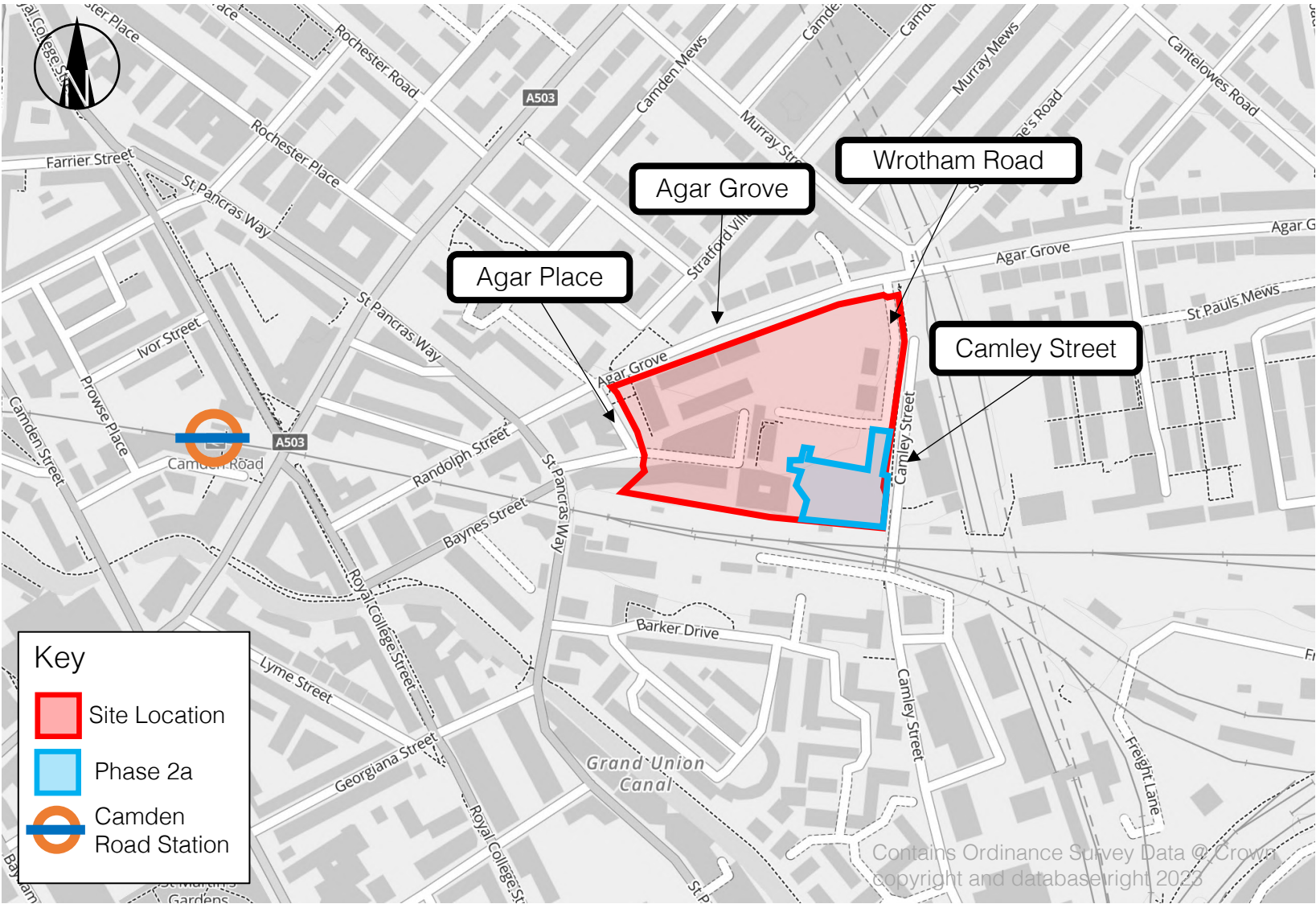





APPENDICES

APPENDIX A

Site Plans



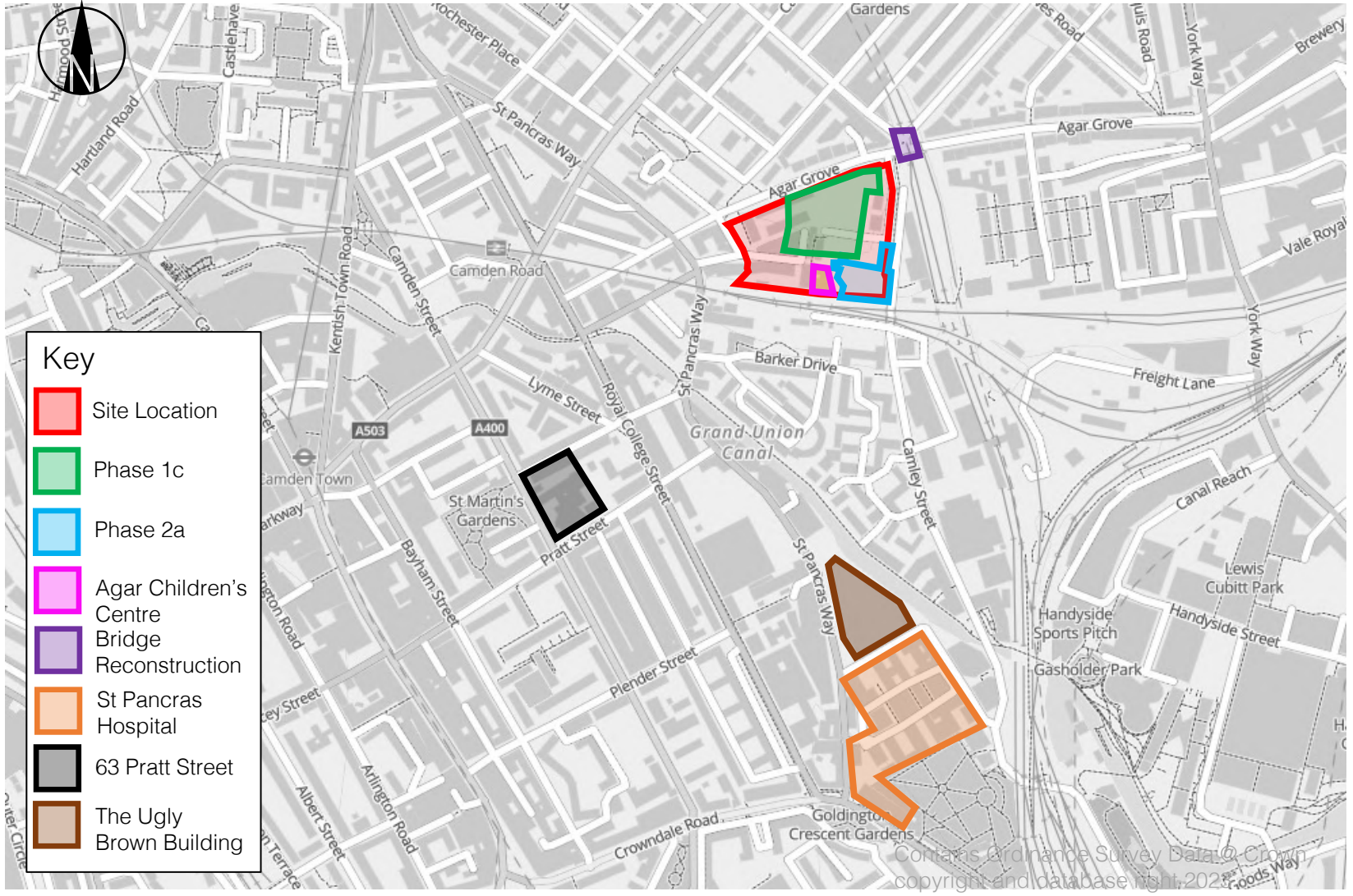
Key

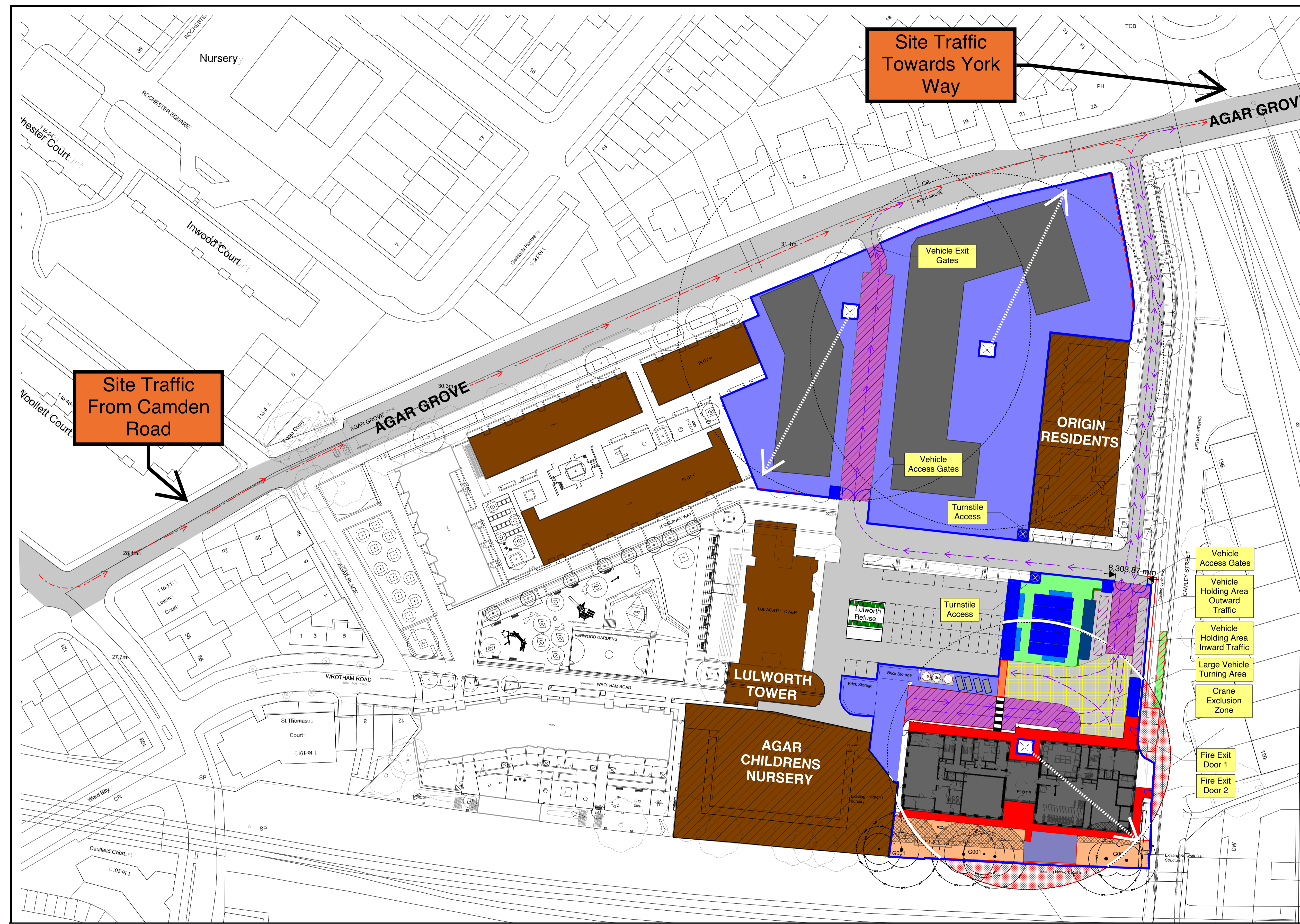
-  Site Location
-  Phase 2a
-  Camden Road Station



Key

- Site Location
- Phase 1c
- Phase 2a
- Agar Children's Centre
- Bridge Reconstruction
- St Pancras Hospital
- 63 Pratt Street
- The Ugly Brown Building





Notes:

- Site compound located on welfare of existing Agar 1C project compound area.
- All site access from Agar Grove (red arrows).
- Hoarding extended up to kerb line around site (blue line).
- Tree protection to existing trees along south elevation.
- Suspended parking required on Grafton Terrace to allow vehicle unloading.
- Unloading bay to be located off site. Deliveries will come into site compound area, turn and unload from unloading bays on new access road.
- All scaffolding 2m wide surrounding the building.
- Over sailing rights required on the South elevation for the crane.
- 1 x Luffer Tower Crane required.
- Luffer Crane with min 65m Mast, 40m Jib, 13m OOS, 4.3m not in use.
- Material storage will be located within the site compound area and roof tops until covering is required.
- Sub-contractors parking is restricted. Sub-contractors to have a travel strategy in place. Scheduled Deliveries required.

DRAWN BY: Danny Man

Project
Agar 2A

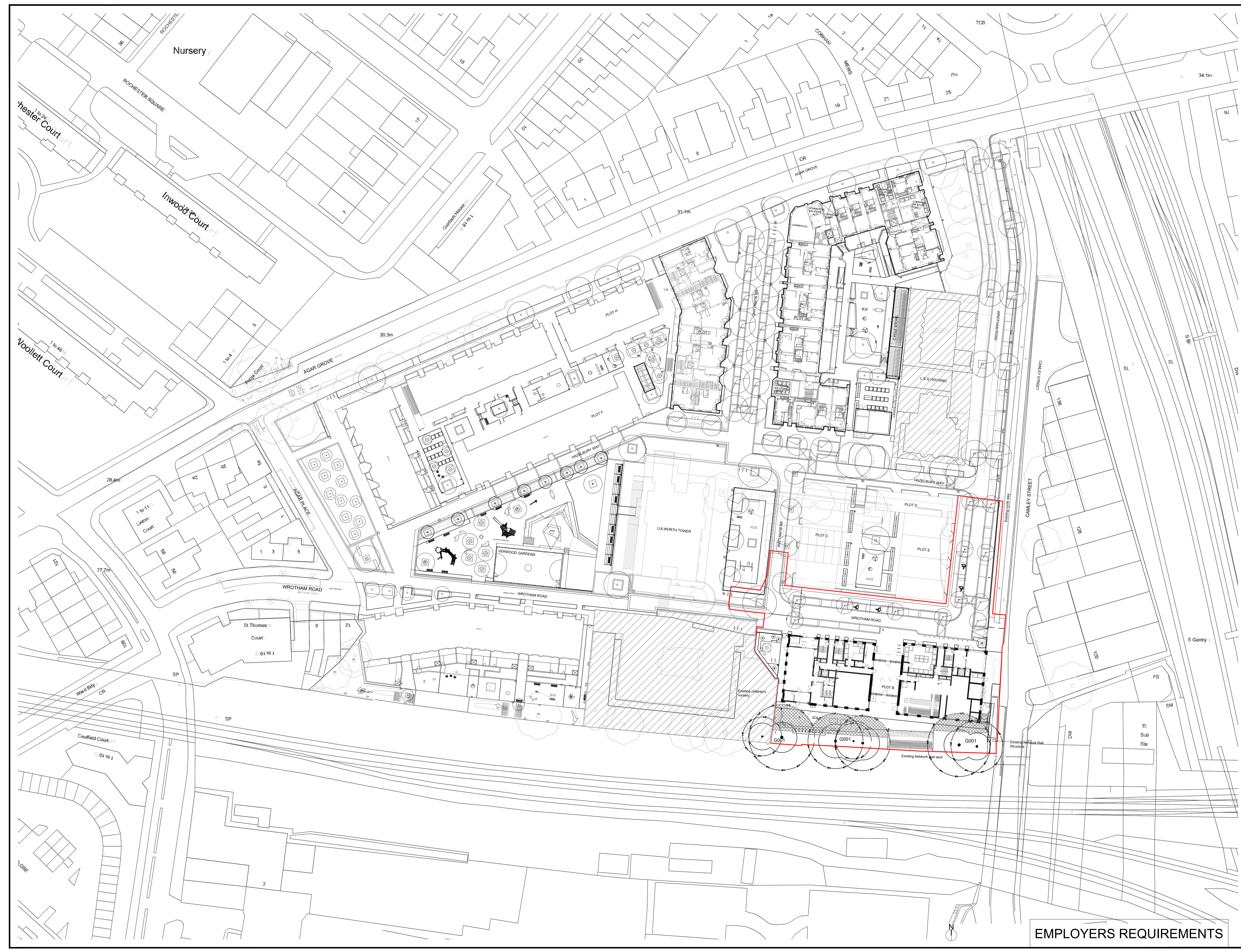
Logistic Plan

Including Phase 1C

REV: 2 **24/10/23**

APPENDIX B

Layout Plans



- GENERAL NOTES:
1. All dimensions and levels to be checked and verified on site before commencing any work or producing shop drawings
 2. This drawing is to be read in conjunction with all other relevant drawings, specifications and schedules.
 3. Any discrepancy concerning the drawings should be referred to the originator / CA immediately
 4. All dimensions in millimetres unless noted otherwise
 5. All levels in metres
 6. Existing service alignments to be checked on site by the contractor on site by the contractor prior to construction work commencing
 7. The content of this drawing is to be read in conjunction with the latest project CDM risk register

| Rev. | Date | Description | Drawn | CHK |
|------|------------|-------------------------------|-------|-----|
| 11 | 07.10.2022 | EMPLOYER'S REQUIREMENTS | JW | CH |
| 10 | 01.09.2022 | EMPLOYER'S REQUIREMENTS | JW | CH |
| 09 | 25.07.2022 | EMPLOYER'S REQUIREMENTS DRAFT | JW | CH |
| 08 | 27.05.2022 | FOR INFORMATION | AP | CH |
| 07 | 25.05.2022 | FOR INFORMATION | AP | CH |
| 06 | 12.05.2022 | DRAFT FOR INFORMATION | AP | CH |
| 05 | 05.05.2022 | DRAFT FOR INFORMATION | AP | CH |
| 04 | 14.04.2022 | DRAFT FOR INFORMATION | AP | CH |
| 03 | 31.03.2022 | DRAFT FOR INFORMATION | AP | CH |
| 02 | 07.03.2022 | DRAFT FOR INFORMATION | JK | CH |
| 01 | 23.02.2022 | DRAFT FOR INFORMATION | JK | CH |
| 00 | 27.01.2022 | DRAFT FOR INFORMATION | CH | PCT |

grant associates
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 22 Milk Street, Bath BA1 1UT
 T: +44 (0) 1225 332664, F: +44 (0) 1225 420803
 E: info@grant-associates.uk.com

CLIENT
LB CAMDEN

PROJECT
AGAR GROVE REGENERATION PHASE 2A

TITLE
SITE WIDE MASTERPLAN

| Scale: | Date: | Drawn: | Checked: | Approved: |
|-----------------|--------------------------------|--------|----------|-----------|
| 1:500@ A1 | 07.04.22 | AP | CH | PC |
| Status: | EMPLOYER'S REQUIREMENTS | | | |
| Drawing Number: | AGC377-GRA-2A-DR-L-1001 | | | Rev: |
| | | | | 11 |

EMPLOYERS REQUIREMENTS

NOTES

Areas key

- Bikes
- Bins
- Caretaker's store
- Cleaners store
- Commercial bin store
- Concierge Office and Store
- D1 Community
- Flexible Workspace
- Plant
- Residential Reception Lobby

| Rev | Description | Date |
|-----|------------------------|----------|
| P6 | 100% Issue | 07/10/22 |
| P5 | 85% Issue | 02/09/22 |
| P4 | Issued for Fire markup | 30/08/22 |
| P3 | 50% Issue | 01/08/22 |
| P2 | Community Arch Updates | 01/07/22 |
| P1 | May 22 Section 73 Rev | 31/05/22 |

159 St John Street
 London EC1V 4JQ
 mail@hawkinsbrown.com
 hawkinsbrown.com



Project
 Agar Grove - Block B

Drawing
 Level 00 General Arrangement Plan

Scale @ A1
 1 : 100

Date
 07/26/22

Drawn By
 RB

Checked By
 JC

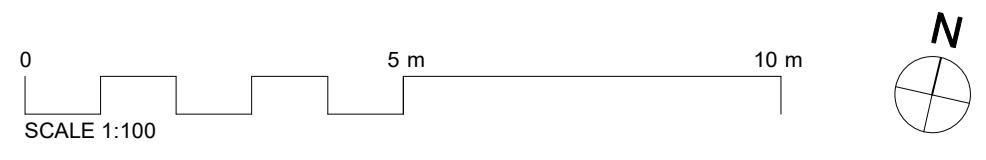
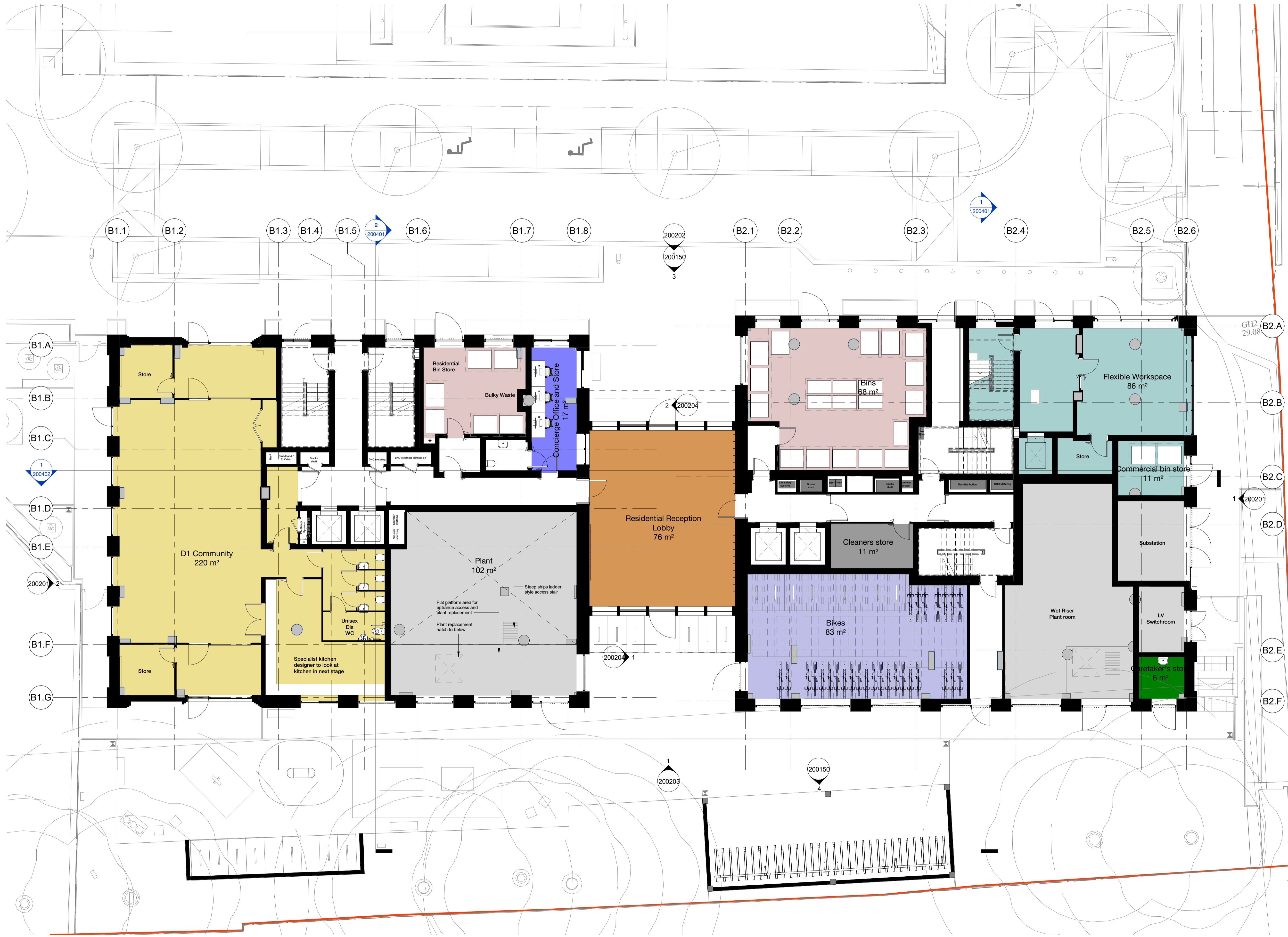
Job Number
 1423D

