3 Acoustic Surveys

The aim of this survey is to produce acoustic signature of track drainage pipes with the object of studying changes in their service and structural condition over a specified time period and estimate the rate of deterioration.

To become aware of the latest technological developments the contractor is encouraged to visit http://www.acousticsensing.co.uk/.

3.1 Assets to be Surveyed:

The pipes to be surveyed are listed in the PPM Programme which shall be given to the contractor in Excel format.

Any changes to the asset list shall be subject to agreement of both parties and shall be communicated in writing.

The contractor shall remove sufficient obstructions from the civil assets exclusively, silt, debris, balast and water in a safe manner to enable the acoustic inspection to be undertaken.

3.2 Equipment for Survey:

To carry out the survey the contractor shall obtain and use suitable equipment, MIS Drainage highly recommends SewerBatt which is commercially available as a finished product and has already been approved to be used in LU. Use of any other product will be subject to agreement of LU Head of Profession and Track Drainage Delivery Manager.

The equipment shall also include any specialised computer software developed or recommended by the suppliers.

Prior to the commencement of site works the contractor must ensure that the operatives are adequately trained in the use of the survey equipment.

3.3 Site Survey:

The survey shall be carried out in accordance to the instructions supplied by the manufacturer of equipment and one reading for each pipe shall be taken from either upstream or downstream access chamber.

The contractor shall also take a photograph of inside the chamber, clearly showing the end of the pipe that has been surveyed.

If the survey cannot be carried out due to major maintenance issues, such as high water level, high silt level requiring jetting, etc then the contractor shall report the situation with taken photographs to the LU designated engineer and awaits further instructions.

The deliverables of the acoustic surveys must be in excel format including the acoustic signature and the data processing tasks including:

- Export data from SewerBatt to MS Word & Excel

- Ensure any defects have been correctly identified by examining the acoustic response in more details
- Complete the serviceability/structural assessment
- Produce a weekly report containing the Contractor productivity and proportion of surveys identified as been serviceable and unserviceable
- Catalogue and store the data to allow future changes in serviceability and structural condition to be quantified.

4 CCTV Surveys

The aim of this brief is to carry out a CCTV survey to identify and locate all service and structural defects.

4.1 The contractor shall check the diameter of the pipes and to use suitable equipment to produce a clear footage and adequate data when producing the CCTV reports.

4.2 Undertake a CCTV survey of all pipes listed in the workbank. Remove sufficient obstructions from the civil assets exclusively, silt, debris, ballast and water in a safe manner to enable the CCTV inspection to be undertaken and all required information recorded according to the WRC Manual of Sewer Condition classification.

4.3 If a CCTV inspection cannot be completed due to an obstruction in line that cannot be removed without causing further detrimental structural damage, the survey should be abandoned. A reverse survey must be attempted as completion of the inspection and the obstruction reported.

4.4 If the use of high pressure jetting is required to remove obstruction, this should be agreed in advance with the LU Project Manager.

4.5 The contractor shall remove all silt and debris from pipes and chambers and double bagged it, then remove it from site simultaneously in accordance with the H&S and Environmental legislation.

4.6 The deliverables of the CCTV files must be consistent in mpeg format. The reference to the media file in the .dat file should match exactly the actual file name on the disk. The date & time field must be completed correctly and consistently on the filenames of media files in the .dat file and the actual file name on the disk. Plus using the "U" or "D" suffix indicating the direction of the camera (Upstream or Downstream).

4.7 When a CCTV survey is carried out and does not match the drawing an updated drawing should be submitted at the time the report and footage is submitted.

5 Jetting of Drainage System

Where cleaning by water jetting is required, the Contractor shall clean existing drainage systems in accordance with this Clause 5.

5.1 The Contractor or sub-contractor shall be a member of The Water Jetting Association (WJA) (or other applicable recognised trade body) and operate in strict accordance with its published codes of practice.

5.2 The Contractor or sub-contractor shall comply with the recommendations of the current edition of the Sewer Jetting Code of Practice published by WRC Plc.

5.3 The pipe material and structural condition of the drainage systems to be cleaned shall be identified in the PPM Programme. Where the material and/ or condition is unknown and cannot be verified by either visual inspection without recourse to man entry, or from drainage records, or damage to the pipeline is the suspected cause of a blockage, cleaning shall proceed on the basis of using the lowest pump pressure advised in the relevant codes of practice identified in sub-clauses 5.1 and 5.2.

