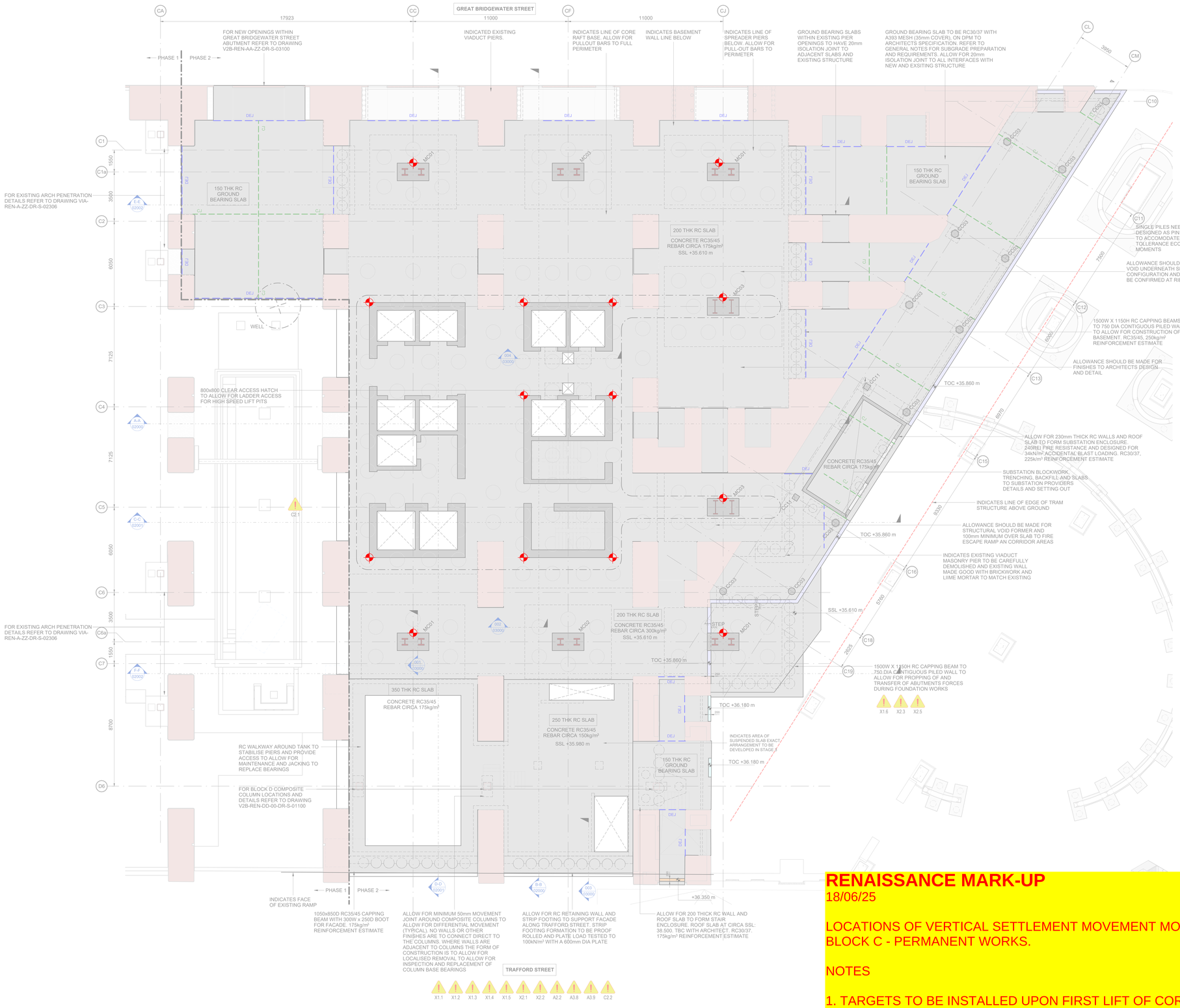
Scale:

Project No: 2209-01

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
V2B -	REN -	AA -	ZZ -	DR -	S -	03250 -	P02

APPENDIX C

MONITORING SENSOR PROPOSED LOCATIONS



HEALTH AND SAFETY NOTES:

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS IDENTIFIED. TO BE READ IN CONJUNCTION WITH CDM RISK REGISTERS:
SITE WIDE - V2B-REN-XX-XX-HS-S-00001
BLOCK A - V2B-REN-AA-XX-HS-S-00001
BLOCK C - V2B-REN-CC-XX-HS-S-00001
BLOCK D - V2B-REN-DD-XX-HS-S-00001

X1.1 **RISK OF STRIKING UXO DURING PILING OR GROUND WORKS.** CLIENT TO OBTAIN SITE SPECIFIC DETAILED UXO RISK ASSESSMENT. MAIN CONTRACTOR (MC) TO ENSURE PILE LOCATIONS TO BE SCANNED AND PROOF DUG PRIOR TO PILING WORKS. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH RECOMMENDATIONS OF UXO SURVEY.