Status
 S2

Purpose of Issue
 For Tender

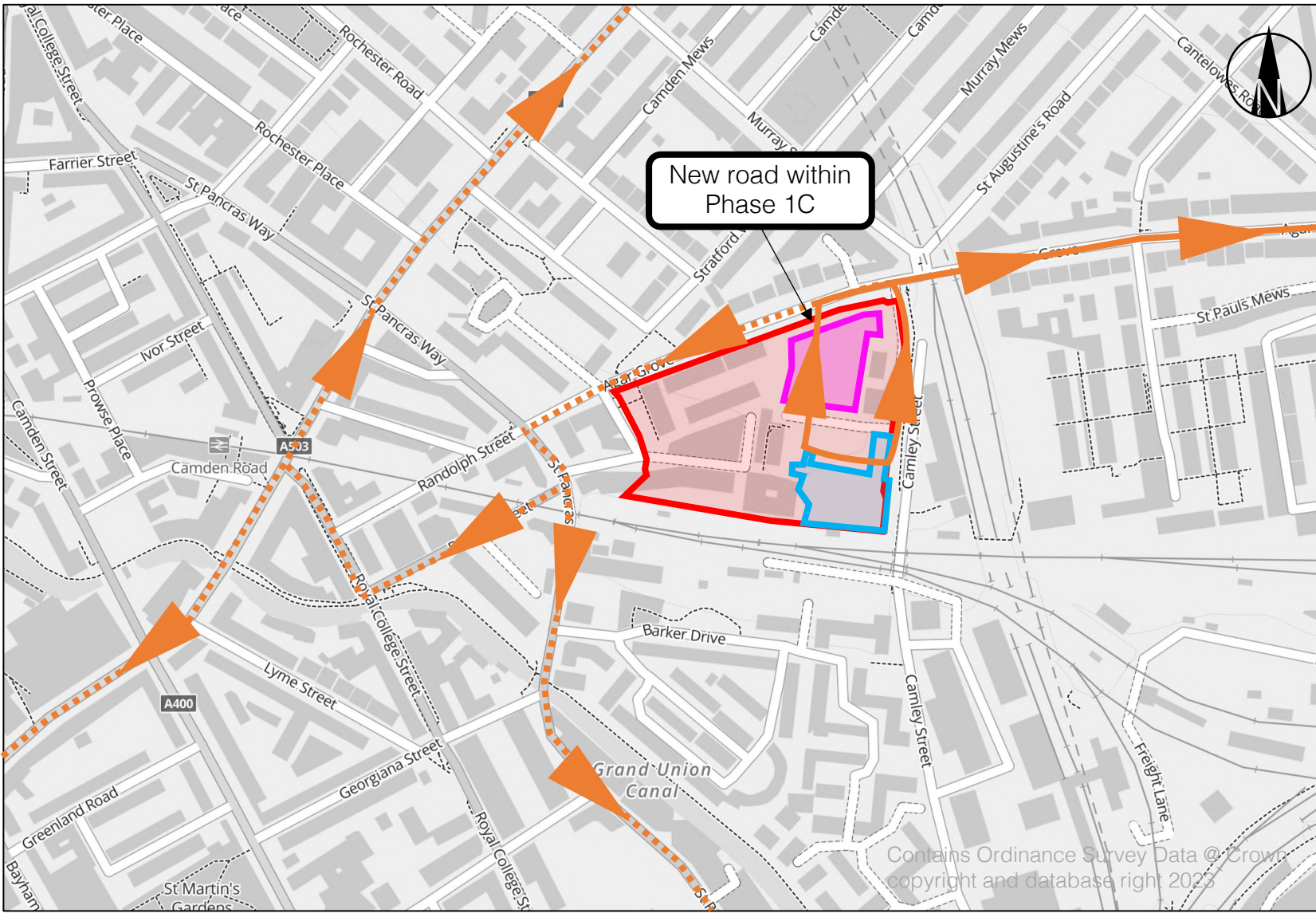
Drawing No.
 AGV-HBA-B-00-M3-A-200100

Rev
 P6



APPENDIX C

Routing Plans



New road within Phase 1C

Key






-  Site Location
-  Phase 2a
-  Phase 1c
-  Egress Route
-  Modified Egress Route



Figure Title

Local Routing Plan - Egress

Project Title

Agar Grove Phase 4, Camden

Project Number

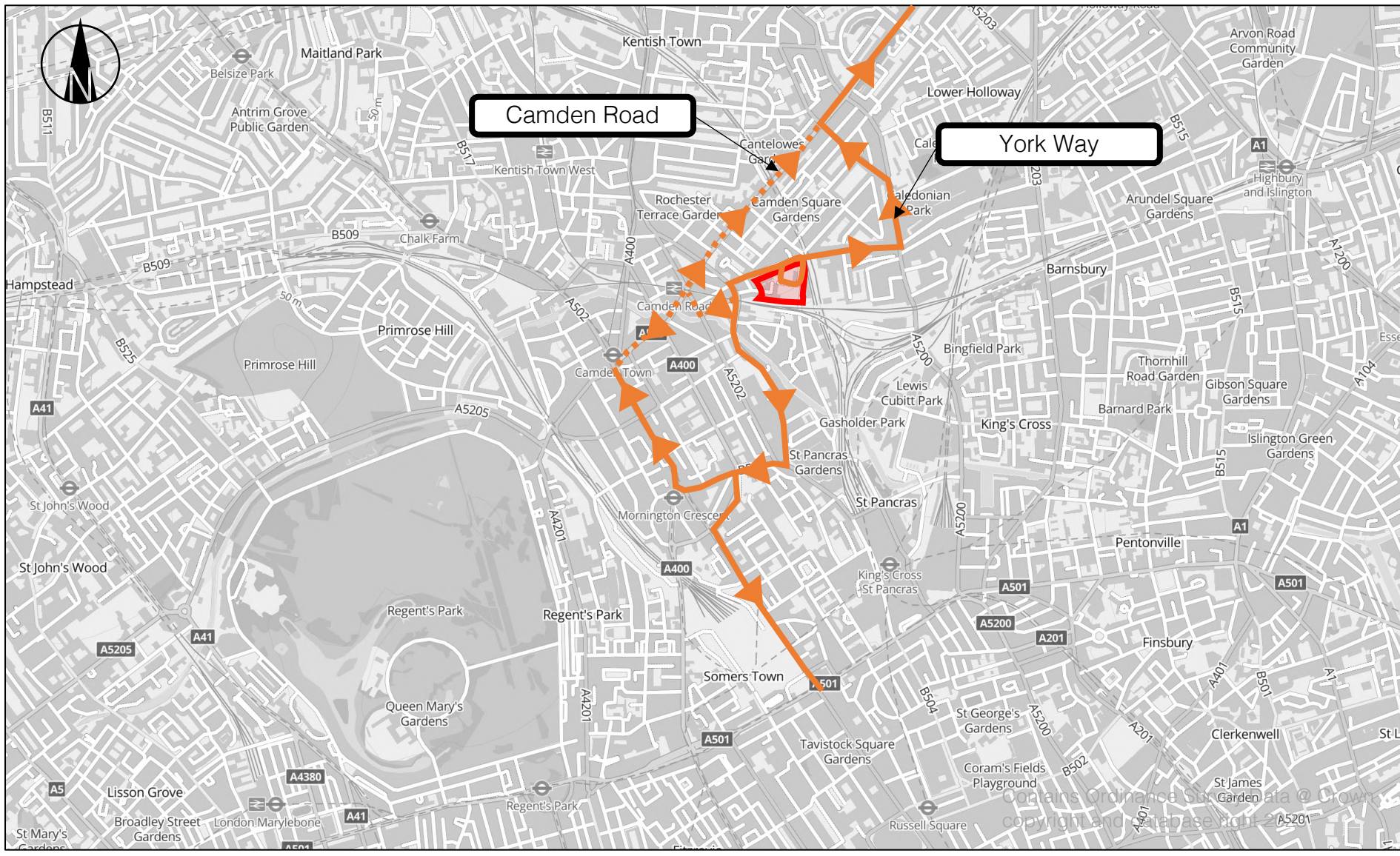
J327389

Client

Hill Group Ltd



transport planning






- Key**
-  Site Location
 -  Egress Route
 -  Modified Egress Route

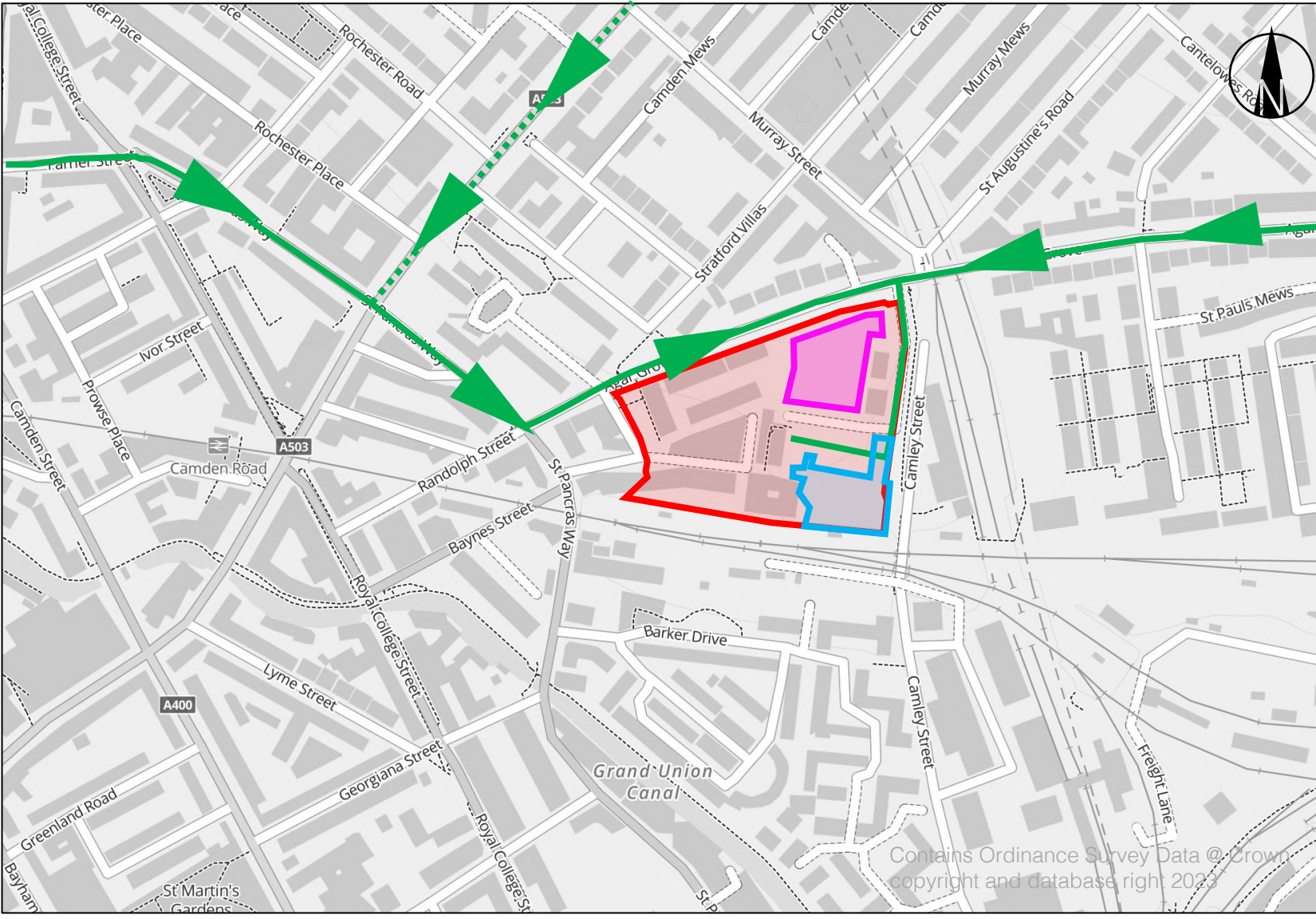
Figure Title
Regional Routing Plan - Egress

Project Title
Agar Grove Phase 4, Camden

Project Number
J327389

Client
Hill Group Ltd





- Key**
- Site Location
 - Phase 2a
 - Phase 1c
 - Access Route
 - Modified Access Route

Figure Title

Local Routing Plan - Access

Project Title

Agar Grove Phase 4, Camden

Project Number

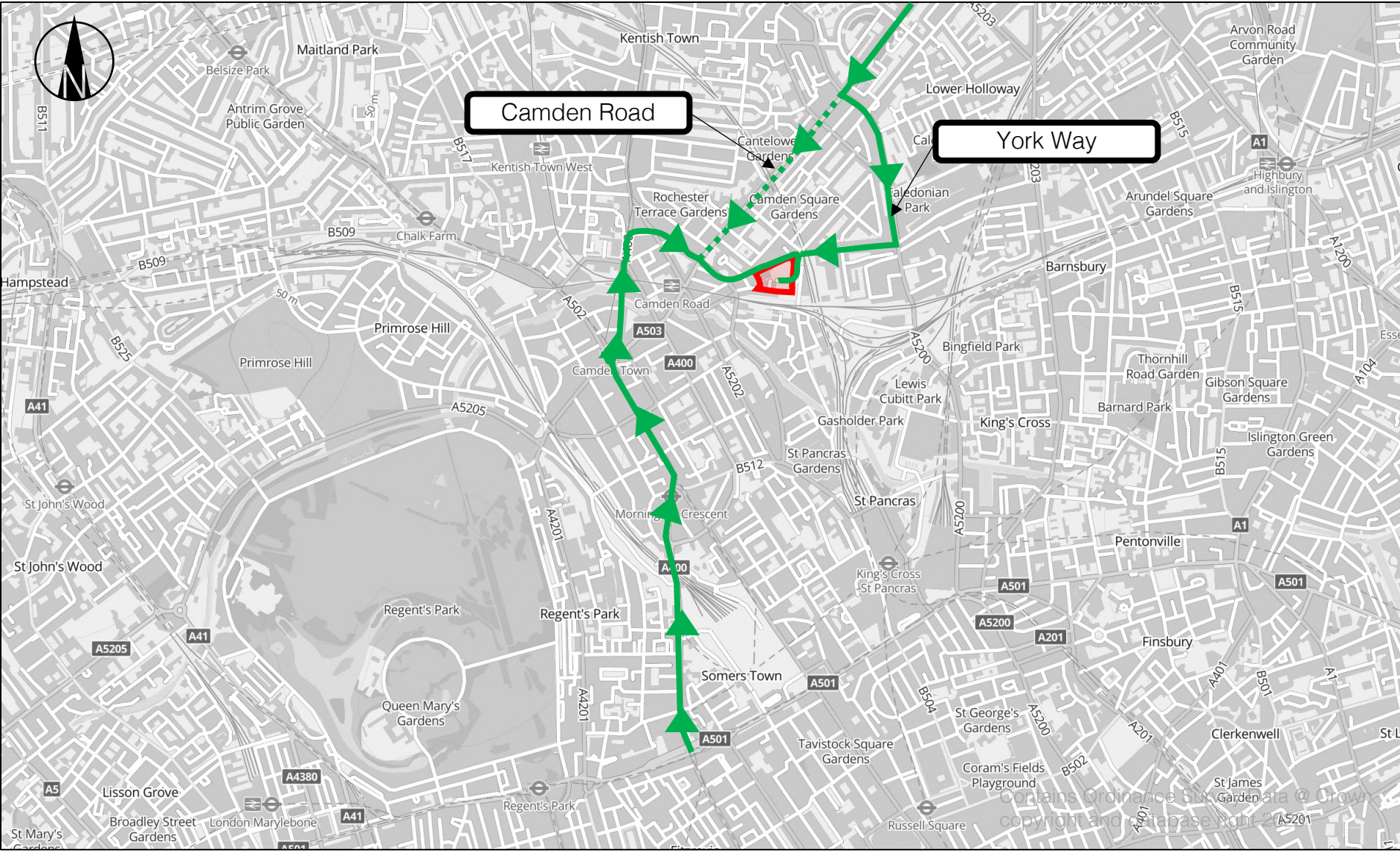
J327389

Client

Hill Group Ltd



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Key




-  Site Location
-  Access Route
-  Modified Access Route

Figure Title
Regional Routing Plan - Access

Project Title
Agar Grove Phase 4, Camden

Project Number
J327389

Client
Hill Group Ltd



APPENDIX D

Section 50 Application

Section 50 - Street Works Licence – Application Pack

New Road and Street Works Act 1991 – section 50

INDEX

This application pack includes:

Application Form & Indemnity

Please complete all parts of the application form and indemnity.

Application Guidelines

The application guidelines have been prepared to help you complete the application form and help you to understand the application process. The application guidelines cover the following:

- Part 1: Application Fees
- Part 2: Additional Charges
- Part 3: If you need to restrict traffic or close a road to carry out your operation
- Part 4: Works affecting the Strategic Route Network (SRN)
- Part 5: Working out of hours
- Part 6: Parking Suspensions
- Part 7: Bus Stop Suspensions
- Part 8: Cancelled applications
- Part 9: How to pay
- Part 10: Submitting your application
- Part 11: Useful Contacts

Terms and Conditions

These are the terms and conditions that you agree to abide by when you submit your application form and indemnity. The terms and conditions are split into 4 parts:

- Part 1: Before Works Commence
- Part 2: During Works
- Part 3: On Completion of Works
- Part 4: General Conditions

Section 50 - Street Works Licence

Application to undertake works under S50 of the NRSWA 1991.



Engineering Service
London Borough of Camden
Floor 4, 5 PS
Judd Street, London, WC1H 9JE
Tel 020 7974 5960
Email:
Section50applications@camden.gov.uk

The requirement to obtain a Street Works Licence applies in accordance with section 50 of the New Road and Street Works Act 1991 to any person or organisation (other than a Statutory Body) who wishes to place, retain and thereafter inspect, maintain, adjust, repair, alter or renew apparatus or change its position or remove it from the Highway. The term apparatus includes but is not limited to drains, cables, ducts, sewer pipes, water, gas and electricity pipes and supplies.

Street Works Licences on Red Routes are licenced by Transport for London (TfL). You will need to contact TfL Forward Planning at TMANotifications@tfl.gov.uk

Please complete this application in **BLOCK CAPITALS**

Part A: Your details

| | | | |
|-----------------|-------------------------------------------------------------------------------------|-----------------|-------------------|
| Company Name | SB Civil Engineering Ltd | | |
| Address | The Cartshed, Cammas Hall Farm, Needham Green, Hatfield Broad Oak, Needham Green | | Postcode CM21 9QD |
| Company Contact | Lia Chapman | | |
| Contact No. | 01279 276030 | Out of hours No | |
| Email | LiaC@sbcivils.co.uk | | |

Part B: What works will you be carrying out?

Description of works to be carried out: Sewer Diversion

Grid Ref: TQ 29659 84166

| | | | |
|---------------------|----------------------|-------------|-------------|
| Excavation details: | Carriageway Length: | Width: | Depth: |
| | Footway Length: 6.0m | Width: 1.2m | Depth: 2.9m |

Part C: Where will you be working and what roads will be affected?

Road name: Camley Street

Nearest property (name or number): Opposite 120

Postcode: N1C 4PG

Part D: When would you like to carry out these works?

Indicate the dates that you would like to undertake these works. **Note: Applications received that state "ASAP" or "To be confirmed" will not be progressed.**

From: 11/03/2024

To: 19/04/2024

Part E: Who is, or will be the Owner(s) of the Apparatus?

Please complete:

Owners Name(s)

Thames Water

Owners Address

Contact Number(s)

Daytime:

Email:

Part F: Payment

The costs for a licence and how to pay are detailed in part 1 of the guidelines.