5.4 Where possible the Contractor shall clear blockages in linear drainage channels units by rodding.

5.5 Where silt removal from linear drainage channels and perforated pipes is necessitated, the use of pressure jetting will result in a loss of pressure through the grating, slot or drainage holes together with the escape of silt and debris, unless the apertures can be temporarily covered. The application of pressure shall be regulated such that there is only sufficient to drive the jetting head across the silt to access remote from the point of entry.

5.6 If necessary, when jetting linear drainage channels or perforated pipes, the jetting head shall be changed for one that can deliver the highest volume of water at low pressure. The water pressure shall be sufficient to agitate the silt.

5.7 Wherever practical the Contractor shall use equipment to carry debris over a greater depth than one atmosphere and with a capability to suck liquid.

5.8 All arisings from the cleaning process shall be disposed of in an environmentally sensitive manner in accordance with current legislation.

6 Inspection of Pipe Crossings and Culverts

6.1 The contractor is required to carry out CCTV and Acoustic Surveys for all pipe crossings and culvert within the LU drainage network. A list of all assets and frequency of survey will be provided.

6.2 All assets are required to have CCTV survey done for their entire length including the survey of any intermediate catch pits and manholes.

6.3 There are various assets where the manholes are on third party lands. The Contractor is required to make necessary access arrangements to carry out the surveys and associated works as per requirements. Where necessary, the contractor must make

their own arrangements to clear vegetation in order for access and egress the required location.

6.4 Should the survey gets restricted due to any blockage or debris, contractor is required to unblock the asset to enable the full survey of the asset unless the blocking is due to the full or partial collapse of the asset in which case the contractor will consult with the Job Manager prior to making any decisions on clearing or unblocking the debris.

6.5 Following pipe / culvert clearing and CCTV survey, all assets shall undergo an acoustic survey.

6.6 As part of the delivery, all assets must be free of any blockages and cleared of all vegetation / roots / debris at the works completion.

6.7 The Contractor is required to report any urgent concerns to the Job Manager as soon as identified on site during the survey.

6.8 The Contractor must submit:

- A full CCTV survey report for each asset as required per Paragraph 4 of this work brief
- A full acoustic survey report for each asset as required per Paragraph 3 of this work brief
  - A layout / plan of the asset indicating location of all catchpits / manholes in relation to the tracks and LU boundary fence.
  - Statement confirming that all assets have an asset ID plate (with 4 Nos) and that the location of ID plates on track side is mounted exactly in the correct location right above the alignment of the crossing / culvert.

7 Location of Works

7.1 The Track Drainage Works covered under this scope will generally lie within the core London Underground boundaries and property schedules. These property schedules and plans will be provided to the Contractor to allow for a full assessment of the areas covered under this scope of works.

7.2 For some London Underground boundaries, third party interfaces apply such as; public highways, river crossings, private land, Network Rail Track, DLR Track, etc. For these interface areas, the Contractor is expected to manage the interface and consider any specific rules and/or requirements that may apply.

7.3 Access to the locations of work including Depots and Siddings is entirely the responsibility of the Contractor.

8 Hours of Work

Access will be obtained in accordance with the arrangements set out in the contract Schedule 5 (Access Arrangements). Compliance with these arrangements is mandatory.

9 Standards and Specifications

The Contractor shall deliver the Services to meet the requirements of the Terms and Conditions of Contract – Clause 5.

The Contractor shall deliver the Planned & Reactive Services Works in accordance with all relevant standards and specifications; this includes but is not limited to, London Underground Standards, British Standards, Building Regs, National Standards and Eurocodes

It is the responsibility of the Contractor to ensure that the Standard applied to the scope of work is relevant at the time of undertaking the work.

10 Skills and Competencies

The Contractor's personnel shall be fully trained experienced and competent to meet the requirements of this Scope of Services. Such training, including any subsequent refresher training shall be at the Contractor's expense. It is the Contractors responsibility to ensure that adequate training is maintained for its staff allocated to this scope of services and throughout the life of the contract

The Contractor shall formally submit to the Company all Training & Competency matrices for its staff allocated to this scope of services. These matrices shall be submitted quarterly.

The contractor shall only employ the services of a sub-contractor once the Company has been informed formally of the intention for delivering the works through this route and the relevant certification and competency to carry out the works is evidenced by the main contractor. The main contractor is wholly responsible for the performance of the sub-contractor to meet the scope of works and specification as set out by the Company.

