Imperial College London

ESTATES OPERATIONS

CODE of PRACTICE

ACCESS TO SERVICE TUNNELS

(South Kensington)

ISSUE DATE & VERSION: **November 2019 v2.0**

1. Executive Summary

During a review of the Tunnels Code of Practice (CoP) 2016, it was decided that access to these high-risk areas, require more stringent controls. The tunnels network under the South Kensington campus is a series of complex underground pathways servicing the whole of the campus with the means of electricity, water, heating and communication which, in some instances, merge with large plant rooms too.

The Access to Service Tunnel CoP 2019 has set a new protocol which needs to be followed in order to gain access into the tunnels. All users are required to be inducted and receive a passport, which illustrates their roles, responsibilities, risks and hazards they may experience whilst in the tunnels. The users are expected to renew these passports on an annual basis, in order to maintain as a registered user.

The deep tunnels follow a separate set of protocol (see section 12). In addition to the above protocols, access to the deep tunnels is generally limited to four times a year for survey work and must be authorised by the Head of Maintenance. Furthermore, a specialist rescue team must be in attendance, prior to entry into the deep tunnels.

2. Introduction

2.1 This document sets out the arrangements to manage access to the Service Tunnels located underneath the South Kensington Campus. These tunnels carry a range of services between the various buildings on the campus including those located to the east of Exhibition Road.

2.2 Due to the location and nature of the tunnels, lone working is not permitted.

2.3 The environment can provide a range of hazards including high risk areas including deep tunnels, crawl spaces, extreme temperature and humidity, steam leaks, flooding and water leaks.

2.4 It is therefore imperative that all persons entering the tunnels are fully familiar with the safe working protocols set out in this document.

2.5 This access control procedures, applies to all College employees and contractors.

3. Access Control System

3.1 Tunnels are restricted areas and access is controlled substantially by a card reader system and permits to work, where applicable.

3.2 All doors to the Service Tunnels have been grouped and identified.

3.3 Access will only be available to persons who have received a Service Tunnel Induction (see section 4).

3.4 No staff/contractor should have Service Tunnel access on their College ID cards.

3.5 Service Tunnel swipe cards can only be issued to Security Control, following the correct protocols.

4. Induction for Employees and Contractors

4.1 All College staff and approved contractors entering the Service Tunnels are to be inducted.

4.2 The induction talk will highlight the dangers of working in the tunnels and the precautions which must be taken.

4.3 Induction will only be provided by the Estates Operations Health and Safety team (EO H&S team).

4.4 Annual refresher induction is needed to continue access.

4.5 Physical copy (paper or electronic) of the signed induction form is the **passport** (see section 18) for Security Control to grant access to the Service Tunnels.

4.6 Where planned works are being undertaken it is the Project Manager's responsibility to ensure all contractor staff follow the correct induction process (see sections 3 and 4).

5. Safety Arrangements

5.1 **Safety Induction** to be received and form signed (see section 4)

5.2 **Lone working** is strictly prohibited in the Service Tunnels. Minimum of two persons per visit.

5.3 Inductees have to make sure their employer is aware of any **medical conditions** which could require additional measures to be implemented to allow safe access to the Service Tunnels.

5.4 College **radio** usage is mandatory for communications. Regular check ins need to be maintained throughout the duration of the visit. There is currently no provision of Wi-Fi and therefore unable to use mobile phones. Any landlines in situ have been terminated.

5.5 Service Tunnel zoned **maps** will be issued by Security Control (see sample on section 18), to facilitate communications between operators and Security Control.

5.6 Some areas within the Service Tunnels experience **extreme heat**. It is highly recommended that water is carried by individuals during the visit.

5.7 In the event of having to work in areas of high heat and/or humidity, regular street level **breaks** are recommended.

5.8 It is mandatory to **wear** sensible footwear, head protection and high visibility jackets / vests at all times. Hand protection is also recommended.