X1.2 **RISK OF CONSTRUCTION SITE PERSONNEL COMING INTO CONTACT WITH CONTAMINATED GROUND / GROUND GASES.** CLIENT TO PROCURE SUPPLEMENTARY SITE INVESTIGATION AT RIBA STAGE 3 TO COVER COMPLETE SITE. MAIN CONTRACTOR (MC) TO ENSURE ALL SITE REMEDIATION WORKS ARE CONDUCTED ACCORDING TO THE GROUND REMEDIATION STRATEGY.

X1.3 **RISK OF STRIKING SUBSTRUCTURE REMAINS DURING EXCAVATION OR PILING WORKS.** MAIN CONTRACTOR (MC) TO ENSURE PILE LOCATIONS ARE SCANNED AND PROOF DUG PRIOR TO PILING WORKS. ALL OBSTRUCTIONS MUST BE REMOVED OR CORED THROUGH TO ALLOW FOR THE CONSTRUCTION OF THE PERMANENT FOUNDATIONS/SUBSTRUCTURE.

X1.4 **RISK OF VARIABLE GROUND CONDITIONS.** CLIENT TO PROCURE SUPPLEMENTARY SITE INVESTIGATION AT RIBA STAGE 3 TO COVER COMPLETE SITE. MAIN CONTRACTOR (MC) IS TO ENSURE THAT ANY OBSTRUCTIONS/ CONTAMINANTS ARE ADDRESSED APPROPRIATELY ACCORDING TO THE GEOTECHNICAL SITE INVESTIGATION AND REMEDIATION REPORTS. PILE DESIGNER (PD) TO ENSURE THAT FOUNDATION DESIGN ACCOUNTS FOR VARIABLE NATURE OF GROUND CONDITIONS WITH EARTH PROFILE DEVELOPED FROM BOREHOLE INFORMATION.

X1.5 **RISK OF INSTABILITY OF PODIUM STRUCTURE OR VIADUCT ARCHES DUE TO CRANE LOADING.** MAIN CONTRACTOR (MC) TO PROVIDE TOWER CRANE LOADING FOR BLOCK C PODIUM TO BE DESIGNED TO SUPPORT TOWER CRANE. TEMPORARY WORKS DESIGNER (TWD) TO ASSESS VIADUCT FOR OUTRIGGER LOADING FROM MOBILE CRANE.

X1.6 **RISK OF COLLISION WITH OVERHEAD ELECTRIFIED LINES.** MAIN CONTRACTOR (MC) AND SPECIALIST CONTRACTORS ARE TO UNDERTAKE APPROPRIATE RISK ASSESSMENTS AND UNDERTAKE WORKS IN ACCORDANCE WITH METHOD STATEMENTS APPROVED BY TFGM TO ENSURE THE TRAMS INCLUDING OVERHEAD ELECTRIFIED LINES REMAIN FULLY OPERATIONAL DURING CONSTRUCTION.

X2.1 **RISK OF DESTABILISING GRADE II LISTED VIADUCT ARCHES DURING EXCAVATIONS.** MAIN CONTRACTOR (MC) IS TO MINIMISE EXCAVATION IN PROXIMITY TO THE EXISTING VIADUCT ABUTMENTS. WHERE DEEP EXCAVATION ARE REQUIRED TEMPORARY PROPPING IS TO BE PROVIDED TO RESIST THE LATERAL FORCES FROM THE ABUTMENTS.

X2.2 **RISK OF DAMAGE TO GRADE II LISTED VIADUCT ARCHES DUE TO VIBRATIONS AND GROUND MOVEMENTS RESULTING FROM SUBSTRUCTURE WORKS.** MAIN CONTRACTOR (MC) IS TO UNDERTAKE VIBRATION AND MOVEMENT MONITORING TO THE GRADE II LISTED ARCHES AND IMPLENT WORKING METHODS THAT REDUCE THE RISK OF VIBRATIONS SCOPE TO BE AGREED AT STAGE 4.