11 Plant and Equipment

The Contractor shall deliver the Services to meet the requirements of the Terms and Conditions of Contract - Clauses 8.1(D), 28.1, 28.3, 28.4 and 28.5

12 Quality & Compliance Inspections

The Company will carry out quality inspections of Planned and Reactive Services completed by the Contractor in accordance with Schedule 12 [Performance].

The Company shall carry out routine Health & Safety audits on the Contractor whilst works are being delivered 'on-site'. The audits will assess all procedures and processes' being carried out to ensure that, as a minimum, compliance is achieved against the standards and specifications.

The output of the Infraco HSE audits will give a consolidated score which will determine the level of compliance. This will then be aligned to 3 achievement ratings; 'Below Compliance', 'Compliant' and 'Good Practice'.

The HSE audit scores form part of the Contract 'Key Performance Indicators' and are reviewed each period and discussed at the Contractor Periodic Review Meetings. Below is a summary of the 'Key Performance Measures' that are assessed each period.

- **Health, Safety, Quality and Environment** (Assessment of practices in line with business compliance and legislation)
- **Tendering** (Assessment of the quality & compliance of tenders received)
- **Assurance** (Assessment of the quality & compliance of assurance management)
- **Cost Management** (Assessment of the quality & compliance of cost management)
- **Service Quality** (Assessment of the overall Service Quality)
- **Work Planning (Progress Vs Plan)** (Assessment of the delivery of works in accordance with the contracted programme)
- **Reporting** (Assessment of the quality & compliance of reporting)
- **Service Delivery** (Measure of the quality & compliance of Service Delivery)
- **LUL Interface** (Assessment of the overall quality of LUL interfaces)

13. Asset Management System

13.1 The Supplier shall use the Asset Management Systems to record details of work undertaken by the Supplier on the Company's assets as part of the Services and to carry out any other activities in relation to the Asset Management System as set out in the Specification.

13.2 The Supplier shall ensure that all Supplier Personnel attend any training by the Company in relation to the Asset Management System and follow the methods and processes required by the Company, as may be more particularly described in the Specification or notified to the Supplier from time to time.

13.3 The Supplier shall perform its obligations under this Clause **Error! Reference source not found.** so as not to put the Company in breach of any of its obligations under any Third Party Licence and shall comply with the terms of any Third Party Licence as if it were a party to the Third Party Licence.

13.4 The supplier acknowledges that the company shall not have any liability to the Supplier in respect of any inaccuracy, error or omission contained in, or any unavailability of the Asset Management System, and the Supplier shall not be relieved of its obligations under this Contract as a result of the Asset Management System being unavailable or containing any inaccuracies, error or omissions.

SCHEDULE 4: PROGRAMME

Assuming a Contract Commencement Date of 01 April 2017 the Programme shall be:

Copy of
2017-2022_TD Progr

SCHEDULE 5: ACCESS

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2. General Obligations
3. Access Plan
4. Booking and Arranging Access
5. Clash Checking
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7. Closure Requests Process
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APPENDICES

1. Access Plan Template
2. Application to Work Form
3. Indicative Timescales for the Publication of Notices
4. Access Subcategories
5. Network Rail Interface Locations
6. Cancelled or Delayed/Curtailed Access Form

1. DEFINITIONS

Accepted Access Plan means the latest Access Plan accepted by the Company's Representative and the Access Manager and which supersedes previous Accepted Access Plans.

Access means a type of access set out in Appendix 4 (Access Subcategories).

Access Manager means the person designated by the Head of Access as the manager for access requests for the Services and who will act as the single point of contact for all access related matters.

Access Plan means the access plan prepared by the Supplier in accordance with the Access Plan Template.

Access Plan Template means the template provided as Appendix 1 to this Schedule 5.

Access Subcategories has the meaning given in paragraph 1.9 of section 6 of this Schedule 5.

Access Visualisation Tool means a tool which provides a graphical overlay on a London Underground 'Harry Beck' map of planned and booked work for a user specified area (Track / Stations) for a user specified time period.

Application to Work Form means the form contained in Appendix 2 to this Schedule 5.

Bank Holiday means a recognised UK Bank Holiday. Start and end times as per definition for "Sunday" stated below.

Emergency Access has the meaning given in paragraph 1.5 of section 6 of this Schedule 5.

Engineering Hours means any time when traction current is switched off (as published in the Guide to Switching Current On and Off subject to variance as published in an Engineering Notice) and trains are not running (ref LUL Rule Book 17 for the definition of Engineering Hours), as is applicable to the running line.