5.9 All persons working in the tunnels must **sign in and out** at Security Control and must have the following sections available at all times:

- Valid service tunnel 'passport' (signed induction form)
- Specific swipe card for the Service Tunnels;
- Tunnel maps with zones;
- Torch and spare batteries;
- Suitable footwear;
- Head protection;
- High visibility jackets/vests;
- Radios (x2);
- Drinking water;
- Tunnel fire door (TFD) keys, where applicable;
- Permit to Work (see section 6) where applicable;
- RAMS (see section 7) where applicable

5.10 Knowledge and understanding of the Service Tunnel **Emergency Procedures** (see section 15).

6. Permit to Work (PTW)

6.1 Imperial College London operates a Permit to Work (PTW) system which is designed to protect the health and safety of persons such as contractors, maintenance workers, staff and students.

6.2 Those who need access to enter hazardous areas including roofs; plant rooms; risers; labs and Service Tunnels to carry out a range of works (including Planned Preventative Maintenance (PPM), project works, reactive works and repair works to plant and services) need to apply for a PTW.

6.3 The Permit to Work Code of Practice defines what is required of a risk assessment / method statement for it to be deemed suitable and sufficient.

6.4 A PTW is required for any work **other than** normal maintenance eg. Lamp replacements for lights or Planned, Preventative Maintenance (PPM) (see section 8).

6.5 All persons require to work in the service tunnel will need the prior approval from EO H&S team following an application for a PTW.

6.6 Access will be denied to contractors unless an approved PTW has been presented to Security Control.

6.7 A PTW should be displayed by the contractor at the point of entry to the tunnel and removed when 'closed out'.

6.8 Where '**hot work**' is involved, the permit will require additional approval from the Fire Office, hot works include cutting, grinding, brazing, welding. The request will go to EO H&S team and to the Fire Office who will consider whether permission can be granted for the work to go ahead.

6.9 A PTW can be issued on a weekly basis for general areas of the tunnel complex and on a daily basis for those areas identified as being of a high risk. A PTW can be obtained by going to: http://www.imperial.ac.uk/estates-facilities/contractors/permit-to-work/

6.10 In general, The College Maintenance Team and ICT, will be responsible for ensuring contractors submit a request for a PTW, ensure the PTW is authorised by the responsible persons and must oversee the contractor's operations.

7. Risk Assessment Method Statement (RAMS)

7.1 The contractor must provide, at the point of submitting a PTW request, a method statement for the work they will be carrying out, prior to commencement on site.

7.2 For planned works a minimum of 7 days' notice is required.

7.3 There is not a prescribed format for a RAMS but it should be suitable and sufficient and include: unique identifier; described plant or equipment to be working on; location of task; details of hazardous material; significant hazards arising from the task or process; control measures; residual risk; when risk assessment was last reviewed.

7.4 All RAMS produced that support a PTW, will need to be reviewed by EO H&S team and the other responsible persons.

a. **Measured Term Contractor (MTC)** will be responsible for producing a 'library' of RAMS which relate to the schedule of planned and reactive maintenance activities and regularly reviewing them to ensure they remain suitable and sufficient.

b. **Dynamic risk assessment** is to continually review and assess the environment and prevailing circumstances in which a task is being, or will be undertaken, prior to commencing the work. Contractors

undertaking planned or reactive maintenance activities are expected to apply the principles of dynamic risk assessment.

8. Planned Preventative Maintenance (PPM)

8.1 Contractors report to Security Control to sign in and follow section 5.9. On exiting the tunnels, the contractor will return all equipment to Security Control and sign out.

8.2 It is the responsibility of the Project Managers to ensure contractors are familiar with and work in compliance with, this CoP when undertaking project works and that all staff, operatives and visitors, are inducted by a member of the EO H&S Team.

8.3 An amount of plant located in the Service Tunnels requires regular/planned maintenance. All PPM activities will be notified to and approved by, the appropriate Maintenance Manager. The attendant engineer must report to Security Control to sign in and out (refer to 5.9) and follow the standard access protocols.

8.4 It is necessary to facilitate access to the Service Tunnels for surveys and investigations to be conducted by EO, ICT Network Infrastructure, MTC, asbestos management company and others.

8.5 All access must be approved by the Maintenance Manager, who will also arrange for the visitors (specialist companies or anyone unfamiliar with the tunnels) to be escorted by a member of their team, if deemed necessary.