Part G: What happens next

Details of how to submit your application are given in part 10 of the guidelines.

You will need to submit supporting documentation with your application. As stated in Part H. It is important that these are submitted with your application form. Refer to part 9 of the guidelines.

Once we have received your completed application, supporting documentation and payment we will begin to process your application. Please note that failure to provide any of the supporting documents will lead to delays in the processing of your application.

For some applications we may also need to liaise with London Buses, Transport for London and/or a neighbouring borough(s). This may affect the time taken to process your application. Refer to parts 1 and 4 of the guidelines.

Part H: Supporting documents/references

1. Parts A to F must be completed by the applicant for authorisation to place and retain apparatus in the Highway, this includes alteration or repair of a connection to a property which is the subject of redevelopment, and this must be submitted to the London Borough of Camden with:
 - a. 2 copies of A4 1:1250 scale plan of the proposed location of the relevant apparatus marked by a red broken line.
 - b. Proof of Public Liability Insurance. This must provide a minimum £10m cover and be maintained by commencement of the works on the Highway, up to the completion and acceptance by the London Borough of Camden of the permanent reinstatement.
 - c. Completed Declaration Form (Statutory Undertakers Declaration/Requirements), or evidence that they have been contacted and have no objections.
 - d. Evidence that owners of the land through which service runs have no objections.
 - e. Copies of New Road and Street Works Act accreditation for supervisors and operatives who will work on site.
 - f. Payment of relevant fees **see part 1 of the Application Guidelines**

2. Traffic Management Plans

You will need to submit a traffic management plan with your application. Your plan will need to include:

- a. How you intend to maintain traffic flow, both vehicular and pedestrian. eg 'temporary traffic signals' or 'stop/go' boards
- b. The extent of changes to any restrictions in place, e.g. parking

Part I: Agreement and Indemnity

- 1 The person or organisation granted a Street Works Licence (hereinafter referred to as “ the Licence”) becomes an Undertaker for the purposes of the New Roads and Street Works Act 1991, and is subject to the relevant duties and responsibilities imposed by the Act and associated Secondary Legislation and Codes of Practice.
- 2 Financial charges will be imposed by the London Borough of Camden on the Licence holder for non-compliance with the relevant statutory duties or Licence conditions. Applicants should note that this liability cannot be delegated to any other person or organisation.
- 3 The London Borough of Camden, who are the Street Authority for the Highway (hereinafter called “ the Highway”) hereby grants to the party named in Part A (hereinafter called “the Licensee”) with the intent that the same shall benefit and run with the property described Part C a Licence under Section 50 of the New Roads and Street Works Act 1991 to place and leave in the Highway in the position shown by a red broken line on the plan attached hereto the apparatus (hereinafter referred to as “the Apparatus”) short particulars of which are set out in Part B and to maintain repair and reinstate the Apparatus and break open and have access to the Highway for those purposes upon the terms and subject to the conditions hereinafter specified and subject also to the relevant conditions and provisions contained in Schedule 3 of the said Act and the Licensee hereby accepts the Licence upon and subject to the said terms conditions and provisions.
- 4 The Licence is granted to the Licensee and his Successors in Title. Where he proposes to part with his interest in the Apparatus he shall before doing so, give 6 week’s written notice to the London Borough of Camden stating to whom the benefit of the Licence is to be transferred.
- 5 The Licensee shall :
 - a) Conduct all the relevant works in accordance with the requirements of the New Roads and Street Works Act 1991, and its associated Secondary Legislation and Codes of practice.
 - b) Pay particular regard to compliance with the Code of Practice for “Safety at Street Works and Road Works”
 - c) **Indemnify the London Borough of Camden against all liabilities costs expenses damage and losses suffered or incurred by them arising out of or in connection with:**
 - i) The placing or presence in the street of apparatus to which the Licence relates, or
 - ii) The execution by any person of any works authorised by the Licensee
 - iii) The execution of any works described in Part B
6. The Licensee shall pay to the London Borough of Camden in connection with the granting of the Licence all such fees as described in Part 1 of the Application Guidelines. In addition:
 - a) Works in excess of 200 metres length will be subject to additional inspection fees.
 - b) The cost of any investigation or remedial works carried out by the London Borough of Camden, or defect inspections with respect to the excavation and reinstatement of the Highway will be invoiced to the licensee
7. The Licence shall remain in force until withdrawn by the London Borough of Camden (under Schedule 3 of the New Roads and Street Works Act 1991) or surrendered to the London Borough of Camden by the Licensee.
8. The London Borough of Camden may terminate/ this Licence at any time by service on the Licensee of a written Notice:
 - a) On the expiration of such period specified in the Notice, (not less than 7 working days, beginning with the date of service of the Notice), if any condition of this Licence is contravened by the Licensee, or if the London Borough of Camden becomes aware that the Licensee intends to cease using or abandon the Apparatus, or
 - b) The Licensee has or intends to part with the Apparatus, in circumstances which are prohibited under the Licence, or

- c) Withdrawal of the Licence is deemed necessary in accordance with the functions of the London Borough of Camden or
- d) The Licensee has made a false declaration by not obtaining any consent or licence required under any other enactment, e.g., Telecommunications Licence.

NB: Under sub paragraph c) a minimum of 3 months' notice will be given by the London Borough of Camden.

- 9. When a Licence has expired or is withdrawn or surrendered, the London Borough of Camden may:
 - a) Remove the Apparatus (the subject of the Licence) or alter it in order to reinstate the street. Expenses incurred may be recovered from the former Licensee.
 - b) Require the former Licensee to reinstate the street (by removal or alteration of Apparatus), at their own expense, within a specified time. Please note that a further Licence is required for such works.
- 10. Any Licence issued under this procedure does not give the applicant the right to make any connections to sewers, drains, pipes, cables, or other apparatus.
- 11. The Licence does not give the Licensee the right to use the land. The Licensee must make his own arrangements with the landowners, in cases where their consent is needed.
- 12. In the event of failure to comply with all requirements in this Licence, the Licensee will not be able to carry out any works until the London Borough of Camden are satisfied that all requirements are met. We confirm that the details given in Parts A to G above are correct.

STATEMENT

I confirm on behalf of the company named in Part A that I have read and understood the agreement and indemnity in paragraph 5 and that they will abide by these and any decision made by the London Borough of Camden with regard to the suitability, or timing, of the proposed works.

Name:

Lia Chapman

Signature:

L Chapman

Position in company:

Senior Contracts Administrator

Date:

11/01/2024

Privacy Statement and Data Protection

As a Local Authority and Data Controller, London Borough of Camden collects holds and processes a considerable amount of information, including personal information about residents, people it provides services to, and other people. It does this to provide its services in the most effective and efficient way that it can

The Council recognizes that it has a duty to people whose information it holds to treat that information responsibly, keep it safe and secure, and process it correctly and proportionately. This privacy notice explains how we use any personal information we collect about you

If you would like general information about Data Protection, the law and good practice please see the Information Commissioner's website. The Information Commissioner is the Data Protection statutory governing body for England and Wales.

Who is the data Protection Officer?

The name and contact details of the Data Protection Officer:

London Borough of Camden
Judd Street
London
WC1H 9JE

0207 974 4444

The Council's Data Protection Officer is Andrew Maughan who is the council's Borough Solicitor. He can be contacted at: dpo@camden.gov.uk

What information do we collect about you and for what purpose?

We may collect personal or company data about you, which covers basic details such as name, address, telephone number, postcode and email address. We will always explain to you why and how this information will be used.

We process personal or company information to enable us to provide a range of services within the Streetworks Team, which are governed by government legislation.

We will process personal or Company data for the following purposes:

For the purpose to which you provided the information. (e.g. processing information for the purpose of processing your application forms), and to monitor the Council's performance in responding to your request

To allow the Council to be able to communicate and provide services appropriate to your needs,

Where necessary for the Council's Law Enforcement functions, e.g. licensing, planning enforcement, trading standards, food safety, etc. where the Council is legally obliged to undertake such processing

Where you have consented to the processing or for the purpose of a contract/application you have entered into with us

Where otherwise permitted under data protection legislation e.g. disclosure to comply with legal obligations.

Departments in Camden that have personal and sensitive information on you will only allow designated officers to access or process this information. If an external agency asks us to provide any information that is sensitive and personal to you we will only disclose it once we have your specific consent to do so or where we are legally required or legally able to do so.

Camden Council may also use your personal or company data, after it has been anonymized, to allow the statistical analysis of data to allow the Council to effectively target and plan the provision of services

The legal basis of processing:

It is necessary for the performance of a contract or application form

It is necessary for the compliance of Government legislation

When do we share your personal data with third parties?

The Council may disclose personal or company data to third parties, but only where:

It is necessary to comply with a legal obligation, or

Where permitted under data protection legislation, e.g. where the disclosure is necessary for the purposes of the prevention and/or detection of crime; or

Where it is necessary to allow a third party working for or on behalf of the Council and/or to provide services to you. The information you provide us may be shared with other Local Authorities, the Department of Work and Pensions (DWP), HMRC and the Home Office. There will be times that the information will be disclosed to our partner organisations that provide services on behalf of Camden. Once your details are no longer required, they will be deleted securely. The Council will take all reasonable steps to make sure personal data we hold is kept safe. Were your information is disclosed to a third party, the Council will seek to ensure they have sufficient systems and procedures in place to keep your data safe and prevent its loss.

If you choose to complete any of our online forms, Camden Council will not use the personal information you give us for marketing purposes without first gaining your consent. We may pass your details on to third party service providers who are contracted to Camden Council in the course of dealing with your request E.g a homecare agency. These third parties are obliged to keep your details secure, will use them only to fulfil the request and will dispose of the information at the appropriate time

No personal information you have given us will be passed on to third parties for commercial purposes

Our policy is that all information will be shared among officers and other agencies where the legal framework allows it, if this will help to improve the service you receive and to develop other services.

How long do we keep your personal data?

We keep your personal or company data for no longer than reasonably necessary and in line with our corporate data retention schedule

Security of your information

In deciding what personal data to collect hold and use, the Council is committed to ensuring that it will:

Recognize that any personal data handled by Camden is held on behalf of that person and that we ensure we respect that responsibility

Adopt and maintain high standards in respect of the handling and use of that personal and company data

Only collect, hold and use personal data where it is necessary and proportionate to do so

Securely delete any personal data when no longer needed

Keep your personal data secure and safe

Not unnecessarily and without good reason, infringe the privacy of those upon behalf we hold data

Consider and address the privacy risks first when planning to use or hold personal information in new ways, such as when introducing new systems

Be open and transparent with individuals about how we use their information and who we give it to

Make it easy for individuals to access and correct their personal information (see your rights)

Provide training to staff who handle personal information and treat it as a disciplinary matter if they misuse or do not look after personal and company information properly

Have a robust data breach reporting procedure that effectively manages the risks and includes actions to minimize a similar breach occurring again.

Transfer of data abroad

We will not transfer your personal information outside the EU.

Your Rights

Unless subject to an exemption under data protection legislation you have the following rights with respect to your personal data:

The right to request a copy of your personal data, which the Council holds about you

The right to request that the Council correct any personal data if it is found to be inaccurate or out of date

The right to request your personal data is erased where it is no longer necessary for the Council to retain such data

The right to withdraw your consent to the processing at any time, but only if we have relied on your consent to process your data when you supplied it to us

The right, in certain circumstances, to request that the Council provide you with your personal data and where possible, to transmit that data directly to another data controller, (known as the right to data portability). [Note: this only applies where the processing is based on consent or is necessary for the performance of a contract with you and in either case the Council processes the data by automated means]

The right, where there is a dispute in relation to the accuracy or processing of your personal data, to request a restriction is placed on further processing

The right, in certain circumstances, to object to the processing of personal data. [Note: this only applies where processing is based on legitimate interests (or the performance of a task in the public interest/exercise of official authority)

The right to lodge a complaint with the Information Commissioners Office. Website: www.ico.org.uk

I consent to the collection, use and disclosure of my personal or company information in accordance with the Privacy Statement above.

Name (Please print) _____ Signature _____ Date _____

Application Guidelines

Street Works Licences on Red Routes are licenced by Transport for London (TfL). You will need to contact TfL Forward Planning at TMANotifications@tfl.gov.uk.

Each application must be accompanied by payment comprising of an administration fee, inspection fees and in some cases a Capitalised Licence fee.

Part 1 will help you to calculate the fees you will need to pay when submitting your application.

Part 2 sets out what further charges you may need to pay during the life of your licence.

Part 1: Application Fees

Capitalised Licence Fee

Some applications may be subject to one of the following Capitalised Licence Fees

| | |
|---------------|-------------------|
| Cable | £13,636.35 |
| New Apparatus | £681.45 |

Administration Fee

All applications will be subject to one of the following Admin Fees

| Licence Category | Criteria | Fee |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Major | <ul style="list-style-type: none">The work site area will be more than 20m² and/orThe excavation depth is greater than 1.5m and/orThe works will take longer than 10 days and/orThe works will be taking place on a high category road (see appendix A) | £1363.95 |
| Standard | <ul style="list-style-type: none">A footway or carriageway closure is required and/orThe work site area will be more than 10m² and/orThe works/work site will encroach onto the carriageway and/orThe works will take longer than 4 days | £626.85 |
| Minor | <ul style="list-style-type: none">All other licences | £409.50 |

Inspection Fees

The works must comply to the NRSWA 1991, Specification for the reinstatement of openings in the highway and all other relevant CoP and will be inspected to ensure that they comply. All associated fees as set out in the CoP for inspections will apply.

| | |
|-------------------------------------------------------------------------------------------------------------------|-------------|
| All applications will be subject to an initial fee to cover the inspections. (details of inspections shown below) | £204 |
|-------------------------------------------------------------------------------------------------------------------|-------------|

Inspections will be undertaken throughout the duration of the works as follows:

1. Condition Inspection

- a. all sites will be inspected prior to works commencing to record the current condition of the highway

2. Sample Inspection Regime

Inspections will be carried out at different phases of your works as follows:

- b. During works (Sample Inspection Regime, Sample A) (£50)
- c. After reinstatement (Sample Inspection Regime, Sample B) (£50)
- d. Before the guarantee period ends. (Sample Inspection Regime, Sample C) (£50)

Part 2: Additional Charges

Defects Inspection Regime

In order to protect the integrity of the highway the London Borough of Camden will undertake inspections of the reinstated highway (as per NRSWA Section 72). If your completed reinstatement does not meet the specification as detailed in the current SROH the defect inspection regime will commence until a compliant reinstatement is completed

All defect inspections are charged at **£47.50** per inspection.

Extending your Licence

The cost to extend your licence is **£152.25** per extension requested.

You can request an extension of your licence by emailing section50applications@camden.gov.uk.

It is your responsibility to ensure that your licence is extended when needed so as to avoid additional cost such as inspection fees.

- **The costs of any site visits made to your site as a result of expired licences may incur additional inspection charges**

Part 3: Restricting traffic and/closing roads

Under the Road Traffic Regulations Act 1984 the Local Authority, if satisfied, may issue an order to restrict, regulate, or prohibit traffic from any road if this is required to facilitate your operation.

An additional application form is available for you to complete if you need to restrict or prohibit traffic to facilitate your works. This form can be found at **[camden.gov.uk/traffic](https://www.camden.gov.uk/traffic)**

Part 4: Works affecting the Strategic Route Network (SRN)

If your works are on, or will significantly impact, any of the SRN roads in Camden we will need to consult Transport for London.

Transport for London can object to the dates that you have applied for if they consider that traffic will be significantly impacted. If we receive an objection from TfL we will work with them, on your behalf, to find alternative dates for you to carry out your operation.

Roads that make up the SRN in Camden are highlighted in Appendix A.

Part 5: Working out of hours

Standard working hours are:

8am to 6pm Monday to Friday
9am to 1pm on Saturday

If you wish to work beyond these hours you will need to get permission separately from the Environmental Health team online:

www.camden.gov.uk/noisy-building-works

Works must not commence without this permission being in place.

Part 6: Parking Suspensions

You will need to apply and pay separately to suspend parking bays if you wish to occupy a designated parking bay(s). The minimum notice period required to suspend a parking space is 14 calendar days advanced warning period, plus 3 working days processing time therefore you will need to allow at least **17 working days'** notice. **Apply online at:** www.camden.gov.uk/parking-bay-suspensions

A suspension number will be issued to you which you will need to supply to the Streetworks Authorisations and Compliance Team before your works commence. Failure to do so may impact your application. **Email your suspension number to:** section50applications@camden.gov.uk

Part 7: Bus Stop Suspensions

You will need to contact TfL Bus Operations, central.rsm@tfl.gov.uk if you wish to suspend a bus stop/stand.

Part 8: Cancelled Applications

Application, Inspection and Administration fees for Street Works Licences are non-refundable

Part 9: How to pay

You must submit payment with this application. You can pay by card (telephone payment via the office)

Part 10: Submitting your application

Send your completed application with any necessary supporting documentation by email:

section50applications@camden.gov.uk

Part 11: Useful Contacts

Streetworks Authorisations and Compliance Team
(Section 50 Licences)
020 7974 5960
section50applications@camden.gov.uk

Environmental Health
Out of hours working permissions
020 7974 4444

www.camden.gov.uk/noisy-building-works

Parking Suspensions (Contact Camden)
Applications: 020 7974 4444
On completion of works: 020 7974 5800
www.camden.gov.uk/parking-bay-suspensions

TfL Bus Operations
central.rsm@tfl.gov.uk

Terms and Conditions

Part 1: Before Works Commence

- 1.1. Site meeting may be required by the Streetworks Authorisations and Compliance Team prior to the commencement of any works.
- 1.2. Your application will be taken to be your advance permit application and we will use the start date given for coordination purposes
- 1.3. All utilities that may have apparatus in the street must be consulted prior to commencement of your works. A copy of contact details can be obtained by contacting the Streetworks Authorisations and Compliance Team on 020 7974 5960. Proof of any correspondence in regards to this must be submitted with your application.
- 1.4. Parking suspensions must be put in place where necessary and the suspension number provided to the Streetworks Authorisations and Compliance Team.
- 1.5. Permission must be sought in order to work outside of normal working hours 8am to 6pm Monday to Friday and 9am to 1pm on Saturdays.
- 1.6. The suspension of any bus stops/stands must be sought from Transport for London
- 1.7. Traffic management, in accordance with Chapter 8, must be in place prior to any works commencing.
- 1.8. Failure to comply with points 1.1 to 1.4 may affect the timings of your works.

Part 2: During Works

- 2.1. Traffic management, in accordance with Chapter 8, must continue to be in place for the duration of the works.
- 2.2. The execution of all works must be supervised by a person with prescribed qualifications under the New Road and Street Works Act 1991
- 2.3. All materials used must comply with the Specification for Reinstatement of Openings in Highways (current edition).
- 2.4. All access chambers/apparatus must be clearly marked and identified.
- 2.5. If any aspect of the work, e.g. working hours, parking suspension need to change at any time you must contact the relevant Council department detailed in the application guidelines. Relevant permission must be in place before changes can be implemented.
- 2.6. A copy of your licence must be clearly display at all times.
- 2.7. Any changes to your licence (e.g. extensions) must be agreed in writing. A new licence will be issued. Please note that licences are not transferrable.

Part 3: On Completion of Works

- 3.1. You must inform us when the works are completed. You will need to contact us, in writing by the end of the next working day. Failure to do so will delay the implementing of the guarantee period.
- 3.2. If parking suspension were in place you **must** inform Parking Services that your works have finished by calling 020 7974 4444, so they can return the bay(s) back to use.
- 3.3. All associated traffic management must be removed from site in order to return the road and any diversionary routes back to normal use. You will be recharged the costs incurred by the Council if we have to attend site to remove any remaining traffic management.
- 3.4. The guarantee period will commence from the date that the London Borough of is notified

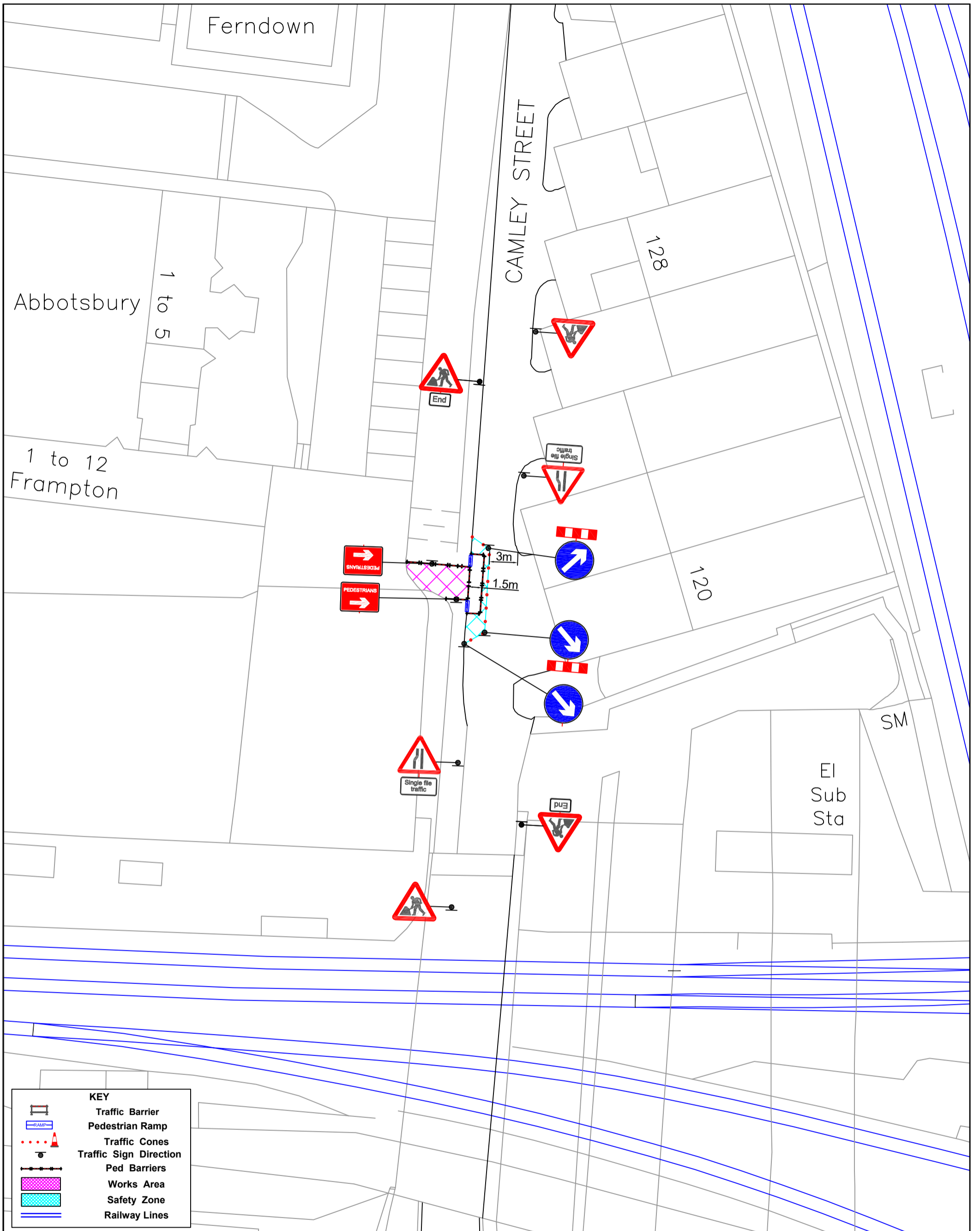
Part 4: General

- 4.1. While the Council will endeavour to meet the dates requested in your application, priority has to be given to the coordination of works; in some instances you may be directed to undertake works on alternative dates from those requested.
- 4.2. There may be circumstances outside of the control of the Council e.g. where emergency or urgent situations arise, that will mean that it may be necessary to postpone or cancel your works. We will work with you in these instances to re-schedule your works. A Street Works Licence **or** consent to work on existing apparatus in the highway will be granted to the applicant. Please note that it is the owners' statutory duty to ensure that the apparatus is properly maintained at all times.