Engineering Notice means a publication produced and circulated within TfL at short notice containing details of engineering works, special current arrangements, engineers' possessions and engineers' trains and similar activities not included in the Traffic Circular.

Engineering Look Ahead Notice means a draft publication produced and circulated by TfL providing a week-view of items that, at that time, are planned to be published on the Engineering Notice for a specific shift.

Exclusive Access has the meaning given in paragraph 1.4 of section 6 of this Schedule 5.

General Access has the meaning given in paragraph 1.1 of section 6 of this Schedule 5.

Head of Access means the person responsible for managing access to the TfL infrastructure for the Services. This role includes but is not limited to the responsibility for the publication of safety documentation.

Incident Officer means the senior TfL operating officer responsible for managing an incident.

L&E Closures has the meaning given in paragraph 1.8 of section 6 of this Schedule 5.

Latest Request Date means the last date an access request can be made in line with a given timescale.

Local Station Access Arrangement Reference Files means the files published by the Head of Access detailing where works may potentially be undertaken on Stations in Traffic Hours including details of possible locations for the storage of materials and equipment and Station opening and closing hours.

LUL Network means the stations and depots (wherever situate), assets, systems, track and other buildings which are used for the maintenance and provision of the underground service known as the London Underground.

LUL Rule Book means the rule books covering the operation of trains and LUL Stations and accessing the Track.

Major Closure has the meaning given in paragraph 1.6 of section 6 of this Schedule 5.

Minor Closure has the meaning given in paragraph 1.7 of section 6 of this Schedule 5.

Monday to Friday means the time from start of Traffic Hours on Monday morning to the time at the end of Engineering Hours on Friday night/ Saturday morning.

Network Rail means Network Rail Infrastructure Limited company nr 02904587.

Network Rail Interface Locations means locations on the LUL Network where Network Rail infrastructure interfaces with TfL infrastructure including but not limited to the location identified in Appendix 5.

Nightly Engineering Protection Arrangements (NEPA) Notice means a publication produced and circulated within TfL at short notice containing details of safety related material for engineering Services and engineer's trains and vehicles.

Night Tube means the provision of a 24 hour revenue service commencing from the Night Tube Start Date.

Night Tube Start Date means 19th August 2016 for Central and Victoria lines, 7th October 2016 for Jubilee line, 18th November 2016 for Northern line and 16th December 2016 for Piccadilly line.

Night Tube Running Period means nominally the period between 21:00hrs Friday night and 06:00hrs Sunday morning.

Night Tube Sections means the sections of the Underground Network which provide Night Tube. The applicable sections of the Underground Network are:

(a) the Central Line route between and including Hainault, Loughton and Ealing Broadway Stations (no Night Tube outside of this route);

(b) the Jubilee Line entire network;

(c) the Northern Line route between and including High Barnet, Edgware and Morden Stations via the Charring Cross Branch (no Night Tube outside of this route);

(d) the Piccadilly Line route between and including Cockfosters and Heathrow Terminal 5 Stations (no Night Tube outside of this route); and

(e) the Victoria Line entire network.

Non-Restrictive/Exclusive Access has the meaning given in paragraph 1.2 of section 6 of this Schedule 5.

Operational Managers mean any or all of group station managers and train operations managers.

Operational Assurance means an Operational Assurance Notification made to TfL in accordance with the requirements of Standard 1-538 (Assurance).

Others mean people or organisations who are not TfL, the Company's Representative, the Supplier or any employee, subcontractor or supplier of the Supplier.

Possession Meeting means a meeting to discuss the viability of a proposed Track possession.

Pre-Closure Request Meeting means a meeting to discuss the viability of a proposed closure request.

Published means in respect of:

(a) Restrictive Access and Exclusive Access to Track, that the works need to be notified in the Engineering Look Ahead Notice, the Engineering Notice and the Nightly Engineering Protection Arrangements (NEPA) Notice; and

(b) For Restrictive Access and Exclusive Access to Stations, that the works need to be notified in the Station Works Plan.

Restrictive Access has the meaning given in paragraph 1.3 of section 6 of this Schedule 5.

SABRE means Site Access Booking for Railway Engineering, being the system used to plan access, and any system that may supersede it at any time in the future.

Saturday means the time from start of Traffic Hours on Saturday morning to the time at the end of Engineering Hours on Saturday night/Sunday morning.

Specialist Protection means all protection arrangements in addition to the Supplier's site person in charge (SPC) (with dual protection qualifications) including but not limited to possession masters; protection resources to implement possession protection arrangements; staff to isolate traction current, technical officers to implement a set of protection arrangements and protection on Network Rail Infrastructure.