8.6 At the point of completing the works, the contractor is responsible for clearing and cleaning the work area. It is the MTC and/or the Maintenance Supervisor's role to ensure this is carried out to an acceptable standard and to ensure the PTW is closed out, if required.

9. Project Work

9.1 Contractors will report to Security Control to sign in and follow sections 4 and 5. On exiting the tunnel the contractor will return all equipment to Security Control and sign out.

9.2 Necessary induction required (see section 8.2)

9.3 All works to be undertaken in Service Tunnels involving changes to the fabric of the tunnels, or services housed within the tunnels, must be approved in advance by the Head of Maintenance and the EO H&S team. This include works to be undertaken by contractors appointed by Information, Communications & Technology (ICT).

9.4 At the point of completing the works, the contractor is responsible for clearing and cleaning the work area. It is the Project Manager's role to ensure this is carried out to an acceptable standard and to ensure the PTW is closed out, if required.

10. Reactive Work

10.1 No contractor will be allowed to enter the Service Tunnels unless they have received an induction by a member of the EO H&S team (see section 4 and 5) An annual refresher induction will be required.

10.2 In a majority of cases, the MTC will request contractor(s) to resolve a defect and will therefore make a request for a PTW and assume responsibility for overseeing the work and the contractor's compliance with this CoP.

10.3 The MTC will be responsible for issuing the PTW in accordance with College procedures and ensuring it is 'closed out' as appropriate.

10.4 Reactive works will originate from two sources, either via the CSC as a reported defect or from the ICT Helpdesk.

10.5 Reactive work varies between the **Core Hours,** which are defined as 07.00 – 19.00 Monday to Friday and 08.00 – 16.30 on the weekends. **Out of Hours** are all other times including public holidays.

10.6 **Defects during core hours** will be allocated to College Maintenance team who will, in the majority of instances, provide the first response. If unable to rectify, the MTC or specialist contractor will be delegated.

10.7 **Defects during out of hours** will be allocated to the MTC. A dynamic risk assessment is required (see section 7.4b prior to making an intervention / investigation requiring access to the Service Tunnels. If the MTC engineer is unable to resolve the defect and it is considered urgent, a specialist contractor may be employed and must be supervised at all times, by the MTC.

11. Emergency Work

11.1 If urgent tunnel access is required for contractors rendering it impracticable to use the PTW (see section 6), the following procedures will apply:

- The contractor must be on the College Approved List;
- Contractor staff must have attended the service tunnel induction and have a valid service induction passport (see section 4);
- The relevant Maintenance Manager/EO H&S team is contacted to ascertain whether it is safe for contractors to enter the tunnel;
- Consideration has been given by Maintenance, the MTC or ICT to the risk associated with the task to be undertaken and control measures devised to sufficiently mitigate the risks by producing a RAMS (see section 7).

11.2 In the event that a contractor requires emergency access and has not been tunnel inducted, their entry into the Service Tunnels and the subsequent works, must be supervised by either the College Maintenance, the MTC or ICT Network Infrastructure Group. All other conditions above are to be met.

12. Deep Service Tunnels

12.1 The tunnels beneath Exhibition Road and Sir Alexander Fleming (SAF) Building differ in their layout and structure such that they require additional precautions to be taken by staff and contractors who may need access to them. These two tunnels can **only** be accessed once permission has been granted by the appropriate Maintenance Manager and the EO H&S team.

12.2 These tunnels are not categorised as confined spaces as defined in The Confined Spaces Regulation 1997. However, due to the nature of the increased risks involved, access will only be granted under a Permit to Work authorised by the Maintenance Manager and the EO Safety Team.

12.3 In general, access to both deep Service Tunnels will require the assistance and attendance of specialist rescue team employed by Estates Operations, who will have been suitably trained to undertake rescues of personnel who have become ill or disabled, whilst working or undertaking monitoring, or PPM work in those locations.