Appendix A

Roads in Camden that are classified as high category are listed below. High category roads that are part of the Strategic Route Network (SRN) are highlighted in yellow.

| | | | |
|---------------------------|------------------------|--------------------------|-----------------------------|
| Abbey Road | Delancey Street | Kentish Town Road | Russell Square |
| Adelaide Road | Drake Street | Kilburn High Road | Shaftesbury Avenue |
| Albany Street | East Heath Road | Kingsway | Southampton Place |
| Avenue Road | Fitzjohn's Avenue | Lidlington Place | Southampton Row |
| Bayham Street | Fortess Road | Maida Vale | Spaniards Road |
| Bedford Square | Goodge Street | Midland Road | St Giles Circus |
| Bloomsbury Square | Gordon House Road | New Oxford Street | St Giles High Street |
| Bloomsbury Street | Gower Street | North End Way | Tavistock Square |
| Bloomsbury Way | Grafton Place | Osnaburgh Street | Theobald's Road |
| Calthorpe Street | Grafton Way | Osnaburgh Terrace | Torrington Place |
| Cambridge Circus | Gray's Inn Road | Pancras Road | Tottenham Court Road |
| Camden High Street | Guilford Street | Parkway | Upper Woburn Place |
| Camden Street | Harrington Square | Pratt Street | Vernon Place |
| Castlehaven Road | Hawley Road | Prince Albert Road | West End Lane |
| Chalk Farm Road | Heath Street | Princes Circus | Woburn Place |
| Charing Cross Road | High Holborn | Procter Street | York Way |
| Clerkenwell Road | Highgate High Street | Red Lion Square | |
| College Crescent | Highgate Hill | Rosebery Avenue | |



| KEY | |
|-----|------------------------|
| | Traffic Barrier |
| | Pedestrian Ramp |
| | Traffic Cones |
| | Traffic Sign Direction |
| | Ped Barriers |
| | Works Area |
| | Safety Zone |
| | Railway Lines |



Units 3, 4 & 5,
River Moles Business Park,
Mill Mead Road, Esher,
KT10 8BJ
Tel: 0800 6444 654
Web: www.tglgroup.co.uk
Email
tmdrawings@tglgroup.co.uk

CAMLEY STREET N1C 4PG GIVE & TAKE FOR UTILITY WORKS

- 1 TEMPORARY TRAFFIC MANAGEMENT IS SET IN ACCORDANCE WITH CHAPTER 8 AND SAFE WORKING PRACTICES.
- 2 ALL BUS STOPS, PARKING/LOADING BAYS TO BE SUSPENDED PRIOR TO WORKS COMMENCING.
- 3 WORKS VEHICLES TO BE PARKED IN THE WORKS AREA.
- 4) TM WILL COMPLY WITH THE SAFETY AT STREET WORKS AND ROAD WORKS CODE OF PRACTICE

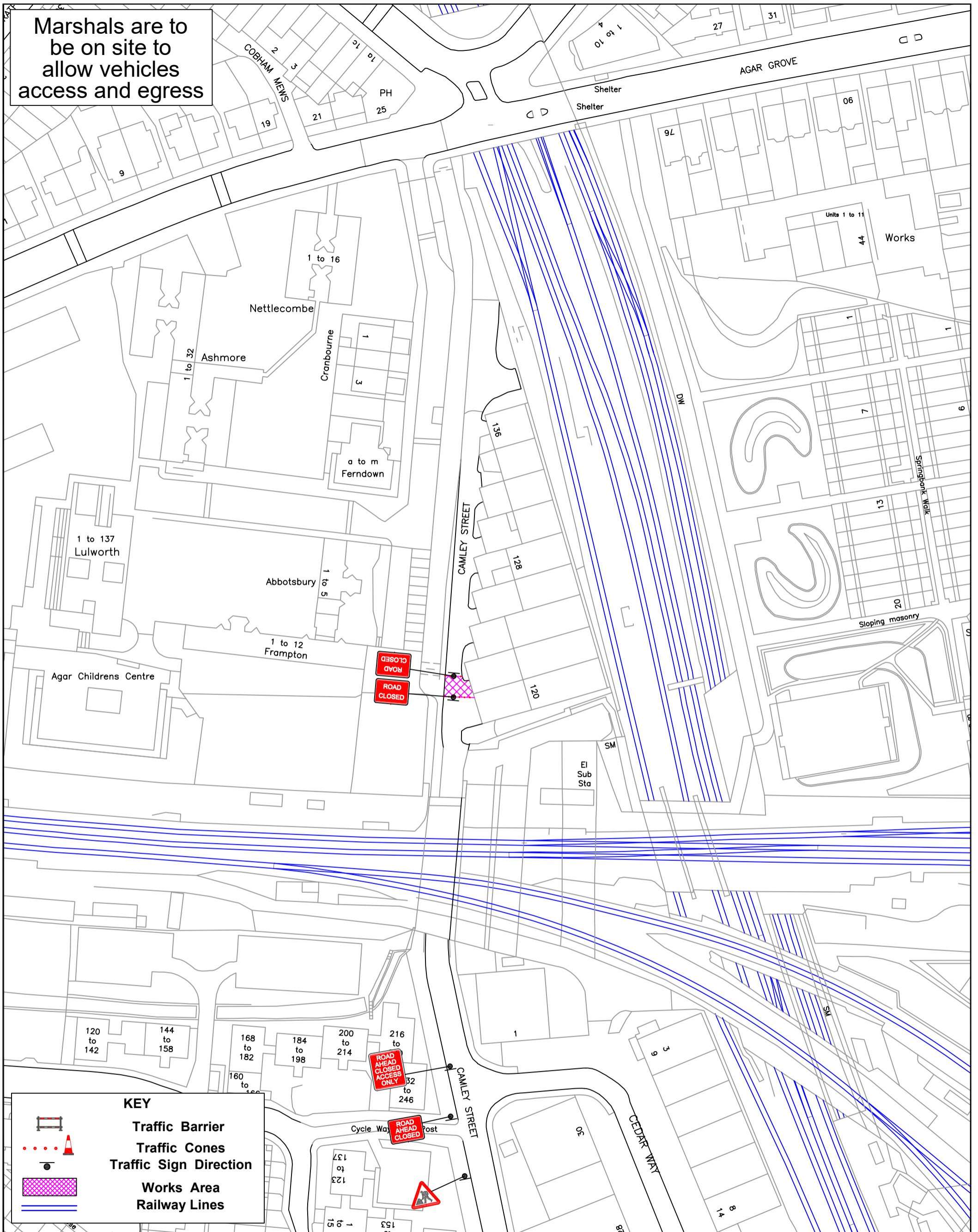


Drawing No

1180.10-1

| | |
|----------|----------|
| DATE | 08.12.23 |
| DRAWN BY | TGL JD |
| CHECKED | TGL LE |
| SCALE | N.T.S. |

Marshals are to be on site to allow vehicles access and egress



KEY

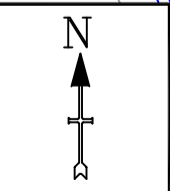
- Traffic Barrier
- Traffic Cones
- Traffic Sign Direction
- Works Area
- Railway Lines

TGL
Traffic Guarding & Logistics
TGL Group Ltd

Units 3, 4 & 5,
River Moles Business Park,
Mill Mead Road, Esher,
KT10 8BJ
Tel: 0800 6444 654
Web: www.tglgroup.co.uk
Email: tmdrawings@tglgroup.co.uk

**CAMLEY STREET N1C 4PG
ROAD CLOSURE
FOR UTILITY WORKS**

1 TEMPORARY TRAFFIC MANAGEMENT IS SET IN ACCORDANCE WITH CHAPTER 8 AND SAFE WORKING PRACTICES.
2 ALL BUS STOPS, PARKING/LOADING BAYS TO BE SUSPENDED PRIOR TO WORKS COMMENCING.
3 WORKS VEHICLES TO BE PARKED IN THE WORKS AREA.
4) TM WILL COMPLY WITH THE SAFETY AT STREET WORKS AND ROAD WORKS CODE OF PRACTICE



| | |
|------------|----------|
| Drawing No | |
| 1180.10-2 | |
| DATE | 08.12.23 |
| DRAWN BY | TGL JD |
| CHECKED | TGL LE |
| SCALE | N.T.S. |

TK:JV
TARMAC KIER JOINT VENTURE

APPENDIX E

Gas Mains Diversion

NOTE:

Operating Window - Anytime January to December.
90mm PE - 63mm by-pass required

Mains diversion proposed due to the development of the area - LP Main falls within footprint of proposed new building.

Mains diversion subject to available space and route. Route subject to change upon site conditions and operational requirements.

Mains lay to meet minimum cover
750mm - Carriageway/Verge
600mm - Footway.

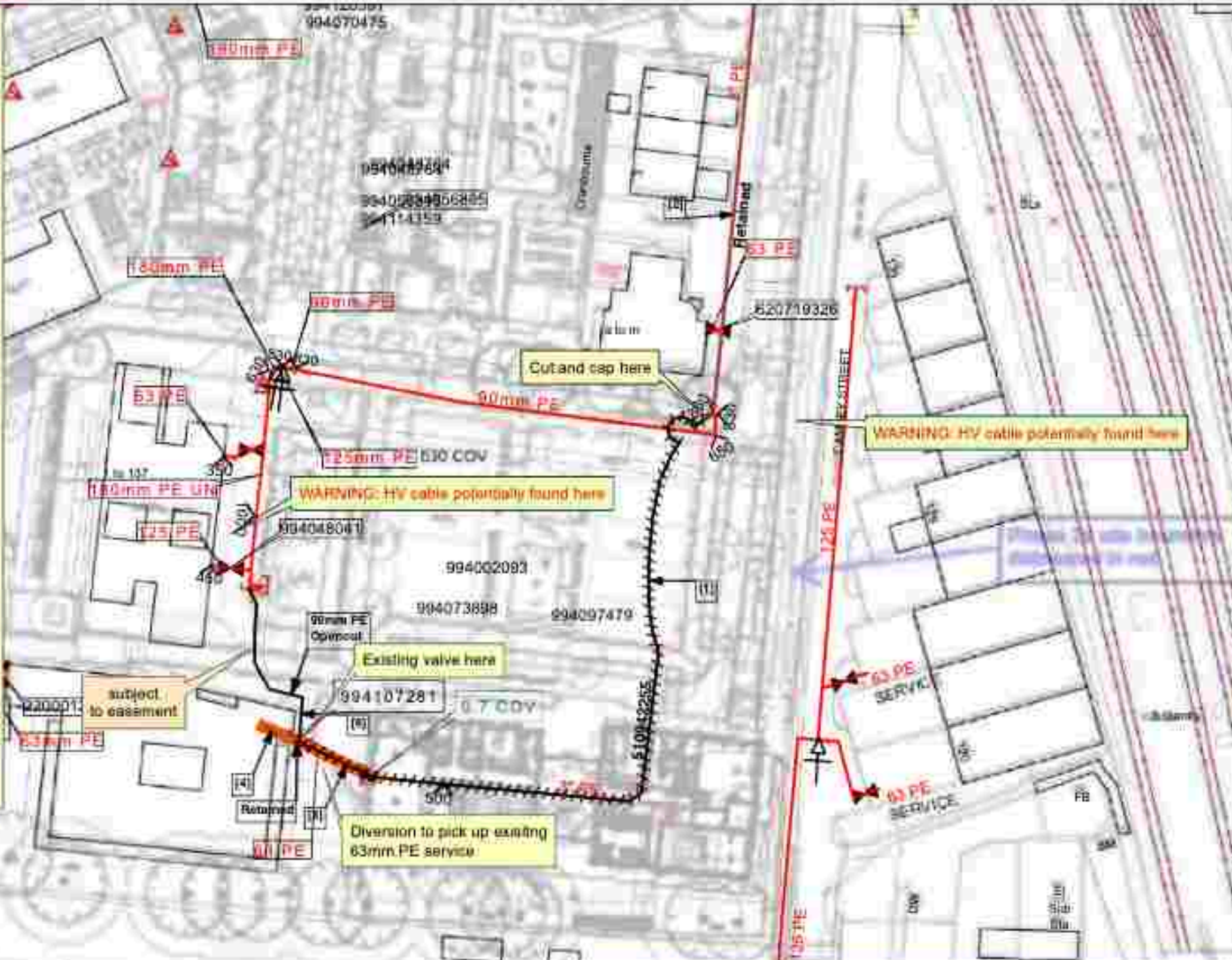
Subject to Easement
90mm PE = 1m plus pipe diameter.

Building Proximity
90mm PE = 1m. (minimum).

Proximity to other plant
Electrical cable 300mm (minimum)
Others - 250mm (minimum) or 1.5 x pipe diameter laid (whichever is greater).

HV cables possibly in close proximity to proposed diversion. DPS to consider: Vac-Ex operations.

Client/developer to undertake all precautions when excavating in areas where gas mains are present. Where doubt, contact Diversion front desk.



KEY - LEGEND

| | | | |
|--|------------------|--|----------------------------------------------------|
| | LP Main | | Access Easement Area (LTP) |
| | 63 PE Main | | Area of Material Excavated (Access Easement) |
| | 40 PE Main | | Integrating Gas Technology (Access Easement) (IGT) |
| | 114 PE Main | | Utility System |
| | 500V-11kV Cable | | Water Basin |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |
| | Proposed Footing | | Revised Levels/Spotting |

SIGNIFICANT HAZARDS HAVE BEEN IDENTIFIED ON THE DESIGN RISK ASSESSMENT SPECIFIC TO THIS DESIGN

IN THE EVENT OF ANY REQUIRED DESIGN CHANGES CONTACT THE DESIGN OFFICE BOX 88888 THE A DESIGN ASSOCIATE

SECTION TABLE

| Section | Start | End | Description |
|---------|-------|------|-------------|
| 1 | 0+00 | 0+50 | Agar Grove |
| 2 | 0+50 | 0+75 | Agar Grove |
| 3 | 0+75 | 0+90 | Agar Grove |
| 4 | 0+90 | 0+95 | Agar Grove |
| 5 | 0+95 | 0+99 | Agar Grove |

"We are committed to ensuring the safety of our people, our customers and the public"

DATE TABLE

| Activity | Start | End |
|----------|------------|------------|
| 1 | 2023-10-26 | 2023-10-26 |
| 2 | 2023-10-26 | 2023-10-26 |
| 3 | 2023-10-26 | 2023-10-26 |
| 4 | 2023-10-26 | 2023-10-26 |
| 5 | 2023-10-26 | 2023-10-26 |

REFER TO CURRENT CONSTRUCTION STANDARDS (M4) (BLU 105)

Provisional Operating Window for 90 & 400mm - N/A - N/A

Project Ref: **IMGD240173**

Site Name: **Agar Grove Phase 2A, London, N1 4PD**

Description of work: **Mains Diversion**

Design Ref: **SR501309**

Scale: **1:250 @ A3**

Date: **26-Oct-2023 10:52:02**

Drawn: **529603, 184193**

PRINCIPAL QUANTITIES SCHEDULE

| Design ID | Street Name | Asset Type and SAP ID | EXISTING / PROPOSED ASSETS AND SERVICES | | | | | Services | |
|-------------------------------|-------------|-----------------------|-----------------------------------------|------|---------|---------------------------|---------------|----------|----------|
| | | | dia. (mm) (inch) | Mat. | Method | Carrier Inserted Pipe IDs | Length (m) | Remove | Transfer |
| 1 | AGAR GROVE | LP Main S1942355 | 114 | PE | Abandon | - | 111.21 | - | - |
| 2 | AGAR GROVE | LP Service S1803008 | 63 | PE | Abandon | - | 12.71 | - | - |
| 3 | AGAR GROVE | LP Main | 90 | PE | Operate | - | 28.64 | - | - |
| Total Length - LAY | | | | | | | 28.64 | 0 | 0 |
| Total Length - ABANDON | | | | | | | 122.92 | | |

Disclaimer: This Plan shows those pipes owned by Cadent Gas (in their role as a licensed Gas transporter (GT), Gas pipes owned by other GT's, or otherwise privately owned, may be present in the area. Information with regard to such pipes should be obtained from the relevant owners. The information shown in this plan is given without warranty. Its accuracy cannot be guaranteed. Service pipes, valves, fittings, slab connections etc. are not shown but their presence should be anticipated. The liability of any kind whatsoever is accepted by Cadent Gas Ltd on their agents, servants or their contractors for any error or omission. Safe digging practices, in accordance with HD0147, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any theoretical plan is used. It is your responsibility to ensure that this information is provided to all persons (either stated labour or contractors) working for you on all major gas operations. The information included in this plan should not be referred to beyond a period of 28 days from the date of issue.

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APPENDIX F

Noise Report

Environmental Management System

Procedure No. 9

Nuisance Control

1. Purpose

To prevent and/or minimise nuisances on the Company's sites noise, vibration, dust, smoke, fumes, odours, light, litter, traffic and spoil deposits on roads have been identified as possible sources of nuisance.

2. Scope

All activities on the Company's sites that could give rise to statutory nuisance

3. Definitions

Statutory Nuisance:- Any activity or emission from a site that could be prejudicial to health or a nuisance is classed as a statutory nuisance

4. Operational Control – Site Production teams

- High standard of housekeeping
- Work within contract hours and plan works to minimise potential nuisance so far as practicable.
- Locating activities likely to cause nuisance away from sensitive areas
- Not permitting radios
- Turning off plant not in use
- Not permitting burning on site
- Damping down dusty areas when required
- Protecting stores of dusty materials from the wind
- Preventing spoil deposits on public roads
- Utilising suitable odour control measures, if required
- Directing site lights away from neighbours
- Site Management will make operatives aware of the risk of nuisance
- Site Management will monitor the site for possible sources of nuisance
- If a Prohibition Notice/Abatement Notice is served, Site Management will ensure specified controls are complied with
- In the event of a complaint relating to nuisance being received on site, Site Management will ensure that this is assessed and measures taken to avoid further nuisance as may be appropriate.



Agar Grove – Phase 2A, Block B

Noise Impact Assessment

On behalf of **Camden Council**



Project Ref: 330510718 | Rev: 2 | Date: May 2022

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: 10 Queen Square, Bristol, BS1 4NT
T: 01173 327 840 E: BristolQueenSquare@Stantec.com

Document Control Sheet

Project Name: Agar Grove – Phase 2A, Block B

Project Ref: 330510718

Report Title: Noise Impact Assessment

Doc Ref: 02

Date: May 2022

| | Name | Position | Signature | Date |
|------------------------------------------------|---------------------|--------------------|-----------|----------|
| Prepared by: | Gwenc'hlan Tournier | Senior Acoustician | GT | May 2022 |
| Reviewed by: | Mubassir Malik | Associate | MM | May 2022 |
| Approved by: | Matthew Barlow | Senior Associate | MB | May 2022 |
| For and on behalf of Stantec UK Limited | | | | |

| Revision | Date | Description | Prepared | Reviewed | Approved |
|----------|----------|-------------|----------|----------|----------|
| 02 | May 2022 | Revision 2 | GT | MM | MB |
| | | | | | |

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

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1 Introduction

1.1. Background

- 1.1.1 This Noise Assessment has been prepared by Stantec and is submitted in support of the planning application made by the London Borough of Camden for Block B which forms part of a wider masterplan for the regeneration of the Agar Grove estate that was granted planning permission in 2013 (and amended in 2020).
- 1.1.2 To date, Blocks A, F, G and H have been completed, whilst construction works on Blocks I and JKL are underway. This current application seeks permission for a number of minor amendments to the approved Block B element of the scheme.
- 1.1.3 An environmental sound survey has been undertaken by Stantec (UK) Ltd, to establish the existing environmental sound levels associated with transportation sources incident on the proposed development.
- 1.1.4 The results of the environmental sound survey have been used to establish façade incident noise levels for the proposed development which form the basis of our assessment of the acoustic requirements of the building façade.
- 1.1.5 An assessment of the proposed non emergency and emergency plant has also been undertaken.
- 1.1.6 This report presents the relevant results of the environmental sound surveys, details of our assessment and the proposed acoustic specifications for the critical elements of the building facade.
- 1.1.7 An explanation of the acoustic terminology used in this report is included in **Appendix A**.