Station Works Plan means the general access requests; planned works weekly and planned daily publications circulated by TfL detailing the access arrangements for works planned to be undertaken at Stations.

Stations means areas to which LUL Rule Book 10 applies including buildings, equipment or facilities designed to be used by customers to access or leave a train.

Sunday means the time from start of Traffic Hours on Sunday morning to the time at the end of Engineering Hours on Sunday night/Monday morning.

Track means areas to which LUL Rule Book 17 applies including Track, tunnels, embankments and other line side infrastructure.

Traffic Circular means the weekly traffic circular which contains diverse information such as, infrastructure changes, train service changes, events affecting TfL, notification of restrictions to TfL operations and operational communications.

Traffic Hours means when traction current is switched on (as published in the Guide to Switching Current On and Off subject to variance as published in an Engineering Notice) and trains are running (ref LUL Rule Book 17 for the definition of Traffic Hours), as is applicable to the running line.

Work Request means the work request e-Form provided on TfL's access booking portal and which is completed by the Supplier to reflect the Access Plan and requirements for plant and equipment and specialist protection.

Working Time means a period of agreed access (including closures) in either Traffic Hours or Engineering Hours.

2. GENERAL OBLIGATIONS

1. The Supplier shall comply with its obligations under this Schedule 5 (Access).

2. The Supplier shall be responsible for supplying to the Company's Representative and the Access Manager all such information and taking all such steps as may be necessary to enable the Company's Representative to obtain where applicable Operational Assurance in respect of the Access required by the Supplier.

3. The Parties agree that:

3.1 the dates and times of any Access approved may be cancelled, altered or delayed on notice (or no notice in the case of an emergency or for safety reasons). Alternative arrangements shall be made as soon as the Company's Representative and Access Manager can permit;

3.2 the provisions of Clause 34 of the Contract shall be deemed to apply during such cancellation, alteration or delay to approved Access provided that such cancellation, alteration or delay is not caused (in whole or part) by a failure by the Supplier to comply with its obligations under this Schedule 5;

3.3 neither Party shall have any claim against the other as a consequence of such cancellation, alteration or delay; and

3.4 the Supplier shall as soon as practicable take all reasonable steps necessary to avoid, overcome or minimise the effect of such cancellation, alteration or delay.

4. For access to Network Rail and/or train operating companies' infrastructure and stations, the Supplier is solely responsible for securing access. The Supplier shall make all necessary arrangements directly with Network Rail and/or train operating companies and shall comply with all their rules and regulations.

5. For Access, following a request to the Supplier from the Company's fault reporting centre for a part or all of the Services, the Supplier shall apply for Access in accordance with the requirements of this Schedule 5.

6. The Company shall have no responsibility to the Supplier, and the Supplier shall hold the Company harmless against any Losses that may arise out of any failure by the Supplier to comply with this Schedule 5.

3. THE ACCESS PLAN

1. The Supplier shall, in accordance with the timescales detailed in the Mobilisation Plan, prepare an Access Plan with the objective of maximising the efficient use of the available Working Time and taking account of the following:

   - the information provided in the Local Station Access Arrangement Reference Files (the use of any potential storage areas identified by the Local Station Access Arrangement Reference Files remains subject to the Supplier obtaining the appropriate storage licences);
   - if the Services can be carried out in Traffic Hours (and the Supplier shall construct the Access Plan to achieve the optimisation of Working Time);
   - the minimisation of the number and duration of closures;
   - the utilisation and extension of existing planned closures;
   - the hours/shifts/days in the week required to be worked in order to comply with the Programme;
   - the timescales for booking access and closures as defined in this Schedule 5;
   - the sharing of Access with Others and the minimisation of disruption of the work of Others;
   - if the productivity of Engineering Hours working can be increased, safely, by completing the clearance of workers, materials tools and equipment tools in Traffic Hours (and the Supplier shall support plans with method statements detailing appropriate measures for the protection of the public);
   - the maximisation of Working Time during Engineering Hours when accessing the Track through a Station (where it is safe to do so, all persons, plant and equipment may be positioned within the Station ready to access the Track immediately on confirmation of traction current being turned off);
   - a minimum call back time of twenty (20) minutes for Track access before the expiry of each shift of Engineering Hours (to allow for the safe removal of all workers, materials, tools, equipment and the like) unless a shorter period is agreed by the Company's Representative;
   - any limitation on Engineering Hours specific to the Services as may be specified by the Company's Representative;
   - the time required for the Supplier to ensure the Site is left clean and safe; and
   - Night Tube.