12.4 Access to the Deep Tunnels will only be granted for those persons who have undertaken harness and rescue training.

12.5 On the days when access is being managed, the specialist rescue team will have full authority to direct those individuals having access to the deep tunnels and will ensure no one enters the tunnels without an approved harness and can demonstrate that they have undertaken the appropriate training.

12.6 In the event of an emergency, the rescue team will contact Security Control and request the appropriate emergency assistance. Security Control will contact and guide the Emergency Services, to where they are needed.

12.7 The rescue team will take control of the deep tunnel area and undertake to remove the individual from the tunnel to a place of safety, where the Emergency Services will take over and provide specialist first-aid and medical assistance.

12.8 The rescue team will provide a report to the Maintenance Manager and copy to the EO Safety Team. A Salus Report will be raised, reviewed and any recommendations arising to improve access and/or rescue procedures, will be acted upon and the Tunnels Access CoP will be updated.

13. Provision / Adaptation of Data Services

13.1 The College ICT Network Infrastructure team is responsible for the provision and maintenance of all data and a communications services on the South Kensington campus, many of which are located in the Service Tunnels and provide network around the College.

13.2 ICT and their appointed contractors will be required to comply with the safety arrangement when installing or refurbishing data cabling and equipment.

13.3 Where new services are being installed or re-fits undertaken it will be incumbent upon ICT to nominate a member of staff to take on the role of Project Manager, who will take responsibility for ensuring this CoP is complied with.

13.4 **ICT defects during core hours** – all faults with data services to be reported to ICT Helpdesk on 0207594 9000, who will carry out an initial investigation to verify the location and nature of the fault. If access to the Service Tunnels is required, permission from EO H&S team and Maintenance Managers needs to be sought. Where it is necessary to bring in a contractor to resolve the fault, Section 10 needs to be followed.

13.5 **ICT defects during out of hours** – MTC engineer will be contacted. A dynamic risk assessment (see section 7.4b) will be conducted and if required a specialist contractor will be employed. The MTC shift engineer will accompany the contractor and supervise their visit, thereby negating the necessity for the contractor to have been tunnel inducted.

14. Asbestos

14.1 From surveys carried out by Imperial College London, it is known that asbestos containing materials (ACMs) are present in the Service Tunnels, particularly in the lagging material around high pressurised steam pipes.

14.2 Where ACMs are known to be present in the service tunnel, they are appropriately labelled and prior to commencing project or refurbishment works in the tunnels, the appointed Project Manager will confirm the location of ACMs with the College Asbestos Manager.

14.3 In addition to the measures above contractors must always proceed with caution when undertaking any form of works in the tunnels as they may come into contact with ACMs not previously identified. Should this occur they should immediately stop work and contact EO CSC on 020 7594 8000 or Security Control on 020 7589 1000.

15. Emergency Procedures

15.1 In the event of an emergency, contractors must, in the first instance contact Security Control on the internal radio provided and supply details as to the nature and location (indicated on the zoned tunnel map section 17) of the emergency. College Security Officers are fully trained first aiders and will attend, assess and intervene where appropriate.

15.2 Familiarisation of the emergency exit routes is crucial and should be identified and noted from the zone maps when visiting the Service Tunnels, as they pass through.

15.3 Any defects, entry point doors unsecured, inadequate signage, poor or defective lighting, or damage to heating pipe insulation for example, must be reported as soon as possible to the Estates Operations Customer Services Centre (CSC) on 020 7594 8000.

15.4 Testing of fire alarms systems – inspections are conducted on a monthly basis.

15.5 Fire rated doors separate the different areas of the tunnel.

15.6 There are smoke detections in certain areas of the tunnels. There are also manual call points situated in strategic places.