1.2. Scope of Report

- 1.2.1 The scope of this report is to:
 - Identify relevant planning policy relating to noise and vibration.
 - Detail appropriate assessment criteria based on the requirements of the local authority and industry standard guidance.
 - Present the results of the environmental sound and vibration surveys undertaken at the site.
 - Present the results of the detailed assessment of the likely airborne noise ingress into habitable spaces and identify the requirement acoustic performance of critical elements of the building façade in order to achieve the proposed criteria.
 - Present the results of the vibration and re-radiated noise impact assessment.
 - Present the assessment of proposed non emergency and emergency plant.
- 1.2.2 Advice and recommendations within this report will need to be integrated, coordinated and ratified with the design by the principal designer and design team to ensure that all other design interfaces, buildability, workmanship and other requirements are considered. Any sketches or drawings provided illustrate acoustic principles only.

1.3. Site Description and Location

- 1.3.1 The Agar Grove redevelopment is split into multiple phases. Block B is situated in the southeast corner of the wider development.
- 1.3.2 The site is bounded to the south by the North London Railway Line, to the east by Camley St, to the north by adjacent phases and to the west by Agar Children's Centre. The site is currently hard-standing and being used as storage for construction materials.
- 1.3.3 The location of the proposed site is detailed in **Figure 1**.

Figure 1: Site Location Plan



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1.4. Acoustic Terminology

- 1.4.1 A glossary of acoustic terminology used within the report is contained in **Appendix A**.

2 Policy, Guidance and Standards

2.1. National Policy

The National Planning Policy Framework (NPPF)

- 2.1.1 The revised National Planning Policy Framework (NPPF) (MHCLG, 2021) was published in July 2021. In respect of noise, paragraph 174 states that in relation to conserving and enhancing the natural environment:

“Planning policies and decisions should contribute to and enhance the natural and local environment by...

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of ... noise pollution...”

- 2.1.2 In relation to ground conditions and pollution, paragraph 185 states that:

“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and quality of life;

- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason...”*

- 2.1.3 In relation to the integration of new development with existing premises and community facilities, paragraph 187 states that:

“Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”

- 2.1.4 The NPPF indicates that the Noise Policy Statement for England (NPSE) should be used to define the “significant adverse impacts”.

Planning Practice Guidance: Noise

- 2.1.5 The Planning Practice Guide (PPG) was launched in 2014 (with the latest update being in 2019) and provides additional guidance and interpretation to the Government’s strategic policies outlined within the NPPF in a regularly updated, web-based resource.

- 2.1.6 Paragraph: 001 Reference ID: 30-001-20190722, “When is noise relevant to planning?” states:

“Noise needs to be considered when development may create additional noise, or would be sensitive to the prevailing acoustic environment (including any anticipated changes to that environment from activities that are permitted but not yet commenced). When preparing plans, or taking decisions about new development, there may also be

opportunities to make improvements to the acoustic environment. Good acoustic design needs to be considered early in the planning process to ensure that the most appropriate and cost-effective solutions are identified from the outset.”

2.1.7 PPG provides advice on how noise impacts should be determined. Paragraph: 003 Reference ID: 30-003-20190722 states the plan-making and decision makes processes should consider:

- whether or not a significant adverse effect is occurring or likely to occur;
- whether or not an adverse effect is occurring or likely to occur; and
- whether or not a good standard of amenity can be achieved.

2.1.8 This paragraph also refers to the Noise Policy Statement for England (NPSE), in stating that the overall effect of the noise exposure (including the impact during the construction phase where applicable) should be identified against the significant observed adverse effect level (SOAEL) and the lowest observed adverse effect level (LOAEL) for the given situation.

Noise Policy Statement for England

2.1.9 The Noise Policy Statement for England (NPSE) was published in March 2010 and clarifies the underlying principles and aims of existing policy documents that relate to noise. It also sets out the long-term vision of Government noise policy which is: “to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development”.

2.1.10 The NPSE states that noise should not be considered in isolation of the wider benefits of a scheme or development, and that the intention is to minimise noise and its effects as far as is reasonably practicable having regard to the underlying principles of sustainable development.

2.1.11 Paragraphs 2.20 and 2.21 define ‘significant adverse’ and ‘adverse’ impacts as applied to noise as follows:

“There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.”

2.1.12 Paragraph 2.22 clarifies that:

“It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.”

2.1.13 The three aims of the NPSE are defined as follows:

“Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

“Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.” (Note: Applies when the impact lies somewhere between the LOAEL and SOAEL and does not mean that adverse effects cannot occur.)

“Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

2.1.14 It is necessary to define the LOAEL and SOAEL for the potential source of noise to relate the potential impact to the aims and requirements of the NPSE.

2.2. Local Policy

2.2.1 The Camden Local Plan sets out the Council’s planning policies for the period 2016 – 2031.

2.2.2 Policy A4 Noise and vibration of the Local Plan states:

“The Council will seek to ensure that noise and vibration is controlled and managed.

Development should have regard to Camden’s Noise and Vibration Thresholds (Appendix 3). We will not grant planning permission for:

- a. development likely to generate unacceptable noise and vibration impacts; or*
- b. development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses.*

We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development.”

2.2.3 Appendix 3 of the Camden Local Plan details design and assessment criteria for proposed developments aimed at guiding applicants as to the degree of detailed consideration needed to be given to noise in any planning application. The criteria include guidance on the acceptability as follows:

“Green – where noise is considered to be at an acceptable level.

Amber – where noise is observed to have an adverse effect level, but which may be considered acceptable when assessed in the context of other merits of the development.

Red – where noise is observed to have a significant adverse effect.”

Proposed Developments Likely to be Sensitive to Noise

2.2.4 Table B of Appendix 3 of the Camden Local Plan, presented as **Table 2.1** below, provides the noise levels applicable to noise sensitive residential development proposed in areas of existing noise.

Table 2.1: Noise Levels Applicable to Noise Sensitive Residential Development Proposed in Areas of Existing Noise

| Assessment Location | Design Period | LOAEL (Green) | LOAEL to SOAEL (Amber) | SOAEL (Red) |
|---------------------|---------------|-------------------|---------------------------|--------------------|
| | Day | <50 dB LAeq,16hr* | 50 dB to 72 dB LAeq,16hr* | > 72 dB LAeq,16hr* |

| Assessment Location | Design Period | LOAEL (Green) | LOAEL to SOAEL (Amber) | SOAEL (Red) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------|-------------------------------------------------------|-----------------------------------------|
| Noise at 1m from noise sensitive façade/free field | Night | <45 dB LAeq,8hr* <40 dB Lnight** | 45 dB to 62 dB LAeq,8hr* >40 dB Lnight** | > 62 dB LAeq,8hr* |
| Inside a bedroom | Day | <35 dB LAeq,16hr | 35 dB to 45 dB LAeq,16hr | > 45 dB LAeq,16hr |
| | Night | <30 dB LAeq,8hr* 42 dB LAmax,fast | 30 dB to 40 dB LAeq,16hr 40 dB to 73 dB LAmax,fast | > 40 dB LAeq,16hr > 73 dB LAmax,fast |
| Outdoor living space (free field) | Day | <50 dB LAeq,16hr | 50 dB to 55 dB LAeq,16hr | >55 dB LAeq,16hr |
| *LAeq,T values specified for outside a bedroom window are façade levels **Lnight values specified for outside a bedroom window are free field levels | | | | |

Building Services Plant

- 2.2.5 With respect to building services plant, Appendix 3 of the Local Plan provides guidance on the selection of the LOAEL and SOAEL for industrial and commercial sources. Noise criteria are not provided for plant sources serving residential developments. The guidance is detailed in **Table 2.2**.

Table 2.2: Plant Noise Criteria

| Existing Noise Sensitive Receptor | Assessment Location | Design Period | LOAEL (Green) | LOAEL to SOAEL (Amber) | SOAEL (Red) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Dwellings | Garden used for main amenity (free field and outside living or dining or bedroom window (façade)) | Day | 'Rating level' 10dB* below background | 'Rating level' between 9dB below and 5dB above background | 'Rating level' greater than 5dB above background |
| Dwellings | Outside bedroom window (facade) | Night | 'Rating level' 10 dB* below background and no events exceeding 57 dB LAmax | 'Rating level' between 9 dB below and 5 dB above background or noise events between 57 dB and 88 dB LAmax | 'Rating level' greater than 5 dB above background and/or events exceeding 88 dB LAmax |
| *10 dB should be increased to 15 dB if the noise contains audible tonal elements. (day and night). However, if it can be demonstrated that there is no significant difference in the character of the residual background noise and the specific noise from the proposed development then this reduction may not be required. In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required. | | | | | |

- 2.2.6 With respect to emergency plant, the Local Plan states:

Emergency equipment such as generators which are only to be used for short periods of time will be required to meet the noise criteria of no more than 10 dB above the background level (L90 15 minutes). During standby periods, emergency equipment will be required to meet the usual criteria for plant and machinery. Conditions to this effect may be imposed in instances where emergency equipment forms part of the application.

Vibration

- 2.2.7 Table A of Appendix 3 of the Camden Local Plan (partially reproduced in **Table 2.3**) provides vibration levels at which planning permission will not normally be granted.

Table 2.3: Vibration Levels at Which Planning Permission Will Not Normally be Granted

| Vibration description and location of measurement | Period | Time | Vibration Levels (Vibration Dose Values) |
|---------------------------------------------------|-----------------|---------------|------------------------------------------|
| Vibration inside dwellings | Day and evening | 07:00 – 23:00 | 0.2 to 0.4 VDV m/s ^{1.75} |
| | Night | 23:00 – 07:00 | 0.13 VDV m/s ^{1.75} |

2.3. Guidance and Standards

British Standard 8233: 2014 ‘Guidance on Sound Insulation and Noise Reduction for Buildings’

- 2.3.1 BS 8233, in relation to this development, sets out desirable guideline values in habitable rooms, such as living rooms and bedrooms.
- 2.3.2 The guideline values relate to steady external noise without a specific character, previously termed ‘anonymous noise’. According to the standard, noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate. Examples of noise with a character may include tonal/intermittent plant noise emissions, music playback, and workshop noise. Examples of external steady noise sources may include environmental noise sources such as busy road traffic.
- 2.3.3 The desirable internal ambient noise levels for dwellings are presented in **Table 2.4**.

Table 2.4: BS 8233 Desirable Internal Ambient Noise Levels for Dwellings

| Activity | Location | Desirable Internal Ambient Noise Level | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------|---------------------------|
| | | 07:00 to 23:00 hours | 23:00 to 07:00 hours |
| Resting | Living room | 35 dB L _{Aeq,16h} | - |
| Dining | Dining room/area | 40 dB L _{Aeq,16h} | - |
| Sleeping (daytime resting) | Bedroom | 35 dB L _{Aeq,16h} | 30 dB L _{Aeq,8h} |
| *Note 4 Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L _{Amax,f} , depending on the character and number of events per night. Sporadic noise events could require separate values. | | | |
| *Note 5 If relying on closed windows to meet the guide values, there needs to be an appropriate alternative source of ventilation that does not compromise the façade insulation or the resulting noise levels. | | | |
| *Note 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5dB and reasonable internal conditions still achieved. | | | |
| *A selection of the available notes | | | |

- 2.3.4 The Standard also provides advice in relation to desirable levels for external noise. It states that:

“For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB L_{Aeq,T}, with an

upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable.

In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate.

Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation.

In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55 dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space.”

Professional Practice Guidance on Planning and Noise, 2017

The Professional Practice Guidance on Planning and Noise (ProPG) provides guidance on a recommended approach to the management of noise within the planning system in England and is limited to new residential development that will be predominantly exposed to airborne noise from transport sources.

With respect to internal ambient noise levels in habitable rooms, ProPG recommends that noise levels set out in BS 8233 are used for residential development. However, an additional criterion is proposed by ProPG for night-time L_{Amax} levels as follows:

“[...] In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45 dB $L_{Amax, F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events.”

British Standard 4142:2014 +A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound

- 2.3.5 BS 4142:2014 +A1:2019 describes methods for rating and assessing sound of an industrial and/or commercial nature. The methods described in the standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.
- 2.3.6 The standard is used to determine the rating levels for sources of sound of an industrial and/or commercial nature and the ambient, background and residual sound levels at outdoor locations. These levels could be used for the purposes of investigating complaints; assessing sound from proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and assessing sound at proposed new dwellings or premises used for residential purposes. However, the determination of noise amounting to a nuisance is beyond the scope of the standard.

- 2.3.7 The standard should not be used to assess sound from the passage of vehicles on public roads and railway systems; recreational activities; music and other entertainment; shooting grounds; construction and demolition; domestic animals; people; public address systems for speech and other sources falling within the scopes of other standards or guidance. The standard cannot be applied to the derivation of indoor sound levels arising from sound levels outside, or the assessment of indoor sound levels.
- 2.3.8 The procedure contained in BS 4142 assesses the significance of sound which depends upon the margin by which the rating level of the specific sound sources exceeds the background sound level and the context in which the sound occurs/will occur. It is noted that a BS 4142 assessment is reliant on measuring relevant background sound levels.
- 2.3.9 An initial estimate of the impact of the specific sound is obtained by subtracting the measured background sound level from the rating level and considering the following:
- Typically, the greater this difference, the greater the magnitude of the impact.
 - A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
 - A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
- 2.3.10 The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

BS 6472-1:2008 'Guide to Evaluation of Human Exposure to Vibration from Buildings – Part 1: Vibration Sources Other Than Blasting

- 2.3.11 BS 6742-1:2008 details guidance with respect to the evaluation of human response to vibration sources (other than blasting).
- 2.3.12 The Standard sets out a methodology to assess the likely subjective response to vibration, based on evaluating the probability of adverse comment against the quantifiable Vibration Dose Value (VDV). The VDV defines a relationship that produces consistent assessment of continuous, intermittent, occasional and impulsive vibration and the subsequent human response.
- 2.3.13 Human response to vibration is dependent on various factors, including the frequency and direction of vibration. To address this, the Standard specifies frequency weightings that are applied to horizontal and vertical vibration measurements. The weighting curves are applied to the raw acceleration time history data, in order to calculate the VDV.
- 2.3.14 The VDV is expressed as a single value over a stated time period. For assessment purposes these periods are typically taken to be a 16-hour daytime period (07:00 to 23:00 hours) and an 8-hour night-time period (23:00 to 07:00 hours).
- 2.3.15 The VDV is much more strongly influenced by the vibration magnitude, than the duration of the vibration. A doubling of the vibration magnitude is equivalent to an increase in exposure duration by a factor of 16.

Parallel Effects

- 2.3.16 The Standard refers to parallel effects which can affect the extent to which people in buildings react to vibration at a given VDV. The following parallel effects are referred to in the standard:

Structure-borne noise (re-radiated noise): Low frequency noise (<100Hz) can arise from the vibration of building structures, caused by ground-borne vibration or acoustic excitation from external sources and is sometimes heard within a building.

Airborne noise: Airborne noise can be heard at the same time as the vibration is felt. This can affect a person’s response to the perceived vibration.

Induced rattling: The occurrence of rattling windows, furniture, fittings or ornaments can emphasise vibration perception.

Measurement

- 2.3.17 The objective of the measurements is to quantify the VDV for the daytime and/or night-time evaluation periods.
- 2.3.18 Where the direction of the dominant vibration is unknown, measurements should be recorded in all three orthogonal axes.
- 2.3.19 The measurement location should be selected to establish the vibration level at the point of entry to the body. Vibration should usually be measured on the floor of the room implicated, within one-third and two-thirds of the width/length.

Assessment

- 2.3.20 According to the Standard, a judgement is made to determine the probability of adverse comment, based on the VDV falling within a corresponding range as presented in **Table 2.5**, which has been reproduced from the Standard.

Table 2.5: Vibration Dose Values Corresponding to Probability of Adverse Comment in a Residential Building

| Time Period | Low Probability of Adverse Comment*1 ms-1.75 | Adverse Comment Possible ms-1.75 | Adverse Comment Probable *2 ms-1.75 |
|----------------------------------|-------------------------------------------------|-------------------------------------|----------------------------------------|
| Daytime (07:00 – 23:00 hours) | 0.2 to 0.4 | 0.4 to 0.8 | 0.8 to 1.6 |
| Night-time (23:00 – 07:00 hours) | 0.1 to 0.2 | 0.2 to 0.4 | 0.4 to 0.8 |

*1 Below these ranges adverse comment is not expected

*2 Above these ranges adverse comment is very likely

Re-Radiated Noise

- 2.3.21 Currently no British Standards exist which detail a method by which to assess ground-borne or structure-borne noise (which manifests itself as re-radiated noise) such as that induced by trains. Reference has therefore been made to relevant guidance.

Association of Noise Consultants (ANC) Guidelines

- 2.3.22 Whilst there is no specific guidance on methods of evaluation for re-radiated noise, there is some consensus regarding re-radiated noise induced by trains, collated in the Association of Noise Consultants (ANC) Guidelines ‘Measurement and Assessment of Ground Borne Noise & Vibration’, 2nd Edition, published in 2012.
- 2.3.23 Exposure to re-radiated noise can give rise to both activity disturbance and general annoyance. Dose response relationships defining relationships between parameters such as duration, level and number of events have not been well established. Therefore, human response criteria are typically based on the activity event noise level.

2.3.24 Early proposals for maximum acceptable levels of ground borne noise inside dwellings, defined in the American Public Transport Association (APTA) guidelines published in 1981, are still in widespread use. The ‘design goals’ are reproduced in **Table 2.6** below:

Table 2.6: APTA Guidelines for Ground Borne Noise Inside Residential Dwellings

| Community Area | Maximum A-weighted Sound Pressure Level, dB(A) | |
|-----------------------------|------------------------------------------------|-----------------------|
| | Single Family Dwelling | Multi-family dwelling |
| Low Density Residential | 30 | 35 |
| Average Density Residential | 35 | 40 |
| High Density Residential | 35 | 40 |
| Commercial | 40 | 45 |
| Industrial/Highway | 40 | 45 |

2.3.25 London Underground Limited studied the relationship between ground borne noise levels and complaint thresholds in 1969, following the opening of the Victoria Line. A threshold of around 40 dB L_{Amax} (slow (S) or fast (F) time constant not defined) was determined although it was noted that many people have been exposed to higher levels than this without complaint.

2.3.26 Local Authorities in London and South East England published the ‘Local Authority Noise & Vibration Standards for Railways’ in anticipation of the Channel Tunnel Rail Link in 1993. According to these guidelines ground borne noise inside dwellings should not exceed 35dB L_{AFmax} , whilst criteria for non-residential buildings should be considered on an individual basis.

2.3.27 The Railway Order for the DART underground was granted in December 2011 and included a number of planning conditions with supplementary limits for ground borne noise. Impact classifications were defined based on other major railway projects in the UK and Ireland e.g. Crossrail, the Jubilee Line, Dublin Metros North and High-Speed 1 and are reproduced in **Table 2.**

Table 2.7: DART Underground Ground Borne Noise Impact Criteria for Residential Receptors

| Impact Classification | Groundborne Noise Level, dB $L_{Amax,slow}$ (measured indoors, near the centre of any dwelling room on the ground floor) | |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|
| Negligible | <35 | Not Significant |
| Low | 35-39 | |
| Medium | 40-44 | Significant Impact |
| High | 45-49 | |
| Very High | >49 | |

2.3.28 The same impact criteria (without a significance descriptor) as those presented in **Table 2.7.** have been proposed for HS2 in ‘Volume 5 Technical Appendices (CT-001-000/1) of the HS2 London - West Midlands Environment Statement’.

2.3.29 Calculations of re-radiated noise levels are subject to a relatively high level of uncertainty with guidance documents noting an uncertainty of up to 10 dB.

2.4. Proposed Criteria

Ambient Noise Level Criteria

2.4.1 With reference to the requirements of the Local Authority, **Table 2.8.** details the proposed assessment criteria. The proposed criteria are not statutory unless conditioned by the Local Authority.

Table 2.8: Internal and External Sound Level Assessment Criteria

| Location | Assessment Period | Ambient Noise Level | Re-Radiated Noise Levels |
|-----------------------------------------------------------|--------------------------------|-----------------------------------------------|--------------------------|
| Living Rooms / Dining Rooms | Daytime 07:00 – 23:00 hours | 35 dB $L_{Aeq,16hours}$ | 40 $L_{Amax,f}$ (dB) |
| Bedrooms | Night-time 07:00 – 23:00 hours | 30 dB $L_{Aeq,8hours}$ 45dB $L_{Amax,f}^*$ | 50 $L_{Amax,f}$ (dB) |
| Outdoor Living Space | Daytime 07:00 – 23:00 hours | 55 dB $L_{Aeq,16hours}$ | - |
| *Not to be normally exceeded more than 10 times per night | | | |

Plant Noise Assessment Criteria

2.4.2 In the absence of specific guidance with respect to plant serving residential developments, plant noise assessment criteria have been based on those applicable to commercial and industrial developments as detailed in Table 2.2.