X2.3 **RISK OF INTERFERENCE OR DAMAGE OF ENWL SUBSTATION AND/OR THE METROLINK TRAM BRIDGE.** MAIN CONTRACTOR (MC) TO ADHERE TO ENWL WORKING RESTRICTIONS IN PROXIMITY TO THE SUBSTATION. MAIN CONTRACTOR (MC) TO IMPLEMENT METHODS OF WORKING TO MINIMISE RISK OF DAMAGE TO SUBSTATION ENCLOSURE OR INTERFERENCE WITH THE SUBSTATION EQUIPMENT

X2.5 **RISK OF CLASH WITH EXISTING TRAM VIADUCT FOUNDATIONS.** PILING CONTRACTOR (PC) TO ALLOW FOR PROBING TO VERIFY THE PROPOSED PILE LOCATIONS ADJACENT THE TFGM TRAM ARE CLEAR OF EXISTING FOUNDATIONS. IF OBSTRUCTIONS ARE ENCOUNTERED AT PILE LOCATIONS ADDITIONAL PROBING IS TO BE UNDERTAKEN BY PC TO CONFIRM THE EXTENT OF CONSTRUCTIONS AND ALLOW ALTERNATIVE PILE LOCATIONS TO BE INVESTIGATED OR CORING UNDERTAKEN.

A2.2 **RISK OF COLLAPSE OF EXISTING RETAINING STRUCTURES ALONG GREAT BRIDGEWATER STREET (GBS) DUE TO LOSS OF RESTRAINT OR LOSS OF SUPPORT DUE TO UNDERPINNING.** MAIN CONTRACTOR (MC) TO MANAGE THE UNPINNING WORKS, OVERSEE AND COORDINATE THE DEMOLITION SEQUENCE AND PLAN FOR SUFFICIENT ADDITIONAL RESTRAINT, AS WELL AS IMPOSED LOAD REDUCTION IN THE TEMPORARY CASE, IN CONJUNCTION WITH THEIR TEMPORARY WORKS ENGINEER (TWE) AND DEMOLITION CONTRACTOR (DC).

A3.8 **RISK OF INSTABILITY OF VIADUCT PIERS DURING EXCAVATION WORKS.** EXCAVATIONS REDUCE RESTRAINT PROVIDED TO PIERS AND REQUIRE PIERS TO ACT AS RETAINING WALLS. MAIN CONTRACTOR (MC) TO SEQUENCE AND PROVIDE APPROPRIATE TEMPORARY WORKS TO ENSURE PIERS REMAIN STABLE WITH INPUT FROM TEMPORARY WORKS DESIGNER (TWD).

A3.9 **RISK OF EXCESSIVE VIBRATIONS DURING COMPACTION ACTIVITIES.** RENAISSANCE TO REVIEW RESTRICTIONS ON WEIGHT AND TYPES OF COMPACTION PLANT AT STAGE 3. MAIN CONTRACTOR (MC) TO CONFIRM METHOD STATEMENT ADHERES TO PLANT RESTRICTIONS.

C2.1 **RISK OF UNDERMINING OF PHASE 1 AND ACCESS RAMP STRUCTURES.** CONTIGUOUS PILE WALL HAS BEEN PROVIDED TO RETAIN EXISTING PHASE 1 STRUCTURES. SOLUTION TO BE AGREED WITH MAIN CONTRACTOR (MC).

C2.2 **RISK OF WORKING IN RESTRICTED SPACES.** MAIN CONTRACTOR (MC) TO DEVELOP SAFE WORKING METHODS TO ALLOW FOR THE SAFE INSTALLATION OF REINFORCEMENT TO THE HEAVILY REINFORCED RAFT AND CONCRETE PLACEMENT IN RESTRICTED SPACES.

SURVEY INFORMATION & DESIGN RISKS:

THE FOLLOWING IDENTIFIES ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH WORKS OF THIS NATURE, NOTE THE FOLLOWING ABNORMAL RISKS.

A **EXISTING GRADE II VIADUCT PIER FOUNDATION DEPTHS SURVEY** - THE DEPTH OF THE EXISTING MASONRY PIERS IS UNKNOWN AND THERE IS A RISK THAT THE PROPOSED BASEMENT MAY UNDERMINE THEM. THIS MAY REQUIRE THE DEPTH OF THE BASEMENT TO BE REDUCED, MAKING IT UNUSABLE, OR REQUIRE COMPLEX UNDERPINNING OF THE EXISTING PIERS. SURVEY TO BE UNDERTAKEN TO VERIFY FOUNDATION DEPTHS AS PART OF SUPPLEMENTARY SITE INVESTIGATION.