15.7 There is emergency lighting within the tunnels, but it is still important to carry a torch with spare batteries.

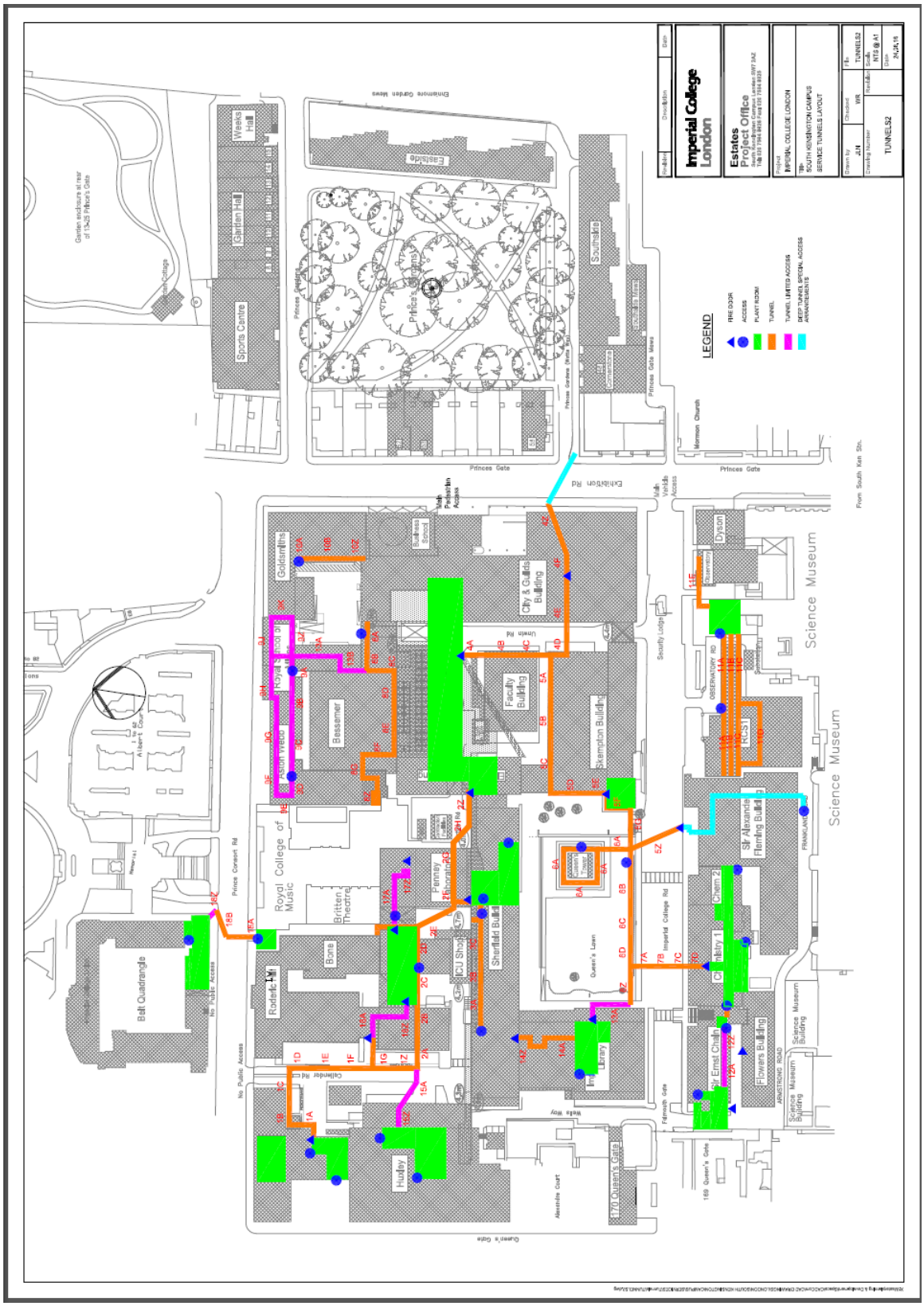
15.8 The Deep Tunnels have restricted access (refer to Section 12).

15.9 All accidents, incidents and near misses are to be reported to the Project Manager (if external contractor) and Security Control who will log them and ensure the details are recorded on the College's Accident Database – **SALUS**, if internal to the College, this should be done by self: http://www.imperial.ac.uk/safety/safety-by-topic/accidents--incidents/

16. Monitoring and Review

16.1 The Service Tunnels below South Kensington Campus are under the control of EO H&S team who have a duty to monitor compliance with this CoP. The Director of EO has delegated responsibility for the operation of this CoP to the EO H&S team who will ensure that the system in place is promoted and the team will actively monitor compliance with this CoP.