2. The Supplier shall submit its proposed Access Plan to the Company's Representative for acceptance. Within two (2) weeks of the Supplier submitting an Access Plan for acceptance the Company's Representative shall either accept the Access Plan or notify the Supplier of his reasons for not accepting it. A (non-exclusive) reason for not accepting an Access Plan is that:

- it is not compatible with the Access Plan Template;
- it does not take into account the information provided in the Local Station Access Arrangement Reference Files;
- it does not optimise the Working Time;
- it proposes an excessive number or duration of closures;
- it does not adequately make use of existing planned closures;
- it is not compatible with the Programme;
- it does not comply with the timescales for booking Access and closures as set out in this Schedule 5;
- it assumes the use of an existing closure for which an Application to Work Form has not been approved by the Access Manager;
- it assumes an extension to an existing planned closure which has not had the prior approval of the Access Manager;
- requests an access or closure type which is not appropriate for the Services;
- it does not adequately provide for the work of Others;
- it does not maximise the use of available access;
- it does not allow for minimum call back periods or other working constraints detailed by the Company's Representative;
- it does not provide as a minimum all the information provided in the Access Plan Template;
- it does not allow sufficient time for the Site as a whole to be left clean and safe; or
- it does not allow for the operation of Night Tube.

3. The Supplier shall submit a revised Access Plan for acceptance in the following circumstances:
   - if the Accepted Access Plan is no longer applicable in all the circumstances;
   - when a change is required to align with the Programme; or
   - within the period for reply after the Company's Representative has instructed the Supplier to do so. For the avoidance of doubt such instruction does not constitute a Variation or entitle the Supplier to apply for an extension of time.

4. Should the Supplier need to work hours additional to those stated in the Accepted Access Plan (within the constraint of the maximum working hours available within the booked access types), the Supplier shall give at least five (5) Working Days' notice and obtain the Company's Representative's prior written acceptance.

4. BOOKING AND ARRANGING ACCESS

1. The Supplier shall be required to book and co-ordinate access to the Sites with the Access Manager in accordance with the Work Request/SABRE process and the Accepted Access Plan. The Supplier accepts that access to the Sites will be refused without a valid SABRE number and the Supplier shall be responsible for checking that it is in possession of a valid SABRE number for all access requirements detailed on the Accepted Access Plan. If the Supplier is not in possession of the same it shall advise the Company's Representative accordingly.

2. The Supplier shall comply with the requirements of the use of LUCAS (London Underground Combined Access System) and Sentinel (Network Rail's Access and Competency System), particularly in the context of access control at the point of Site entry. The Supplier acknowledges that TfL is phasing out the use of LUCAS cards and is adopting Sentinel as a replacement access and competency system. On expiry of existing LUCAS cards the Supplier shall sponsor the Supplier Personnel required to work on TfL infrastructure to obtain replacement Sentinel cards if they are not already a Sentinel card holder.

3. Training, Certificates, Identity Cards and Entry Permits

3.1 The Supplier is responsible for ensuring that all staff and Supplier Personnel are suitably trained, competent and carry the appropriate and requisite certification for performing the roles required of them in carrying out the Services.

The Standards, and in particular QUENSH and the LUL Rule Book(s) set out the training and certifications required to be met by the Supplier.

3.2 The Supplier is responsible for arranging, booking, and paying for all requisite medicals, training and certification of its staff and/or Supplier Personnel.

3.3 The Supplier shall allow a minimum of twenty-eight (28) days' notice period for all TfL provided training and certification courses and will include the same on any proposed Access Plan or programme. The Supplier acknowledges that any time period less than this cannot be guaranteed, and although the Company may make efforts to facilitate a shorter notice period wherever possible, the Supplier does not rely on such reduced time periods being accommodated.

3.4 At the Contract Commencement Date, the Supplier shall produce a competency matrix for all its staff or Supplier Personnel involved in providing the Services detailing the training, certification and competency information held on record. The Supplier shall update the matrix until the Expiry Date and make the same available on request of the Company's Representative.

4. London Underground Access Control

4.1 LUCAS (London Underground Combined Access System) smartcards have not been issued since 01/04/2015. Unexpired cards issued before this date remain valid until they expire or by further notification from TfL.

4.2 All Supplier Personnel require either:

- a valid LUCAAS smartcard; or