B **EXISTING GRADE II VIADUCT FOUNDATIONS BETWEEN PIER SURVEY** - AREA BETWEEN PIERS MAY CONTAIN CONNECTING MASONRY FOUNDATION AS PART OF THE ABUTMENT SYSTEM THAT STABILISES THE ARCHES. IDEALLY THE NEW FOUNDATION RAFT WOULD BE CONNECTED THROUGH THESE AREAS BUT THIS MAY NOT BE FEASIBLE IF EXISTING ABUTMENT MASONRY IS PRESENT. SURVEY TO BE UNDERTAKEN TO VERIFY FOUNDATION DEPTHS AS PART OF SUPPLEMENTARY SITE INVESTIGATION.

C **EXISTING TRAM VIADUCT FOUNDATIONS** - THE EXISTING TRAM VIADUCT STRUCTURE AND SETTING OUT INDICATED ON THIS DRAWING IS INDICATIVE AND BASED ON LIMITED AVAILABLE ARCHIVE INFORMATION. ALL SETTING OUT AND CRITICAL DIMENSIONS ARE SUBJECT TO DETAILED SUPPLEMENTARY SITE INVESTIGATION WHICH INCLUDES BUT NOT LIMITED TO A DETAILED SITE SURVEY AND PROBING TO CONFIRM THE DEPTH AND EXTENT OF THE EXISTING TRAM FOUNDATION.

NOTES:

1. REFER TO DRAWING REN-CC-XX-DR-S-00010&00011 FOR GENERAL NOTES
2. REFER TO DRAWING REN-CC-XX-DR-S-00015 FOR ELEMENT SCHEDULE

COLUMN SETTING OUT
ALL COLUMNS TO BE LOCATED CONCENTRICALLY ON GRIDLINES UNLESS NOTED OTHERWISE

CAST-IN CHANNELS & FIXINGS
FOR ALL CAST-IN CHANNEL AND FIXINGS REQUIREMENTS, INCLUDING SPECIFICATION AND DETAILED SETTING OUT, REFER TO CLADDING CONTRACTOR'S, LIFT MANUFACTURES, PT SLAB AND BALUSTRADE DRAWINGS

WHERE CAST-IN CHANNEL AND FIXINGS ARE INDICATED ON THE RENAISSANCE DRAWINGS, THESE ARE INDICATIVE AND FOR COORDINATION PURPOSES ONLY. REFERENCE SHOULD BE MADE TO THE RELEVANT CONTRACTOR DRAWINGS FOR DETAILED REQUIREMENTS

RC COLUMNS
ALL COLUMN SIZES, GRADE AND REINFORCEMENT REQUIREMENTS ARE SUBJECT TO AXIAL SHORTENING AND STAGED CONSTRUCTION REQUIREMENTS. CONCRETE FRAME CONTRACTOR TO ADVISE ON PROPOSED CONSTRUCTION SEQUENCE AND FACADE CONSULTANT TO ADVISE ON ALLOWABLE MOVEMENTS TO FINALISE COLUMN DESIGN.

CLADDING INTERFACE
ALL PERIMETER UPSTANDS AND SLAB RECESSES REQUIRED FOR CLADDING AND PARAPETS TO BE CONFIRMED BY ARCHITECT AND COORDINATED WITH THE DELEGATED PT DESIGNER. SPECIALIST CLADDING DESIGNER TO ADVISE ON REQUIREMENTS FOR CAST-IN FIXINGS AND PT DESIGNER TO COORDINATE CAST-IN FIXINGS WITH DUCTS AND JACKING POINTS.

FLOOR LEVEL - TOLERANCE & SURFACE REGULARITY
THE CONCRETE FRAME IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE NATIONAL STRUCTURAL CONCRETE SPECIFICATION TOLERANCES. IN ADDITION FLOOR SLABS WILL BE LEVELLED AT MID-SPAN UP TO SPAN/250. WHERE FLOOR FINISHES REQUIRE AN ENHANCED SURFACE REGULARITY (I.E. SR1, SR2 OR SR3) ALLOW FOR SELF LEVELLING SCREED OR COMPOUND

TO ACCOMMODATE DIFFERENTIAL AXIAL SHORTENING BETWEEN THE COLUMNS, CORE AND OUTRIGGERS COMPENSATION MEASURES, INCLUDING CASTING AREAS OF FLOOR SLAB HIGH WILL BE REQUIRED. EXTENT OF COMPENSATION TO BE CONFIRMED AT RIBA STAGE 4 FOLLOWING STAGE CONSTRUCTION AND AXIAL SHORTENING ASSESSMENT