Perceptible Vibration Criteria

2.4.3 Based on the relevant Standards, the assessment criteria in **Table 2.9** are proposed:

Table 2.9: Proposed Vibration Assessment Criteria

| Adverse Effect Level | Vibration Dose Value $ms^{-1.75}$ | |
|----------------------|-----------------------------------|----------------------------------|
| | Daytime (07:00 – 23:00 hours) | Night-time (23:00 – 07:00 hours) |
| LOAEL | < 0.2 | < 0.1 |
| SOAEL | 0.4 to 0.8 | 0.2 to 0.4 |

3 Environmental Sound and Vibration Survey

3.1. Procedure

- 3.1.1 An unattended environmental sound survey was undertaken from approximately 12:00 on Thursday 12 May 2022 to approximately 12:00 on Friday 13 May 2022. Measurements were made over 15-minute periods of the L_{Aeq} , L_{A90} and L_{AFMax} sound levels.
- 3.1.2 The sound level meters were located in environmental cases. The microphones were connected to the meters via an extension cable and fitted with the manufacturer’s windshield.
- 3.1.3 Field calibrations were performed before and after the measurements with no significant fluctuations recorded (< 0.5 dB). Calibration certificates are available upon request.
- 3.1.4 Vibration measurements were undertaken at a single location on the site. The measurement position is shown in **Figure 2**.
- 3.1.5 The following vibration measurements were undertaken at the site:
- VIB1 – An unattended vibration survey was undertaken between approximately 13:00 hours on Thursday 12 May 2022 and 08:00 hours on Friday 13 May 2022 to determine existing vibration dose values on-site associated with train movements on the adjacent railway line.
 - VIB2 - An attended vibration survey was undertaken between approximately 13:00 hours and 14:30 hours on Thursday 12 May 2022 to determine the existing on-site acceleration levels associated with train movements on the adjacent railway line.
- 3.1.6 Vibration was recorded simultaneously in each orthogonal axis. The x-axis was approximately parallel to the train line, the y-axis was approximately perpendicular to the train line, with the z-axis approximately vertical.
- 3.1.7 The instrumentation used in the survey (including calibration information) is listed in **Appendix B**.

3.2. Measurement Locations

- 3.2.1 The measurement positions are detailed in **Figure 2** and described in **Table 3.1**.

Table 3.1: Environmental Sound Survey Location Descriptions

| Location | Description | Dominant Sound/Vibration Source |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| LT1 | The microphone was located on the southern boundary of the site, approximately 15 m north of the railway line, at a height of 5 m, level with the railway, in a free field position. | Train pass-bys Construction activities on adjacent phases audible but not dominant |
| LT2 | The microphone was located on the northern boundary of the site, approximately 50 m north of the railway line, at a height of 1.5 m in a free field position. | Train pass-bys Construction activities on adjacent phases audible but not dominant |
| VIB | Measurements at VIB1 were taken by mounting a tri-axial measurement block to the existing concrete ground, approximately 17 m from the nearside railway line. Measurements were taken in five-minute intervals. | Train pass-bys |

| | | |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | Measurements at VIB2 were taken by mounting a magnetic tri-axial mounting block on to a heavy metal base, which was situated on the existing concrete ground, approximately 17 m from the nearside railway line. Measurements were taken within the frequency range between 1-315 Hz continuously for approximately one hour. | |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

Figure 2: Survey Locations



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3.3. Meteorological Conditions

3.3.1 Due to the nature of the survey (i.e. unattended), it is not possible to accurately comment on the meteorological conditions throughout the entire survey period. However, based on a review of publicly available weather forecasts and observations at the beginning and end of the survey period, the weather conditions are detailed in **Table 3.2**.

Table 3.2: Meteorological Conditions

| Date | Description | | | | |
|----------|------------------|--------------------|-----------------|------------------|----------------|
| | Temperature (°C) | Precipitation (mm) | Cloud Cover (%) | Wind Speed (m/s) | Wind Direction |
| 12/05/22 | 18 | 0 | 20 | <5 | W |
| 13/05/22 | 16 | 0 | 70 | <5 | WSW |

3.3.2 These conditions are considered suitable for obtaining representative sound/vibration level measurements.

3.4. Assumptions/Limitations

3.4.1 The engineer noticed nothing unusual in terms of the sound climate at the time of the survey. This report refers, within the limitations stated, to the environment of the site in the context of

the surrounding area at the time of the inspections. Environmental conditions can vary, and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

3.5. Environmental Sound Survey Results

- 3.5.1 Due to the nature of the survey (i.e. unattended), it is not possible to accurately comment on the dominant noise sources or specific noise events during the entire survey period. However, at the beginning and end of the survey period, it was noted that on-site sound levels were dominated by train pass-bys on the North London railway line.
- 3.5.2 Construction noise from adjacent phases to the north, and distant vehicular movements on the local road network were also audible but not dominant.
- 3.5.3 A summary of the long-term unattended sound survey results is presented in **Table 3.3**. Time history graphs detailing the full results are contained in **Appendix C**.

Table 3.3: Summary of Measured Environmental Sound Levels

| Survey Location | Period, T | Measured Sound Level (dB) | | |
|-----------------|----------------------------------|---------------------------|-----------------------------|------------------------------|
| | | L _{Aeq,T} | Typical* L _{AFMax} | Typical** L _{A90,T} |
| LT1 | Daytime (07:00 – 23:00 hours) | 64 | - | 44 |
| | Night-time (23:00 – 07:00 hours) | 58 | 80 | 40 |
| LT2 | Daytime (07:00 – 23:00 hours) | 60 | - | 40 |
| | Night-time (23:00 – 07:00 hours) | 51 | 71 | 37 |

* Based on the 10th highest measured L_{AFmax} level.

** Calculated based on the statistical distribution of background sound levels during the measurement period in general accordance with guidance in BS 4142:2014+A1:2019

3.6. Vibration Survey Results

- 3.6.1 Vibration from road traffic was not subjectively perceptible at the monitoring locations. Vibration from train pass-by events was perceptible through the ground at the measurement location.
- 3.6.2 The results of the environmental vibration survey are contained in **Appendices D and E**. These show the measured VDV time history at position VIB1 and the measured one-third octave band acceleration spectra for train pass-by events measured at position VIB2 in the X, Y and Z axis respectively.

4 Noise Impact Assessment

4.1. Assessment Methodology

4.1.1 Analysis of the proposed external building fabric has been undertaken in order to determine the required acoustic performance of glazing elements to achieve the criteria detailed in **Table 2.8**. Compliance with the acoustic performance specification detailed herein is expected to result in compliance with the proposed acoustic criteria.

4.2. Acoustic Model

4.2.1 An acoustic model has been prepared using SoundPLAN v8.2 to undertake the noise impact assessment. The model includes the effect of topography and existing buildings.

4.2.2 The assessment and recommendations are based on the following drawings provided by Hawkins Brown.

Table 4.1: Drawings

| Title | Document Reference | Date | Revision |
|---------------------------------------|---------------------------|------------|----------|
| East and West Elevation | AGV-HBA-B-ZZ-DR-A-20-0201 | March 2022 | P3 |
| North Elevation | AGV-HBA-B-ZZ-DR-A-20-0202 | March 2022 | P4 |
| South Elevation | AGV-HBA-B-ZZ-DR-A-20-0203 | March 2022 | P4 |
| Internal East and West Elevation | AGV-HBA-B-ZZ-DR-A-20-0204 | March 2022 | P3 |
| Ground Floor General Arrangement Plan | AGV-HBA-B-00-DR-A-20-0100 | May 2022 | P5 |
| Level 01 General Arrangement Plan | AGV-HBA-B-01-DR-A-20-0101 | May 2022 | P4 |
| Level 02 General Arrangement Plan | AGV-HBA-B-02-DR-A-20-0102 | May 2022 | P4 |
| Level 03 General Arrangement Plan | AGV-HBA-B-03-DR-A-20-0103 | May 2022 | P2 |
| Level 04 General Arrangement Plan | AGV-HBA-B-04-DR-A-20-0104 | May 2022 | P2 |
| Level 05 General Arrangement Plan | AGV-HBA-B-05-DR-A-20-0105 | May 2022 | P2 |
| Level 06 General Arrangement Plan | AGV-HBA-B-06-DR-A-20-0106 | May 2022 | P2 |
| Level 07 General Arrangement Plan | AGV-HBA-B-07-DR-A-20-0107 | May 2022 | P3 |
| Level 08 General Arrangement Plan | AGV-HBA-B-08-DR-A-20-0108 | May 2022 | P4 |
| Level 09 General Arrangement Plan | AGV-HBA-B-09-DR-A-20-0109 | May 2022 | P2 |
| Level 10 General Arrangement Plan | AGV-HBA-B-10-DR-A-20-0110 | May 2022 | P2 |
| Level 11 General Arrangement Plan | AGV-HBA-B-11-DR-A-20-0111 | May 2022 | P2 |
| Level 12 General Arrangement Plan | AGV-HBA-B-12-DR-A-20-0112 | May 2022 | P4 |
| Level 13 General Arrangement Plan | AGV-HBA-B-13-DR-A-20-0113 | May 2022 | P2 |
| Level 14 General Arrangement Plan | AGV-HBA-B-14-DR-A-20-0114 | May 2022 | P2 |
| Level 15 General Arrangement Plan | AGV-HBA-B-15-DR-A-20-0115 | May 2022 | P2 |
| Level 16 General Arrangement Plan | AGV-HBA-B-16-DR-A-20-0116 | May 2022 | P2 |
| Level 17 General Arrangement Plan | AGV-HBA-B-17-DR-A-20-0117 | May 2022 | P2 |
| Level 18 General Arrangement Plan | AGV-HBA-B-18-DR-A-20-0118 | May 2022 | P2 |

| Title | Document Reference | Date | Revision |
|-------------------------------------|---------------------------|----------|----------|
| Roof Level General Arrangement Plan | AGV-HBA-B-19-DR-A-20-0119 | May 2022 | P2 |

4.3. External Ambient Noise Levels

- 4.3.1 Balconies are to be incorporated as part of the proposed development.
- 4.3.2 The calculated incident façade levels indicate that balconies located on the southern, western and eastern facades are likely to exceed the proposed LOAEL of 55 dB $L_{Aeq,16hours}$ during the daytime period. Balconies on the northern facade are likely to fall below the proposed LOAEL.
- 4.3.3 With reference to BS8233:2014, Paragraph 7.7.3.2 states that:
- “Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses.”*
- 4.3.4 Furthermore, Paragraph 7.7.3.2 also states that:
- “For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited.”*
- 4.3.5 The exceedance of sound levels within balcony areas should therefore be balanced against other factors, such as the convenience of living in such a desirable location and the likely preference of having a balcony exposed to higher sound levels as opposed to no balcony.
- 4.3.6 It should be noted that due to the nature and proposed layout of the development, it is considered impractical to reposition balconies or significantly reduce sound levels without changing the nature of the space. It should also be noted that this scheme is consistent with the previously approved permission for Block B.
- 4.3.7 Based on the results of the assessment and the mitigating factors detailed above, external sound levels in the proposed balcony areas should be considered acceptable.

4.4. Ventilation

- 4.4.1 The requirements for building ventilation in dwellings are detailed in Approved Document F (ADF) and include provision for ‘whole dwelling ventilation’, ‘extract ventilation’ and ‘purge ventilation’.
- Whole Dwelling Ventilation - Nominally continuous ventilation of rooms or spaces at a relatively low rate to dilute and remove pollutants not removed by operation of extract ventilation or purge ventilation.
 - Extract Ventilation - The removal of air directly to the outside. May be provided by passive or mechanical means.

- Purge Ventilation - Manually controlled ventilation at a relatively high rate to rapidly dilute pollutants and/or water vapour. Purge ventilation is typically provided by means of openable windows. Due to the temporary nature of purge ventilation, significant noise impacts are not normally expected.
- 4.4.2 ADF provides four 'template' systems which comply with the ventilation requirements for new dwellings and can be adopted to demonstrate compliance. These are:
- System 1: Background ventilators and intermittent extract fans.
 - System 2: Background ventilators and passive stack ventilation.
 - System 3: Continuous Mechanical Extract (MEV) with trickle ventilators providing inlet air.
 - System 4: Continuous Mechanical Supply and Extract with Heat Recovery (MVHR).
- 4.4.3 Each system has different noise implications, however in the context of this assessment external noise ingress via the ventilation system is the primary concern. Generally, for systems 1-3 this is via the ventilators and for system 4 (MVHR) this is via the inlet and exhaust grilles within the dwelling associated with the MVHR system.
- 4.4.4 It is understood that ventilation to dwellings is to be provided by Mechanical Ventilation Heat Recovery (MVHR) units (i.e. System 4) located within each dwelling. MVHR has much greater resistance to external noise ingress than trickle ventilators and in the context of this site, noise ingress via the MVHR system is not considered to be significant.

4.5. Internal Sound Levels (External Building Fabric Assessment)

4.5.1 Our external building fabric analysis has assumed the following:

Room Absorption

4.5.2 We have assumed the bedrooms and living rooms to be acoustically 'soft' with carpets, curtains and other soft furnishings. For the purposes of our analyses, we have assumed the average equivalent absorption coefficients detailed in **Table 4.2**.

Table 4.2: Average Equivalent Acoustic Absorption Coefficients

| Room | Average Equivalent Acoustic Absorption Coefficient ($\bar{\alpha}$) at Octave-band Centre Frequency (Hz) | | | | |
|-------------------------|------------------------------------------------------------------------------------------------------------|--------|--------|-------|-------|
| | 125 Hz | 250 Hz | 500 Hz | 1 kHz | 2 kHz |
| Bedrooms / Living Rooms | 0.18 | 0.25 | 0.27 | 0.31 | 0.32 |

Proposed External Building Fabric

- 4.5.3 We have based our assessment on a typical concrete external wall build-up and concrete roof. Please note that assessment of internal sound transfer falls outside the scope of this report and should be assessed in detail by the relevant specialists.
- 4.5.4 **Table 4.3** details typical sound reduction indices associated with the assumed external building fabric construction.

Table 4.3: Assumed External Wall Sound Reduction Performance

| Construction | Sound Reduction Index (R) at Octave-band Centre Frequency (Hz) | | | | |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----|-----|----|----|
| | 125 | 250 | 500 | 1k | 2k |
| Composite wall construction comprising brick faced GRC, cavity, insulation and SFS framed lining | 45 | 45 | 45 | 45 | 50 |
| Concrete roof | 37 | 39 | 45 | 52 | 55 |

4.5.5 Our calculations have been based on building and window dimensions obtained from drawings detailed in **Table 4.1**.

4.6. Glazing Acoustic Specification and Guidance on Construction

4.6.1 Glazing specifications have been consolidated so that a minimum number of different specifications are provided.

4.6.2 The glazing performance specifications apply to the glazing package as a whole inclusive of glazing, louvres, spandrel panels, framing, opening lights, doors, seal etc. The performance of the glazing system will depend on many factors such as the glazing configuration, size of windows panels, quality of framing, quality of sealing etc.

4.6.3 The proposed windows should be tested in accordance with BS EN ISO 10140-2:2021 and the quoted minimum sound reduction specifications should be met by the system as a whole including frames etc. as appropriate, and not just the glass.

4.6.4 For guidance purposes we would suggest that a construction based around the following configurations is likely to prove commensurate with achieving the sound insulation performance specifications detailed within **Appendix F**.

Table 4.4: Glazing Guidance Constructions

| Glazing Zone | Glazing Type | Guidance Glazing Construction |
|--------------|-----------------------------|--------------------------------------------------------------------------------------|
| 1 | Uprated Double Glazing | Uprated Double Glazing comprising 8.4 mm glass / 16 mm cavity / 6 mm laminated glass |
| 2 | Conventional Double Glazing | Double glazing comprising 6.4 mm glass / 16 mm cavity / 6 mm glass |
| 3 | Conventional Double Glazing | Double glazing comprising 6 mm glass / 16 mm cavity / 4 mm glass |

4.6.5 Glazing zones are presented in **Appendix G**.

4.6.6 The guidance construction detailed above is provided for costing purposes only. Selected glazing should be capable of meeting the performance specifications shown in **Appendix F**, with laboratory test certificates being made available in support of the quoted performance. Glazing proposals which simply reflect the guidance constructions indicated in this report will not, in isolation, be sufficient evidence that a glazing configuration will meet the performance specification.

4.6.7 The acoustic specifications will need to be integrated, coordinated and ratified with the design by the principal designer and design team to ensure that all other design interfaces, buildability, workmanship and other requirements are considered.

4.6.8 It should be noted that the acoustic specifications are to demonstrate the ability of the scheme to comply with planning requirements and are not intended to be used as detailed acoustic design specifications. All acoustic specifications should be reviewed and confirmed during the detailed design stage.

- 4.6.9 Based on the results of the external building fabric assessment, the internal ambient sound levels are likely to meet the proposed criteria during daytime and night-time periods.

5 Vibration Assessment

5.1. Methodology

- 5.1.1 Measurements were undertaken to determine vibration dose values due to train pass-by events at position VIB1, and to determine acceleration values due to train pass-by events at position VIB2, as outlined in **Section 3**.
- 5.1.2 For measurements at position VIB2, a typical representative train pass-by event was identified on-site during the survey and by identifying peaks in the time history data.

5.2. Empirical Estimation of Building Response

- 5.2.1 The vibration levels measured at grade would be modified by the presence of the proposed building. The vibration levels would be modified further as vibration propagates through the building superstructure.
- 5.2.2 To estimate the likely tactile vibration and re-radiated noise levels that may be experienced by future occupants, it is necessary to estimate the room surface vibration levels within the habitable rooms (receiver rooms). Re-radiated noise levels would also have some dependence on the acoustic properties of the receiver room and the radiation factor of the room surfaces. Similarly, tactile vibration levels experienced by an occupant would have some dependence on the room's furnishings and the occupant's position within the room. However, both tactile vibration and re-radiated noise would primarily be controlled by the level of vibration entering the piles and the propagation through the building superstructure.

5.3. Soil to Foundation Coupling

- 5.3.1 The coupling between the soil and the foundations will result in reduced vibration levels in the foundations relative to the sub-soil or ground surface. Empirically determined corrections (coupling losses) for various types of foundations can be found in Saurenman, Nelson, Wilson, US Urban Mass Transportation Administration, Office of Rail and Construction Technology 'Handbook of Urban Rail Noise and Vibration Control' (HURNVC).
- 5.3.2 It is understood that the proposals do not include detailed foundation drawings at this stage. Based on the proposed height of the building of up to 18 storeys, piled foundations have been assumed for the purpose of the assessment.

5.4. Floor to Floor Attenuation

- 5.4.1 Vibration levels would be attenuated due to propagation upwards through the structure. Corrections for the floor-to-floor attenuation can be found in K Ishii and H Tachibana 'Field Measurement of Structure-Borne Sound in Buildings', Acoustical Society of America Reprint No. L10.

5.5. Proposed Receptor Locations

- 5.5.1 Based on the general arrangement plans AGV-HBA-B-00-A-20-0100 to AGV-HBA-B-00-A-20-119, it is understood that the building has the potential to be up to 18 storeys (including lower ground level) overlooking the railway line, with bedrooms and living spaces from level 02 and above.
- 5.5.2 The assessment has been undertaken at second floor level based on the vibration data measured at positions VIB1 and VIB2. Positions VIB1 and VIB2 are the same distance from

the nearest railway line as the nearest point of the proposed development to the railway line, with VIB1 and VIB2 being approximately 17 m from the nearest railway line.

5.6. Calculated Results

5.6.1 **Table 5.1** details estimated re-radiated noise levels for the worst-case areas within the ground and second floor of the proposed development respectively. VDV levels are presented as measured at the measurement location.

Table 5.1: Estimated Tactile Vibration and Re-Radiated Noise Levels

| Location | Estimated Re-radiated Noise Level* (dB L _{Afmax}) Ground Floor | Vibration Dose Value VDV _{b/d,day/night} | | | | | |
|--------------|-----------------------------------------------------------------------------|------------------------------------------------------|------|------|-------------------------------------|------|------|
| | | Daytime (07:00 – 23:00 hours) | | | Night-time (23:00 – 07:00 hours) | | |
| | | X | Y | Z | X | Y | Z |
| Ground Floor | 30-36 | 0.02 | 0.04 | 0.04 | 0.02 | 0.03 | 0.03 |
| Second Floor | 25-32 | | | | | | |

*Calculated re-radiated noise levels are subject to limitations as outlined in Section 2.5 of the literature review.

5.7. Discussion

- 5.7.1 The results indicate that the VDV is likely to fall below the level for low probability of adverse comment at ground floor level at VIB1, indicating that adverse comment would not be expected due to tactile vibration.
- 5.7.2 At ground and second floor level of the proposed building, the results indicate that re-radiated noise levels are likely to be below the proposed LOAEL, and adverse effects are not expected.

6 Plant Noise Impact Assessment

6.1.1 An assessment has been undertaken in general accordance with BS4142:2014+A1:2019 to determine the likely noise impact associated with the proposed building services plant.

6.2. Noise Sensitive Receptors

6.2.1 The assessment has been undertaken at the nearest worst effected noise sensitive receptors, which are considered to be a residential dwelling located to the north and north-west of the site.

6.2.2 We note the presence of the Agar Children’s Centre to the west of the site. However with plant located on the 7th and 18th floor, the impact is not considered to be significant as the Centre will not overlook the plant and would be screened by the roof and building of the proposed development.

6.2.3 The location of the receptors are identified on **Figure 3** and described in **Table 6.1**.

Figure 3: Noise Sensitive Receptors



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Table 6.1: Noise Sensitive Receptors

| Receptor | Description |
|-------------------------|-------------------------------------------------------------------------------------------------------|
| 1 | Residential uses at Frampton House to the north of the site. The development is 4 storeys high. |
| 2 | Residential uses at Lulworth House to the north-west of the site. The development is 18 storeys high. |
| 3 (Not Shown on Figure) | Proposed residential uses overlooking 7 th floor plant area. |

6.3. Plant Noise Data

6.3.1 The assessment has been based on source sound level data provided to us by Max Fordham. For the purposes of the assessment, we have assumed that plant is operating at maximum duty. The details of the proposed plant items are presented in **Tables 6.2** and **6.3** below.