17. Service Tunnels map – zoned



18. Service Tunnel Induction form/passport

Imperial College London

Service Tunnel Access Induction – to be carried out by Tunnels Authorised Person only

Guidance notes for those carrying out Tunnels Access Inductions

- Ensure inductee is fully aware of the risks and hazards that the Service Tunnels could present.
- Ensure correct process has been followed prior to induction – see Tunnel Access Process Map
- Ensure the inductee has made their employer aware of any medical conditions which could require additional measures to be implemented to allow safe access to the tunnels.

		Check
1	Lone Working – NO Lone Working is permitted within any part of the tunnels	
2	Permits to Work (PTW) – PTW must be issued on a weekly basis for general areas of the tunnels for those areas identified as being of a high risk, this applies monitoring and survey works. PTW can be obtained from: http://www.imperial.ac.uk/estates-facilities/contractors/permit-to-work/	
3	Method Statements (MS) – MS is applicable to all works (new installations and refurb on current facilities) prior to commencement on site (not applicable to PPMs and monitoring works). For minor works a minimum of 48 hours' notice is required.	
4	Deep Tunnels – Access to Deep Tunnels can ONLY be granted by approved person. These are identified as the tunnels under Exhibition Road and SAF building and are considered to be high risk due to their depth and degree of access difficulties. There are individual risk assessments for each of these tunnel areas and all of the controls as stated must be strictly adhered to.	
5	Before commencing any works – Any works by staff or contractors must be agreed with either the Maintenance Manager for the area, Head of Maintenance or Contracts Manager prior to starting to ensure all hazards are highlighted (refer to item 4)	
6	Fire Stopping – Any fire stopping mechanisms ie doors must be replaced or installed at end of each working day	
7	Defects/Damage – Any defects or damage found in the tunnels must be reported immediately to Estates Operations Customer Services Centre (CSC) on x48000/020 7594 8000.	
8	Emergency Assistance – In the event of an emergency, contact Security Control on the internal radio provided or where possible call x4444/ 02075948910. The nature and location (zones are indicated on the tunnel map) of the emergency should be provided.	
9	Accidents / Incidents – Any accidents, incidents and near misses should be reported to Security Control and on SALUS immediately	
10	Asbestos – Asbestos Containing Materials (ACM) is present throughout the tunnel complex, contractors are to proceed with caution and not to damage any material unless known not to be ACM's. Any materials found to be damaged must be reported to the CSC.	
11	Code of Practice – A Code of Practice for Access to Service Tunnels April 2019 v2 is readily available on this https://www.imperial.ac.uk/estates-facilities/health-and-safety/safety-guidance/	
12	Equipment - listed equipment MUST be carried or correctly worn at ALL times within ANY tunnels ▪ Swipe access card with the required access rights to enter and exit the tunnels (Security) ▪ Tunnel fire door key (TFD) (Security) ▪ Tunnel map with Zones (Security) ▪ Torch + spare batteries (self, but if not available, then Security) ▪ Footwear (suitable for walking) (self) ▪ Bump or Hard Hats (self) ▪ High visibility jackets or vests (if not ICL staff these must bear the company name) (self) ▪ Radios, check they are full working (Security) ▪ Bottle of water (self)	
13	Breaks – regular breaks should be taken at ground level for any works being carried out	
14	Temperature – Be aware that there is extreme temperature and humidity in different parts of the tunnels	
15	Signing In/Out – ALL persons entering the tunnels must sign in/out at Security Control	
16	Radio check ins – Regular check in (depending of duration of visit) with Security Control should be maintained throughout the time in the tunnels.	

REQUIRED INFORMATION

PRINT name of inductee:	Signature:	Start date:	Expiry date:
Dept/Faculty/Company:		CID/Pass No:	
Staff ☐ Contractor ☐ Other ☐		Please state:	
Name of inductor:	Signature:	Date:	

A signed and dated induction form (electronic or paper) will need to be presented to Security Control before every visit into the Service Tunnels. An annual refresher induction is a necessity. Please contact EO H&S Team.