SLAB, SERVICE PENETRATION AND RISER SETTING OUT:
ALL SERVICE OPENING TO THE BUILDING SERVICES CONSULTANTS REQUIREMENTS. REFER TO THE ARCHITECTS DRAWINGS FOR DETAILED SETTING OUT OF SLAB EDGE AND SERVICE OPENINGS. IF THERE ARE DISCREPANCIES BETWEEN THE ARCHITECTS AND ENGINEERS DRAWINGS THE CONTRACTOR IS SEEK CLARIFICATION FROM BOTH PARTIES PRIOR TO CONSTRUCTION

CONTRACTOR TO ALLOW FOR CASTING FIRE COLLARS TO ALL SVP & RWP PENETRATIONS AND ALL OTHER SERVICE OPENINGS WHERE FEASIBLE. ALL SVP& RWP ARE TO BE SET OUT BY THE BUILDING SERVICES CONSULTANT AND ARCHITECT.

NON-LOADBEARING WALLS SECONDARY STEELWORK
ALLOW FOR CIRCA 10kg/m² ON PLAN FOR ORCA 120x120x10 SHS (S355) AT CIRCA 3.4m C/C TO ALL GROUND FLOOR WALLS. TOP OF POSTS TO BE SLOTTED TO ALLOW FOR DIFFERENTIAL MOVEMENT BETWEEN NEW BUILD ELEMENTS AND EXISTING VIADUCT. FOR BACK OF HOUSE AREAS ALLOW FOR HOT DIP GALVANISED COATING. FIRE PROTECTION TO ARCHITECTS INTENT AND SPECIALISTS DESIGN AND DETAIL.

BELOW GROUND DRAINAGE
REFER TO V2B-REN-CC-00-DR-C-01100 FOR BELOW GROUND DRAINAGE WORKS. NOTE DRAINS REQUIRED TO BE CAST INTO NEW FOUNDATIONS.

KEY

DEJ — DOWELLED EXPANSION JOINT BETWEEN GROUND BEARING SLABS OR GROUND BEARING SLAB AND BASEMENT STRUCTURE CONCRETE. ALLOW FOR 25mm JOINT WITH FLEXCELL FILLER BOARD AND TWO-PART POLYSULPHIDE SEALANT TO A DEPTH OF 30mm. DOWELS TO BE 25mm DIA x 600 LONG (STEEL, GRADE 250) AT MAXIMUM 300mm c/c WITH 300mm EMBEDMENT, AND ONE END SLEEVED. ARCHITEST TO CO-ORDINATE FLOOR JOINTS WITHIN NON-STRUCTURAL SCREED AND FLOOR FINISES TO COINCIDE WITH JOINT LOCATIONS

CJ — INDUCED CONTRACTOR JOINT TO CUT INTO TOP OF GROUND BEARING SLAB WITHIN 4 TO 12 HOURS OF CASTING. SAW JOINT TO BE 4.40mm DEEP. REINFORCEMENT TO BE DISCONTINUOUS ACROSS JOINT

SLAB LEVEL KEY
SSL = +34.700m
SSL = +35.650m
SSL = +35.930m

KEY

PROPOSED LOCATION OF TARGET FOR MANUAL DIFFERENTIAL SETTLEMENT MONITORING

RIBA STAGE 2
THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE INITIAL CONCEPT FOR THE PROPOSED BUILDINGS AND ARE APPROPRIATE FOR RIBA STAGE 2 (CONCEPT DESIGN).

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A DESIGN CONTINGENCY OF 15-20% IS RECOMMENDED TO ALLOW FOR DESIGN DEVELOPMENT DURING RIBA 3 AND STAGE 4 (TECHNICAL DESIGN) AND TO REFLECT INPUT FROM CONTRACTOR DESIGNED PACKAGES.

RENAISSANCE MARK-UP
18/06/25

LOCATIONS OF VERTICAL SETTLEMENT MOVEMENT MONITORING TARGETS FOR BLOCK C - PERMANENT WORKS.

NOTES

1. TARGETS TO BE INSTALLED UPON FIRST LIFT OF CORE AND COLUMNS.
2. FIRST MONITORING READINGS TO BE TAKEN AT THIS POINT TO PROVIDE BASELINE
3. FURTHER MONITORING READINGS TO THEN BE TAKEN MONTHLY THEREAFTER UNTIL FINAL COMPLETION OF THE PROJECT.