Table 6.2: Proposed Plant Details

| Plant Reference | Manufacturer | Model | No. of Units |
|----------------------------|------------------|-----------------|--------------|
| Outdoor Condenser Units | Mitsubishi | PURY-M200YNW-A1 | 2 |
| Environmental Control Fans | Vent Engineering | Ventec EF315 | 3 |
| Emergency Generator | Shenton Group | PHG650Vo | 1 |
| Smoke Fans (Emergency) | Vent Engineering | Ventec EF315 | 3 |

Table 6.3: Plant Data

| Plant Reference | Data Type | Maximum Sound Level at Octave Band Centre Frequency (Hz) | | | | | | | |
|--------------------------------|-----------------|----------------------------------------------------------|-----|-----|-----|----|----|----|----|
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| Outdoor Condenser Units | Lp at 1m | 77 | 61 | 61 | 58 | 51 | 47 | 44 | 42 |
| Environmental Control Fans | Inlet Induct Lw | 85 | 79 | 73 | 73 | 74 | 70 | 66 | 63 |
| | Breakout Lw | 78 | 75 | 63 | 54 | 52 | 50 | 48 | 33 |
| Emergency Generator | LpA at 7m | 70 | | | | | | | |
| Smoke Extract Fans (Emergency) | Inlet Induct Lw | 85 | 79 | 73 | 73 | 74 | 70 | 66 | 63 |
| | Breakout Lw | 78 | 75 | 63 | 54 | 52 | 50 | 48 | 33 |

6.3.2 Plant will be split between the 7th floor and 18th floor roofs as follows:

7th Floor Roof

- 2No. Outdoor Condenser Units
- Emergency Generator
- 1No. Environmental Control Fan
- 1No. Smoke Extract Fan (Emergency)

18th Floor Roof

- 2No. Environmental Control Fan
- 2No. Smoke Extract Fan (Emergency)

6.4. Assessment Assumptions

6.4.1 The assessment is based on the following:

- The environmental control fans operate simultaneously and have the potential to operate at any time during the daytime and night-time period.
- Emergency plant will run only during emergencies and testing. Testing is expected to take place on a monthly basis for a period of 10 minutes. Testing would only take place between 09:00 and 17:00 hours.
- The outdoor condenser units serve the commercial uses and will run during daytime hours only (07:00 – 19:00 hours).

6.5. Calculation Procedure

- 6.5.1 Calculations have been undertaken to determine the rating sound levels associated with the operation of the plant at the nearest noise sensitive receptor.
- 6.5.2 The rating sound level has been obtained by combining the calculated specific sound level for each individual source.

6.6. Background Sound Levels

- 6.6.1 For the purposes of undertaking the assessment, the background sound level at all identified receptors is 40 dB $L_{A90,15mins}$ during the daytime (07:00 – 23:00) and 37 dB $L_{A90,15mins}$ during the night-time (23:00 – 07:00).
- 6.6.2 For the commercial plant, the background sound level at all identified receptors is 50dB $L_{A90,15mins}$ during the operational period (07:00 – 19:00).
- 6.6.3 For emergency plant, the background sound level at all identified receptors is 50dB $L_{A90,15mins}$ during the potential testing period (09:00 – 17:00).

6.7. Acoustic Feature Corrections, Screening and Attenuation

- 6.7.1 Based on the operational data provided, the sources are not judged to emit noise that is tonal, impulsive or intermittent in nature.
- 6.7.2 The emergency generator is enclosed by an acoustic screen approximately 2.1m high.
- 6.7.3 Attenuators have yet to be specified for the smoke extract fans and environmental control fans. For the purposes of this assessment, it is assumed that all fans are fitted with an atmospheric side attenuator achieving the following minimum sound insertion loss values. We would expect the losses to be achieved with a 900mm attenuator with a free area of 50%.

Table 6.4: Attenuator Insertion Loss Values

| Minimum Insertion Loss Value (dB) at Octave Band Centre Frequency (Hz) | | | | | | | |
|------------------------------------------------------------------------|-----|-----|-----|----|----|----|----|
| 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 4 | 7 | 13 | 19 | 23 | 23 | 16 | 13 |

6.8. Results and Discussions

- 6.8.1 **Table 6.5** presents the results of the assessment for non-emergency plant. At all receptors, plant noise emissions fall below the local authority’s criteria and is therefore considered acceptable.

Table 6.5: Plant Noise Impact Assessment Results – Non-Emergency Plant

| Plant Reference | Sound Pressure Level (dB) at Noise Sensitive Receptor (Daytime / Night-time) | | |
|------------------------------------------------------|---------------------------------------------------------------------------------|-----------|---------|
| | 1 | 2 | 3 |
| Outdoor Condenser Units (2No.) | 28 / - | 21 / - | 37 / - |
| Environmental Control Fans (3No) | 27 / 27 | 18 / 18 | N/A |
| Cumulative Sound Pressure Level (dB, LAeq,15mins) | 30 / 27 | 23 / 18 | 37 / - |
| Background Sound Level (dB, LA90,15mins) | 40 / 37 | 40 / 37 | 50 / - |
| Exceedance (dB) | -10 / -10 | -17 / -19 | -13 / - |
| Local Authority Classification (see Table 2.2) | Green | Green | Green |

6.8.2 Table 6.6 presents the results of the assessment for emergency plant. At all receptors, plant noise emissions fall below the local authority's criteria.

Table 6.6: Plant Noise Impact Assessment Results –Emergency Plant

| Plant Reference | Sound Pressure Level (dB) at Noise Sensitive Receptor | |
|------------------------------------------------------|-------------------------------------------------------|----|
| | 1 | 2 |
| Emergency Generator | 55 | 55 |
| Smoke Extract Fans (3No) | 27 | 18 |
| Cumulative Sound Pressure Level (dB, LAeq,15mins) | 55 | 55 |
| Background Sound Level (dB, LA90,15mins) | 50 | 50 |
| Exceedance (dB) | +5 | +5 |

7 Conclusions

- 7.1.1 Stantec (UK) Ltd has been commissioned by Arcadis LLP to undertake a noise impact assessment in relation to Phase 2A at Agar Grove.
- 7.1.2 An environmental sound survey has been undertaken by Stantec (UK) Ltd, to establish the existing environmental sound levels associated with transportation sources incident on the proposed development.
- 7.1.3 The results of the environmental sound survey have been used to prepare an acoustic model. The model was used to establish façade incident noise levels for the proposed development which form the basis of our assessment of the acoustic requirements of the building façade.
- 7.1.4 Assessment criteria have been proposed based on the requirements of the Local Authority.
- 7.1.5 The results of the vibration assessment indicate that the VDV is likely to fall below the level for low probability of adverse comment at ground floor level at VIB1, indicating that adverse comment would not be expected due to tactile vibration. At ground and second floor level of the proposed building, the results indicate that re-radiated noise levels are likely to be below the proposed LOAEL, and adverse effects are not expected.
- 7.1.6 Analysis of the proposed external building fabric has been undertaken in order to determine the acoustic performance of the glazed and ventilation elements. Compliance with the acoustic performance specification detailed herein is expected to result in compliance with the proposed acoustic criteria.
- 7.1.7 The acoustic specifications will need to be integrated, coordinated and ratified with the design by the principal designer and design team to ensure that all other design interfaces, buildability, workmanship and other requirements are considered.
- 7.1.8 It should be noted that the acoustic specifications are to demonstrate the ability of the scheme to comply with planning requirements and are not intended to be used as detailed acoustic design specifications. All acoustic specifications should be reviewed and confirmed during the detailed design stage.
- 7.1.9 An assessment of the proposed non emergency and emergency plant has been undertaken. The assessment indicates that the noise from the building services plant is expected to achieve the requirements of the local authority.
- 7.1.10 Based on the results of the assessments undertaken and the implementation of the recommended mitigation measures, the site should be considered suitable for residential development in relation to noise considerations and is consistent with the current planning permission.

Appendix A Acoustic Terminology

| Parameter | Description |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acoustic Environment | Sound at the receiver from all sound sources as modified by the environment. |
| Ambient Sound | Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. Comprises of the residual sound and the specific sound when present. |
| Ambient Sound Level ($L_a = L_{Aeq,T}$) | Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T. |
| A-Weighted Decibel (dBA) | A decibel level that has been corrected for the A-Weighting curve. |
| A-Weighting | Octave band and 1/3 octave band filters that correlate to the response of the human hearing system to sound pressure levels at different frequencies. |
| Background Sound | The level of sound measured in the absence of extraneous noise sources. |
| Background Sound Level ($L_{A90,T}$) | A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using a fast time-weighting and quoted to the nearest whole number of decibels. |
| Decibel (dB) | A logarithmic unit used to describe the ratio between the measured level and a reference level of 0 dB. The ratio can be sound pressure, intensity or power. The reference value for sound pressure is 20 μ Pa and for sound power is 1 ρ W. |
| Equivalent Continuous A-Weighted Sound Pressure Level ($L_{Aeq,T}$) | Value of the time-averaged A-weighted sound pressure level, in decibels (dB), of a continuous steady sound for the duration of the specified time interval, T. |
| Façade Level | The sound pressure level at a distance of 1 metre from the façade |
| Fast Time Weighted | The speed at which the instrument responds to changes in amplitude of the measured signal. The response time of a fast time-weighted instrument is 0.125 seconds. |
| Free-Field Level | The sound pressure level measured away from any reflective surfaces. |
| Frequency (f) | The number of cycles of pressure fluctuations within a given period of time. Measured in Hertz. |
| Hertz (Hz) | The unit of frequency or pitch of a sound. One hertz is equal to one cycle per second. |
| $L_{10,T}$ | The noise level exceeded for 10 % for a given time interval, T. Generally used to describe traffic noise. |
| L_{Amax} | The maximum A-weighted level measured during a given time period. |
| Octave Band | Band of frequencies where the upper limit of the band is twice the frequency of the lower limit. E.g., the 1000 Hz band contains noise energy at all frequencies from 707 to 1414 Hz. |
| Percentile Level ($L_{AN,T}$) | The A-Weighted Sound Pressure Level which is exceeded for N% of the specified time interval. E.g., the $L_{A90,1hour}$ is the A-weighted sound level exceeded for 90% of 1 hour/ |
| Reference Time Interval (T) | Specified interval over which the specific sound level is determined. |
| Sound Pressure | The difference between the pressure caused by a sound wave and the ambient pressure of the medium the sound wave is passing through. Measured in Pascals. |

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sound Pressure Level (L_p) | The logarithm of the ratio of a given sound pressure (p) to the reference sound pressure (p_0). The reference value for sound pressure is $20 \mu\text{Pa}$. Defined as: $L_p = 20 \log \left(\frac{p}{p_0} \right)$ |
| Sound Sources | Sounds generated by nature or human activity. |

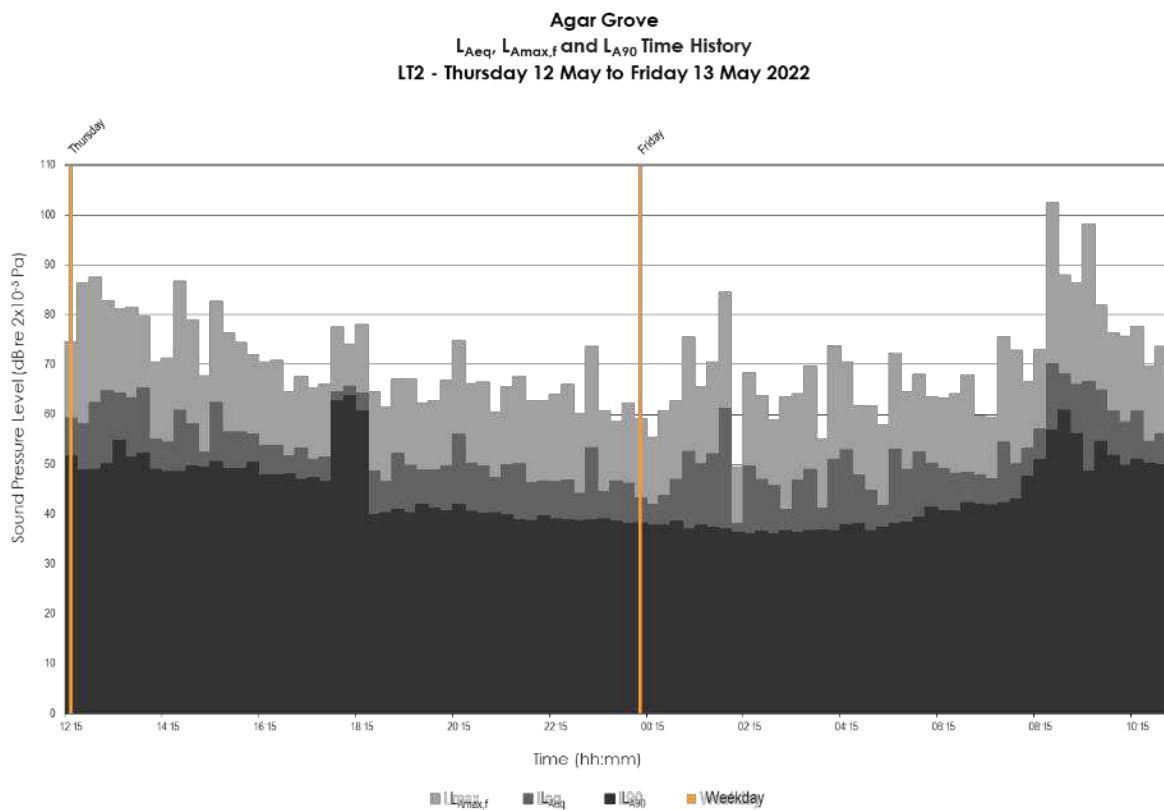
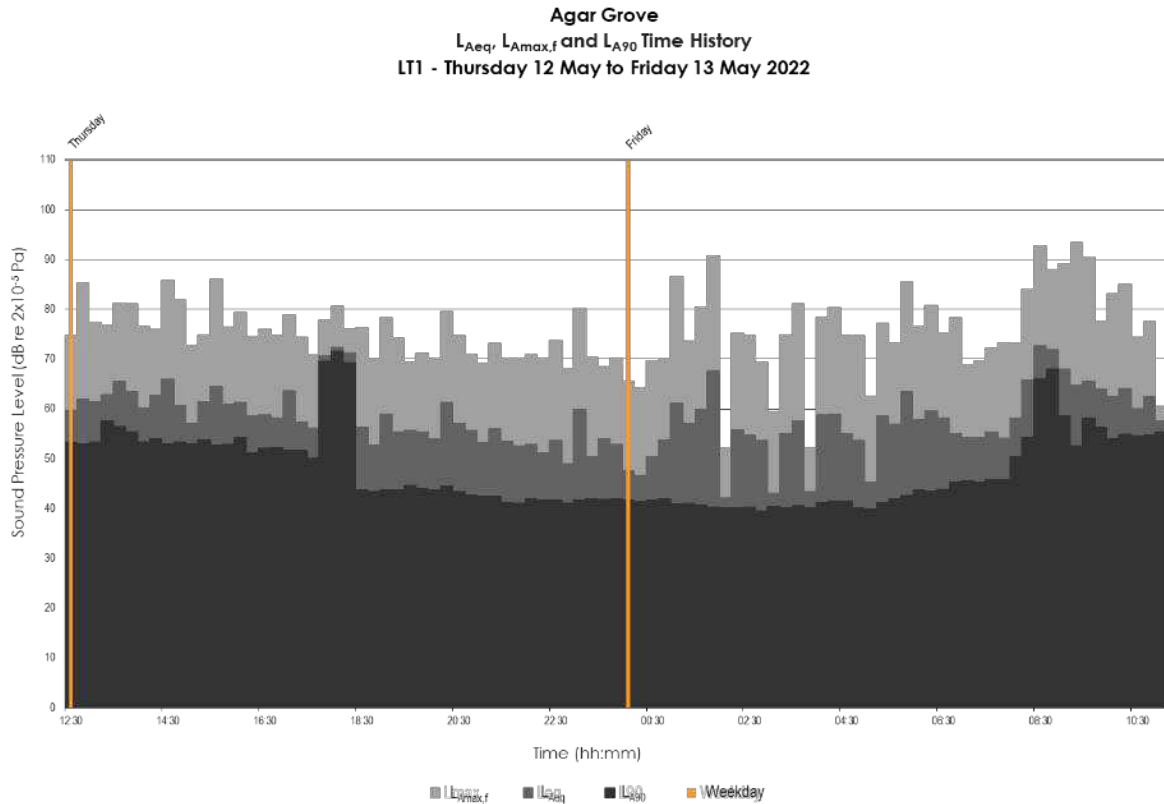
Appendix B Instrumentation

B.1.1 The instrumentation used in the survey is listed in Table B1.

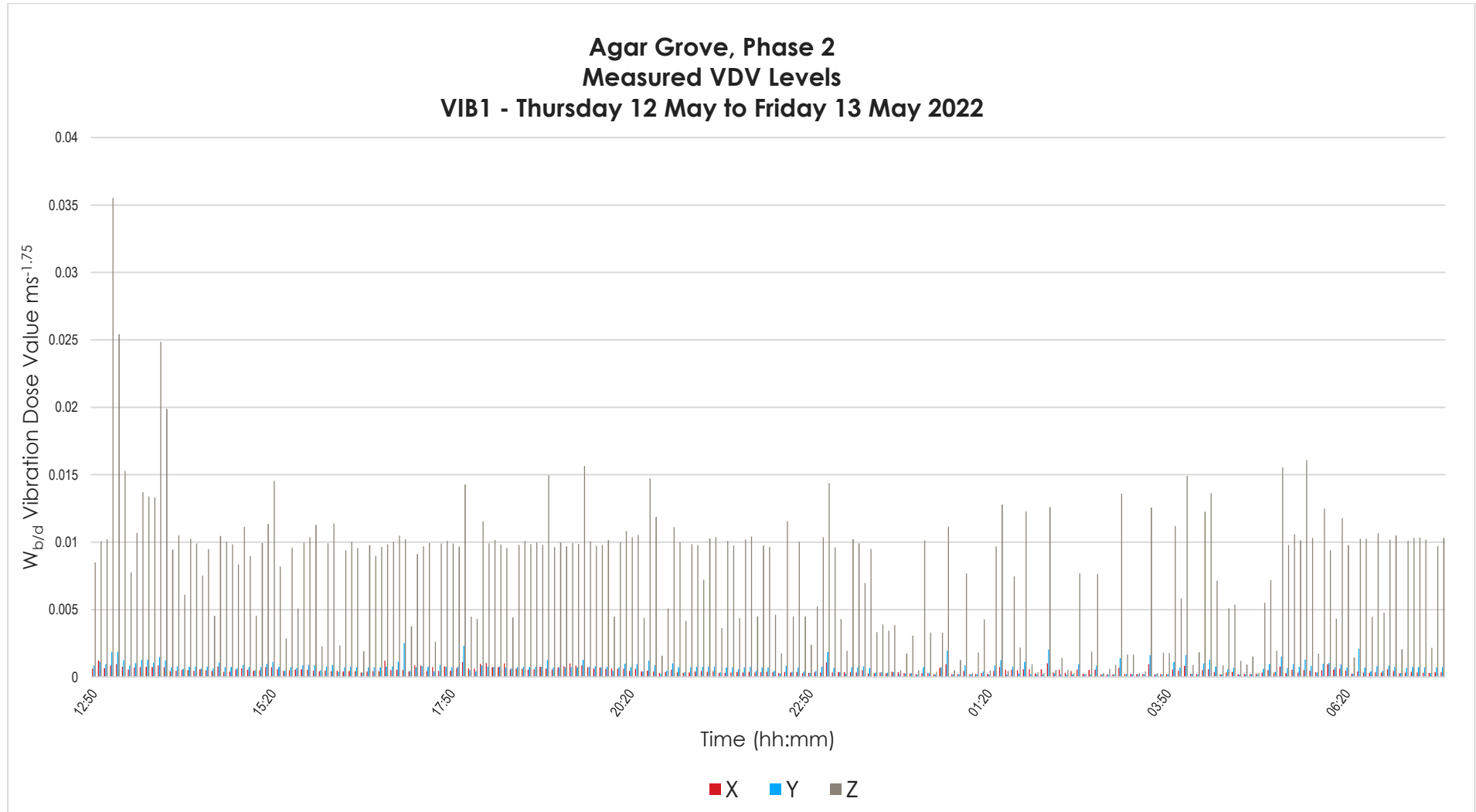
Table B1: Instrumentation

| Description | Manufacturer | Type | Serial Number | Laboratory Calibration Date |
|-----------------------------|--------------|-------|---------------|-----------------------------|
| Sound Level Meter | RION | NL-52 | 1043456 | 13/02/2021 |
| ½" Pre-polarised microphone | | UC-59 | 7231 | 13/02/2021 |
| Pre-amplifier | | NH-25 | 43485 | 13/02/2021 |
| Sound Level Meter | RION | NL-52 | 654033 | 10/01/2022 |
| ½" Pre-polarised microphone | | UC-59 | 08287 | 10/01/2022 |
| Pre-amplifier | | NH-25 | 54078 | 10/01/2022 |
| Sound Calibrator | RION | NC-74 | 34746693 | 06/10/2021 |
| Vibration Monitor | RION | VM-54 | 01150113 | 17/11/2020 |
| Vibration Monitor | 01dB | dB4 | 11729 | N/A |
| | | dB4 | 12167 | N/A |
| | | dB4 | 12166 | N/A |
| Digital Acquisition System | 01dB | dB4 | 1863 | N/A |

Appendix C Time History Graphs



Appendix D Vibration Dose Value Time History (Location VIB1)



Appendix E Measured Acceleration of Train Passbys (Location VIB2)