Rev	Description	Date	By	Chkd
P02	RIBA STAGE 2 UPDATE	06.12.24	AMi	AI
P01	RIBA STAGE 2 ISSUE	26.01.24	AMi	KAG

Renaissance Associates Ltd
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Project:
VIADUX 2B
MANCHESTER

Drawing Title:
BLOCK C
GROUND FLOOR PLAN

Status:
STAGE 2

DRAFT

Size:	Date:	Drawn By:	Designed By:	Checked By:
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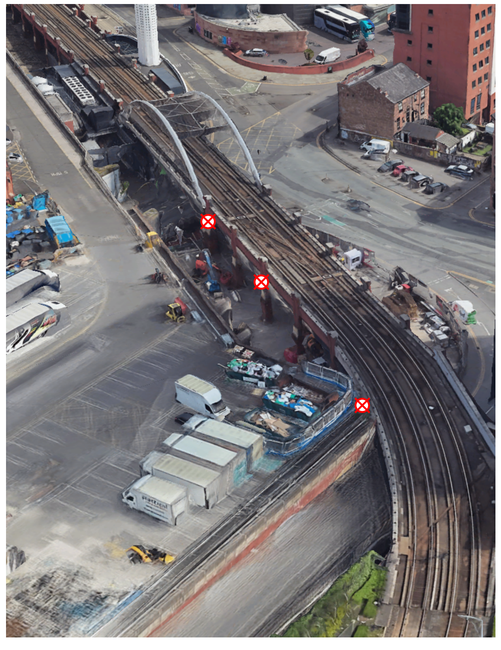
Scale: 1 : 100 Project No: 2209-01

Project Code: Originator: Volume: Level: Type: Role: Category / Number: Rev:
V2B - REN - CC - 00 - DR - S - 01100 -

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APPROXIMATE
EXTENT OF BRIDGE
REMOVAL WORKS

APPROXIMATE
LOCATION OF PHASE
1/2 BOUNDARY



METROLINK BRIDGE -
MONITORING PROPOSED
LOCATIONS AT HEAD OF BRIDGE
PIERS

RENAISSANCE MARK-UP
18/06/25

LOCATIONS OF VERTICAL SETTLEMENT MOVEMENT MONITORING TARGETS FOR BLOCK A - ARCHES

NOTES

1. TARGETS TO BE INSTALLED PRIOR TO COMMENCEMENT OF MAIN TOWER WORKS.
2. FIRST MONITORING READING TO BE TAKEN PRIOR TO COMMENCEMENT OF MAIN TOWER WORKS.
3. FURTHER MONITORING READINGS TO THEN BE TAKEN AT MONTHLY INTERVALS FROM COMMENCEMENT OF MAIN TOWER WORKS UP UNTIL FINAL COMPLETION OF THE PROJECT.

Building Survey Legend

Beam
Change In Ceiling Height
Change In Floor Surface
Dividing
Partition
Pipe
Wall
Window
Stairs/Ramps (direction denotes rise)
Roof Pitch (direction denotes fall)
Sloping Ceiling (direction denotes rise)
Registration Overlay
Level Above Datum

Height Prefix	Descriptions
AH	Arch Apex Height
BH	Underside of Beam
CH	Ceiling Height
DH	Door Head Height
FCH	False Ceiling Height
Hd	Head Height
Ht	Height
SpH	Arch Springing Height
SH	Sill Height
TBH	Top of Beam Height
TWH	Top of Wall Height

Level Prefix	Descriptions
AL	Arch Apex Level
BeL	Beam Level
CeL	Ceiling Level
DoL	Head of Door Level
DuL	Dust Level
EL	Eaves Level
FCeL	False Ceiling Level
FL	Floor Level
HLev	Head Level
SpL	Arch Springing Level
SteL	Sill Level
PiL	Pipe Level
RL	Ridge Level
ThL	Threshold Level
TBL	Top of Beam Level
TWL	Top of Wall Level

AB	Air Brick	JB	Junction Box
ACU	Air Conditioning Unit	Rad	Radiator
Cbd	Cupboard	RWP	Rain Water Pipe
Elec	Electrical Unit	SP	Soil Pipe
G	Gully	VP	Vent Pipe
IC	Inspection Cover		

NOTES

1. ALL PROPOSED MONITORING LOCATIONS TO BE APPROVED BY MAIN CONTRACTOR AND TEMPORARY WORKS COORDINATOR TO ENSURE ACCESS THROUGHOUT CONSTRUCTION PROGRAMME.
2. PROPOSED MONITORING OF THE MANCHESTER CENTRAL CONVENTION COMPLEX (MCCC) VIADUCT TO BE CONFIRMED BY MCCC.
3. PROPOSED MONITORING OF METROLINK BRIDGE TBC BY TRANSPORT FOR GREATER MANCHESTER (TfGM)

KEY

PROPOSED LOCATION OF TARGET FOR MANUAL DIFFERENTIAL SETTLEMENT MONITORING

Please note:

Any discrepancy found between an Ordnance Survey benchmark and an OSGB15 computed orthometric height is likely to be due to bench-mark subsidence or uplift and, assuming precise GPS survey has been carefully carried out, the orthometric height given by OSGB15 should be considered correct in preference to archive benchmark heights. OSGB15 converts GPS ellipsoid heights to orthometric heights above mean sea level.

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Levels are related to **OSGB15**
Value **n/a**

Coordinates are related to **National Grid** (GPS)

Scale **N/A**

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Client: Curtins

Title:
3D Wireframe Undercroft Survey Manchester Central Manchester

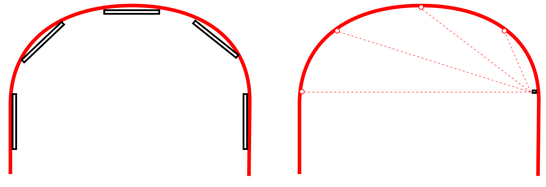
Surveyed: PS DH
Drawn: PS
Date: October 2016
Checked: NAD
File name: 1468R-Undercroft-2D
Revision No.:
Sheet size: A1
Drawing No: **SSL:1468R:1:1:3DW**

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APPROXIMATE
EXTENT OF BRIDGE
REMOVAL WORKS

APPROXIMATE
LOCATION OF PHASE
1/2 BOUNDARY



REPRESENTATION OF TILTMETER ARRAY

REPRESENTATION OF LASER ARRAY

RENAISSANCE MARK-UP
18/06/25

LOCATIONS OF ARCH MOVEMENT MONITORING FOR BLOCK A - ARCHES

NOTES

1. TO BE INSTALLED PRIOR TO COMMENCEMENT OF ANY ENABLING WORKS.
2. FIRST MONITORING READING TO BE TAKEN PRIOR TO COMMENCEMENT OF ENABLING WORKS TO PROVIDE BASELINE.
3. FURTHER MONITORING READINGS TO THEN BE TAKEN IN REAL TIME FROM COMMENCEMENT OF ENABLING WORKS UP UNTIL FINAL COMPLETION OF THE SUBSTRUCTURE.

Building Survey Legend

Beam
Change In Ceiling Height
Change In Floor Surface
Dividing
Partition
Pipe
Wall
Window
Stairs/Ramps (direction denotes rise)
Roof Pitch (direction denotes fall)
Sloping Ceiling (direction denotes rise)
Registration Overlay
Level Above Datum

Height Prefix Descriptions
Arch Apex Height
Underside of Beam
Ceiling Height
Door Head Height
False Ceiling Height
Head Height
Height
Arch Springing Height
Sill Height
Top of Beam Height
Top of Wall Height

Level Prefix Descriptions
Arch Apex Level
Beam Level
Ceiling Level
Head of Door Level
Dust Level
Eaves Level
False Ceiling Level
Floor Level
Head Level
Arch Springing Level
Sill Level
Pipe Level
Ridge Level
Threshold Level
Top of Beam Level
Top of Wall Level

AB Air Brick
ACU Air Conditioning Unit
Cbd Cupboard
Elec Electrical Unit
G Gully
IC Inspection Cover
JB Junction Box
Rad Radiator
RWP Rain Water Pipe
SP Soil Pipe
VP Vent Pipe

NOTES

1. ALL PROPOSED MONITORING LOCATIONS TO BE APPROVED BY MAIN CONTRACTOR AND TEMPORARY WORKS COORDINATOR TO ENSURE ACCESS THROUGHOUT CONSTRUCTION PROGRAMME.
2. ADDITIONAL HORIZONTAL MOVEMENT MONITORING OF THE ARCHES WILL BE REQUIRED FOR THE TEMPORARY CASE. THE REQUIREMENTS FOR THESE, AS WELL AS ADDITIONAL MEASURES SUCH AS LOW LEVEL PROPPING SHOULD BE ADVISED ON BY THE TEMPORARY WORKS ENGINEER.