Figure E.1: Acceleration Levels – VIB2 X Axis

**Agar Grove, Phase 2
Acceleration Level
Position V2, x-axis**

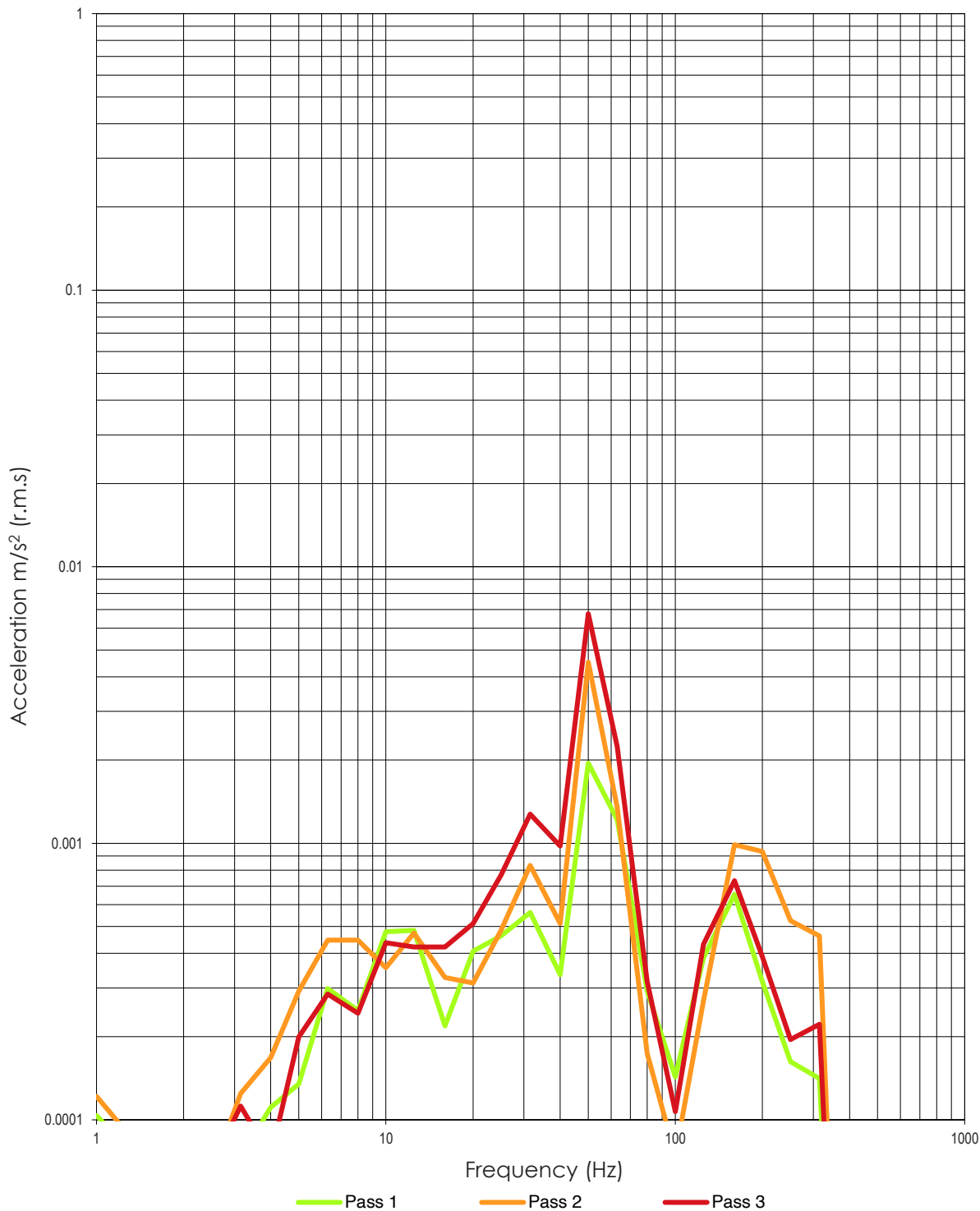


Figure E.2: Acceleration Levels – Y Axis VIB 2

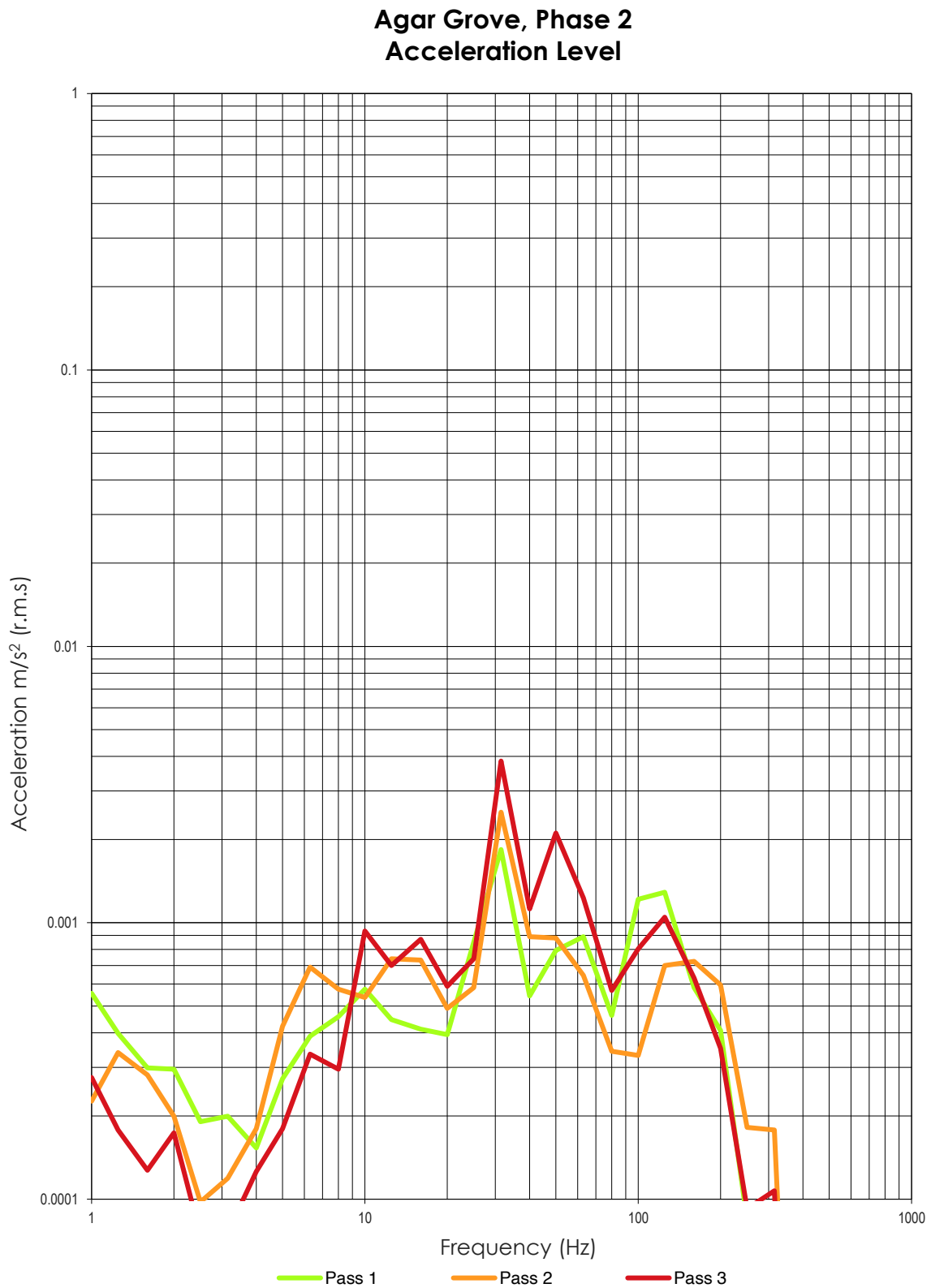
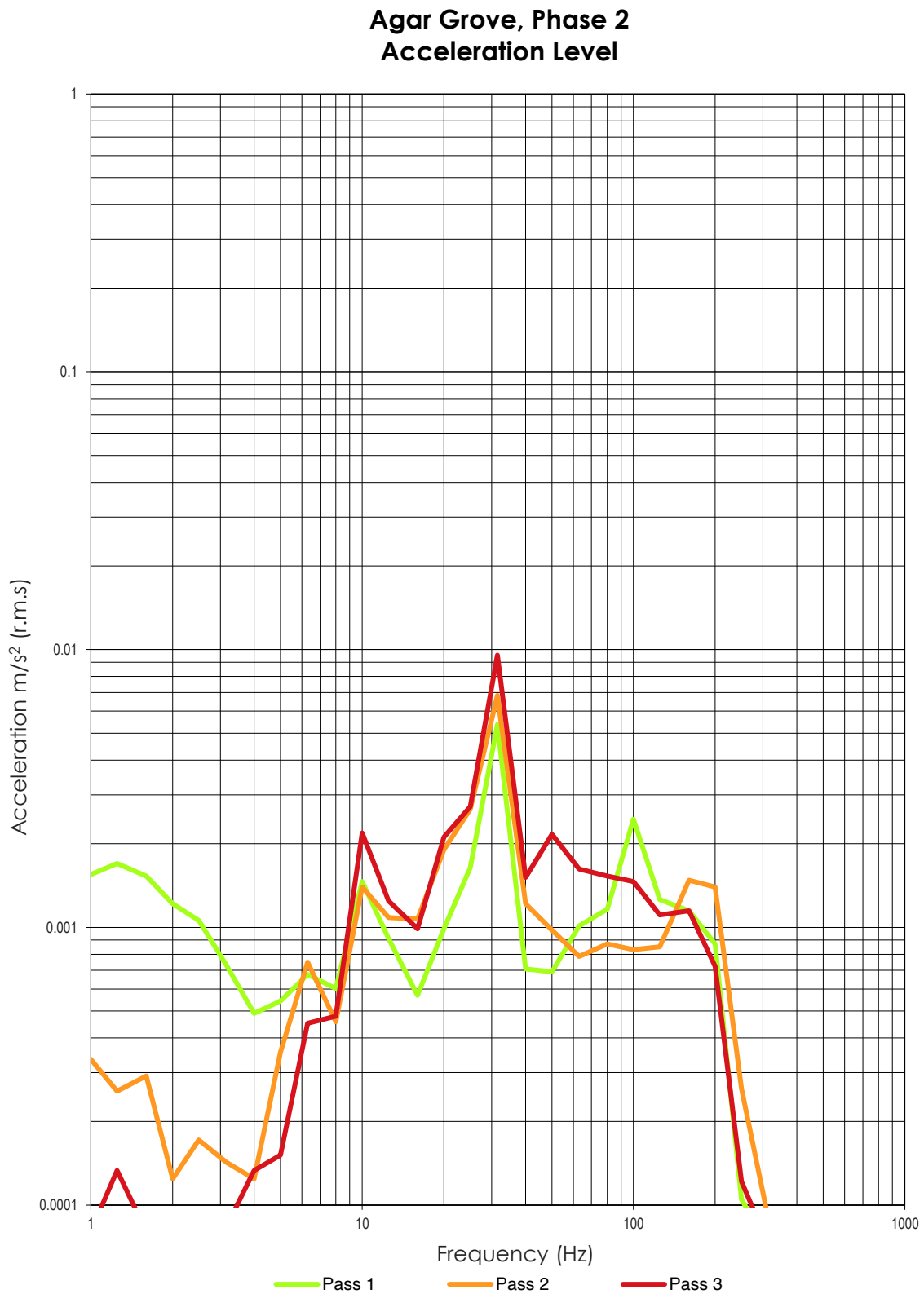


Figure E.3: Acceleration Levels – Z Axis VIB 2



Appendix F External Building Fabric Acoustic

F.1 Performance Specification

- F.1.1 The project criteria are expressed in terms of an overall A-weighted dB sound level. Alternative frequency specific performance levels may therefore be acceptable subject to confirmation from Stantec.
- F.1.2 Fully detailed test reports from independent acoustic test authorities shall be supplied. All test reports shall be in English or, a full English translation.
- F.1.3 Test data should include the 1/3 octave band results from 100 Hz to 3150 Hz inclusive, together with the corresponding octave band results from 125 Hz to 4000 Hz inclusive.
- F.1.4 As a result of wind or other atmospheric effects, external building elements should not give rise to rattling, creaking or whistling.

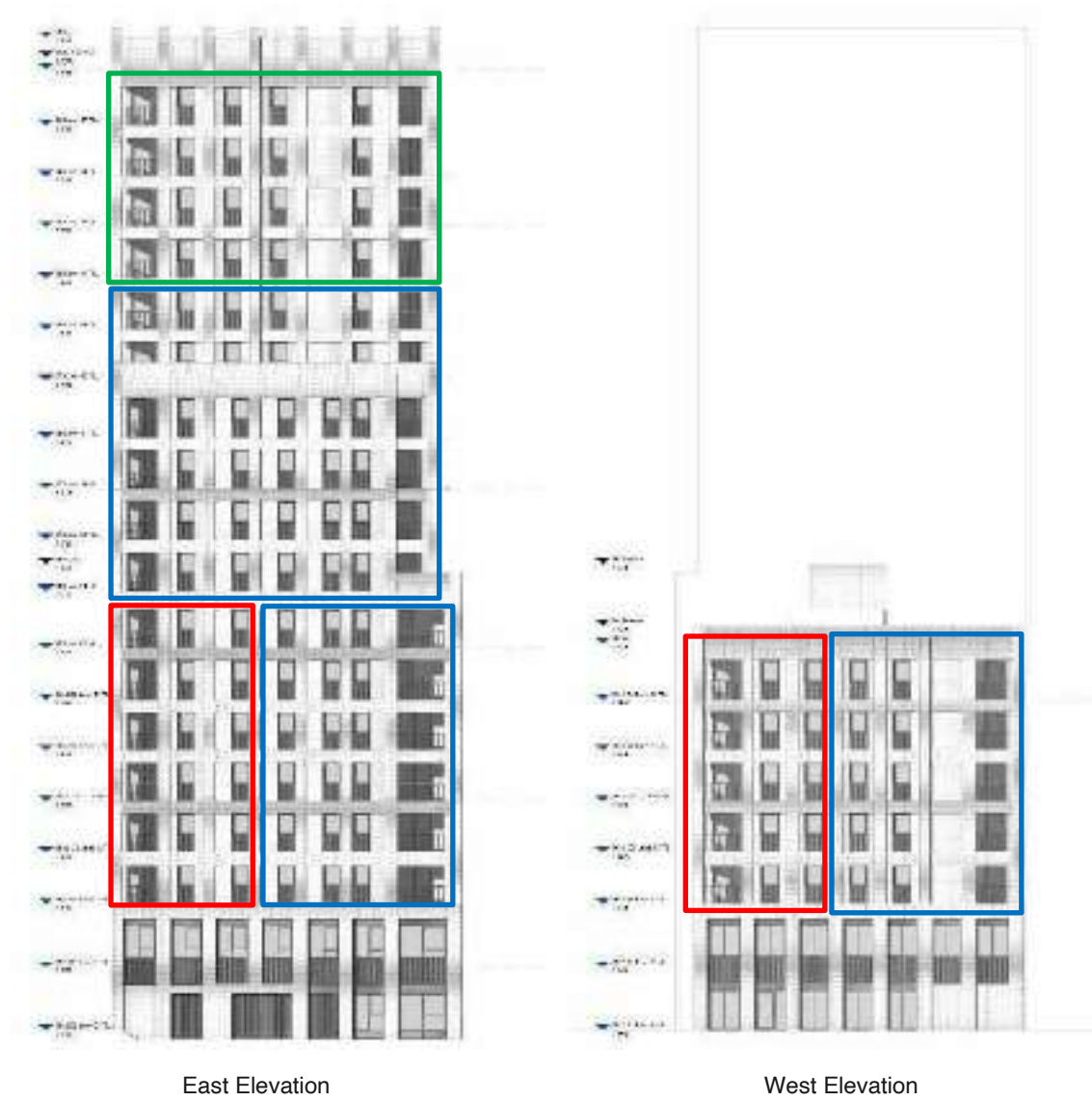
F.2 Glazing Sound Insulation Performance

- F.2.1 The complete glazing system (including frames, joints, seals, spandrel panels and opening lights and trickle vents (as appropriate)) shall achieve the following minimum sound reduction indices when tested in accordance with BS EN ISO 10140-2:2021.

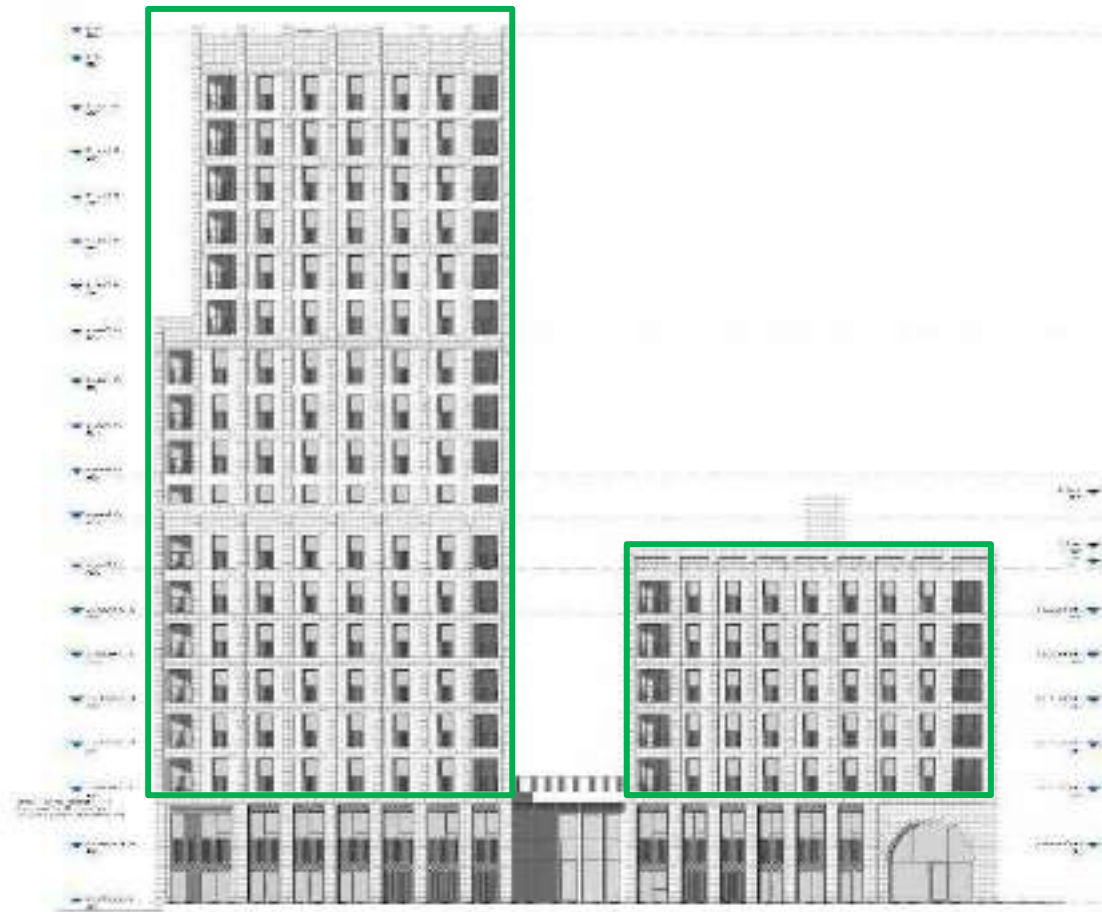
| Glazing Zone | Minimum Sound Reduction Index (R) value (dB) at Octave Band Frequency (Hz) | | | | | R _w * |
|--------------|----------------------------------------------------------------------------|-----|-----|----|----|------------------|
| | 125 | 250 | 500 | 1k | 2k | |
| G1 | 24 | 28 | 35 | 36 | 38 | 36 |
| G2 | 19 | 27 | 33 | 35 | 33 | 34 |
| G3 | 19 | 22 | 25 | 33 | 33 | 30 |

*The overall R_w figure is provided for guidance purposes only. The octave-band specification should be referred to in order to check compliance with the requirements.

Appendix G Glazing Zones



- Glazing Zone 1
- Glazing Zone 2
- Glazing Zone 3



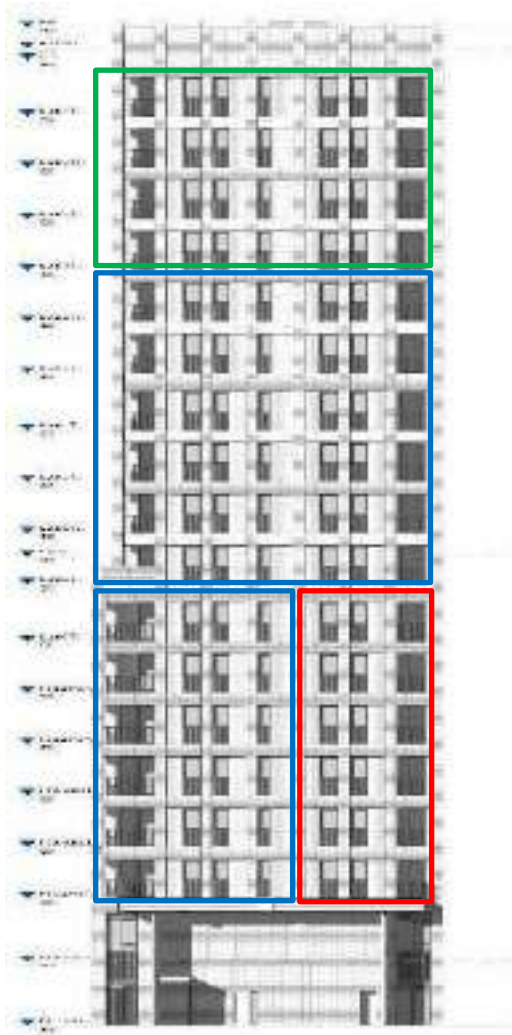
North Elevation

- Glazing Zone 1
- Glazing Zone 2
- Glazing Zone 3



South Elevation

- Glazing Zone 1
- Glazing Zone 2
- Glazing Zone 3



1 Internal West Elevation

Internal East Elevation

- Glazing Zone 1
- Glazing Zone 2
- Glazing Zone 3