KEY

PROPOSED LOCATION OF TILTMETER ASSEMBLY FOR MONITORING OF THE VERTICAL AND HORIZONTAL MOVEMENT OF ARCH BARRELS DURING WORKS

PROPOSED LOCATION OF LASER ASSEMBLY FOR MONITORING OF THE VERTICAL AND HORIZONTAL MOVEMENT OF ARCH BARRELS DURING WORKS. LASERS TO MONITOR MOVEMENT AS INDICATED TO 4 POINTS ALONG EACH ARCH BARREL

PROPOSED LOCATION OF LASER MONITORING BEAMS

PROPOSED TARGET POINTS OF LASER MONITORING BEAMS

PROPOSED LOCATION OF LASER ASSEMBLY AT SPRINGING POINT

PROPOSED LOCATION OF TILTMETERS

Please note:

Any discrepancy found between an Ordnance Survey benchmark and an OSGB15 computed orthometric height is likely to be due to bench mark subsidence or uplift and, assuming precise GPS survey has been carefully carried out, the orthometric height given by OSGB15 should be considered correct in preference to archive benchmark heights. OSGB15 converts GPS ellipsoid heights to orthometric heights above mean sea level.

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Levels are related to **OSGB15**
Value **n/a**

Coordinates are related to **National Grid** (GPS)

Scale **N/A**

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Client Curtins

Title
3D Wireframe
Undercroft Survey
Manchester Central
Manchester

Surveyed PS DH | Drawn PS
Date October 2016 | Checked NAD
File name 1468R-Undercroft-2D | Revision No. | Sheet size A1
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APPROXIMATE
EXTENT OF BRIDGE
REMOVAL WORKS

APPROXIMATE
LOCATION OF PHASE
1/2 BOUNDARY



METROLINK BRIDGE -
MONITORING PROPOSED
LOCATIONS AT HEAD OF BRIDGE
PIERS

RENAISSANCE MARK-UP
06/06/25

LOCATIONS OF VIBRATION MONITORING FOR BLOCK A - ARCHES

NOTES

1. TO BE INSTALLED PRIOR TO COMMENCEMENT OF ANY ENABLING WORKS.
2. FIRST MONITORING READING TO BE TAKEN PRIOR TO COMMENCEMENT OF ENABLING WORKS TO PROVIDE BASELINE.
3. FURTHER MONITORING READINGS TO THEN BE TAKEN IN REAL TIME FROM COMMENCEMENT OF ENABLING WORKS UP UNTIL FINAL COMPLETION OF THE SUBSTRUCTURE.

Building Survey Legend

Beam
Change In Ceiling Height
Change In Floor Surface
Dwelling
Partition
Pipe
Wall
Window
Stairs/Ramps (direction denotes rise)
Roof Pitch (direction denotes fall)
Sloping Ceiling (direction denotes rise)
Registration Overlay
Level Above Datum

AB Air Brick
ACU Air Conditioning Unit
Cbd Cupboard
Elec Electrical Unit
G Gully
IC Inspection Cover
JB Junction Box
Rad Radiator
RWP Rain Water Pipe
SP Soil Pipe
VP Vent Pipe

Height Prefix Descriptions
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BH Underside of Beam
CH Ceiling Height
DH Door Head Height
FCH False Ceiling Height
HH Head Height
H Height
SpH Arch Springing Height
SH Sill Height
TBH Top of Beam Height
TWH Top of Wall Height

Level Prefix Descriptions
AL Arch Apex Level
BeL Beam Level
CeL Ceiling Level
DoL Head of Door Level
DuL Dust Level
EL Eaves Level
FCeL False Ceiling Level
FL Floor Level
HLev Head Level
SpL Arch Springing Level
SilLev Sill Level
PiL Pipe Level
RL Ridge Level
ThL Threshold Level
TBL Top of Beam Level
TWL Top of Wall Level

NOTES

1. ALL PROPOSED MONITORING LOCATIONS TO BE APPROVED BY MAIN CONTRACTOR AND TEMPORARY WORKS COORDINATOR TO ENSURE ACCESS THROUGHOUT CONSTRUCTION PROGRAMME.
2. PROPOSED MONITORING OF THE MANCHESTER CENTRAL CONVENTION COMPLEX (MCCC) VIADUCT TO BE CONFIRMED BY MCCC.
3. PROPOSED MONITORING OF METROLINK BRIDGE TBC BY TRANSPORT FOR GREATER MANCHESTER (TfGM)

KEY

PROPOSED LOCATION OF VIBRATION SENSOR FOR MONITORING OF THE VIBRATION OF EXISTING STRUCTURES DURING WORKS

Please note:

Any discrepancy found between an Ordnance Survey benchmark and an OSGB15 computed orthometric height is likely to be due to bench-mark subsidence or uplift and, assuming precise GPS survey has been carefully carried out, the orthometric height given by OSGB15 should be considered correct in preference to archive benchmark heights. OSGB15 converts GPS ellipsoid heights to orthometric heights above mean sea level.

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Client Curtins

Title
3D Wireframe
Undercroft Survey
Manchester Central
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Surveyed PS DH Drawn PS
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