
Guidance Document

G0023

**Infrastructure
Protection -
Special
Conditions for
Outside Parties
Working On or
Near the Railway**

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Contents

1	Purpose	3
2	Scope	3
3	Guidance	4
3.1	Background	4
3.2	Safety	4
3.3	Design Considerations and Risk Assessments	5
3.4	Method Statements	6
3.5	Flooding and Other Environmental Risk Management	7
3.6	Inspection of Works	8
3.7	Security of Railway Boundaries	8
3.8	Work to be done During Engineering Hours	8
3.9	Fire and Emergency	9
3.10	Household Type Minor Maintenance	10
3.11	Tree Surgery	10
3.12	Scaffolding	11
3.13	Piling and Other Substructure Works	11
3.14	Temporary Hoardings, Barriers and Fences	12
3.15	Permanent Boundary Fences	12
3.16	Work on LU Land	12
3.17	Licence to Temporarily Occupy LU Land and Form of Indemnity	14
3.18	Accidents and Incidents	14
3.19	Temporary Works	15
3.20	Drainage Connections	15
3.21	Service Crossings	16
3.22	Movement of Heavy Vehicles and Plant	16
3.23	Condition Surveys	17
3.24	Loading onto LU Structures Including Ground Movement	17
3.25	Lift Shafts Over LU Operational Areas	18
3.26	Plant Working on LU Land or Outside Party's Land (Particularly Cranes, Other Lifting Appliances and Other Tall Plant)	19
3.27	Insurances	19
3.28	Record Information on Completion of Works	20
4	References	20
4.1	Subject Matter Expert	20
4.2	Document History	20



1 Purpose

- 1.1 Infrastructure Protection - Special Conditions for Outside Parties working on or near the railway, supports London Underground (LU) Standard S1023 "Infrastructure Protection".
- 1.2 This document assists Outside Parties (defined as 'any person, firm, or body; other than LU or a person, firm or body employed by LU') in identifying the risks associated with working on or near the railway and identifies ways of mitigating those risks. They shall be issued by LU to any Outside Party working on or near the railway.

2 Scope

- 2.1 These Special Conditions are needed to make sure that all works by Outside Parties on or near the railway are done in a way which has been agreed with LU. This shall ensure that, as far as is possible, the risks of damage to the railway and injury to those using or operating it, the general public or those undertaking the works are understood and mitigated.
- 2.2 The term LU Engineer is used in the context of these Special Conditions to define the member of staff appointed by LU to manage the interface between LU and the Outside Party on a particular Outside Party project. The LU Engineer may require support and assistance from site inspectors or other specialists within LU (collectively referred to as the LU Representative in this document).
- 2.3 These Special Conditions are complimentary to, but do not supersede, the specific requirements in any development agreement, lease, covenant or other legal agreement that contains protective provisions in favour of LU or their predecessors. The LU Engineer noted in 2.2 above may not be the Engineer as defined in any legal agreement (and specifically appointed as Engineer under LU company standing orders) and should not be construed as such. To minimise confusion, the Engineer defined in any agreement will notify the Outside Party of the contact details of the LU Engineer together with their roles and responsibilities. The Outside Party must refer any required clarification on the split of engineering responsibilities to the Engineer.
- 2.4 These Special Conditions shall be:

ADVISORY for Outside Parties working on their own land (leased or freehold) and not entering LU Land (defined as 'any land, including airspace, subsoil, property, building or structure in the freehold or leasehold ownership or in the occupation of LU, excluding land owned by LU or Transport for London leased to an Outside Party'). However, if these Special Conditions are not followed, the Outside Party may have difficulty demonstrating adoption of "best practice" in the event of an incident.

MANDATORY for works requiring temporary use of LU Land or airspace for Outside Party maintenance or new works that do not modify, remove or add to LU assets (known as New or Altered Assets).

COMPLEMENTARY but subservient to LU assurance procedures and design standards for any Outside Party works including LU New or Altered Assets. It shall be at the sole discretion of the LU Engineer (in consultation with the Head of Infrastructure Protection, LU Strategy or other interested LU parties) whether a project includes New or Altered Assets. In any case works including New or Altered Assets will be subject to some form of licence or other legal agreement with LU.



- 2.5 Where an Outside Party wishes to undertake work on property owned by LU then that work shall be done to the same standards and methods of work undertaken by LU and by staff qualified to the same degree of competency. In addition the Outside Party shall have to give an indemnity to LU and shall require a licence or other agreement with LU to undertake the work.
- 2.6 Some or all of the provisions in these Special Conditions will be relevant to the particular works being proposed by the Outside Party and the associated sections of this document should be used accordingly.

3 Guidance

3.1 Background

- 3.1.1 The travelling public has the expectation that the railway is operated to the highest possible safety and reliability standards. Indeed the safe and efficient operation of the railway and the safety of the public and all those working on the railway are paramount considerations of LU.
- 3.1.2 LU expects the Outside Party to comply with and work to all relevant legislation, industry standards and best practice. Where works may have a potential impact on LU, the LU Engineer may request from the Outside Party evidence that the Outside Party and /or their contractors, consultants or suppliers have complied with industry standards and best practice.
- 3.1.3 Where the Outside Party wishes to undertake work near to or on the railway and there is a risk of those works affecting the railway (or those using or operating it), then the design and method of undertaking the works is to be agreed in writing with LU and executed strictly in accordance with the agreed method.
- 3.1.4 In all cases the Outside Party shall submit both a method statement and a risk assessment to LU at least 6 weeks (or such longer time as shall be requested) before the works are due to commence.
- 3.1.5 The LU Engineer will agree the design (as appropriate), method statements and risk assessments, in so far as they may affect the railway, and undertake such site inspections as are required to ensure compliance.
- 3.1.6 All instructions given by the LU Representative are to be obeyed in the same way as those given by the LU Engineer.
- 3.1.7 The Outside Party should note that any approval, agreement or acceptance given by the LU Engineer or LU Representative is solely in respect of the special circumstances of working on or near the railway. LU approval shall not be construed as a general approval of the wider scheme, compliance with statute and/or industry standards or other stakeholder requirements.
- 3.1.8 All costs incurred by LU relating to the Outside Party's works shall be charged to the Outside Party at standard rates and shall be invoiced by LU as and when incurred, at four to twelve week intervals (depending on the magnitude of cost).

3.2 Safety

- 3.2.1 The potential risk of accident caused by work done in an unsafe manner is obvious; even small objects on or near the track can cause injury or delays (or both), whilst work within areas used by the travelling public can cause obstruction and frustration at best and injury at worst.



- 3.2.2 No works shall be undertaken by the Outside Party on LU Land without the express written permission of the LU Engineer.
- 3.2.3 If works on LU Land are required, the LU Engineer shall advise the Outside Party on restrictions on working times for railway safety and operational reasons, together with any other measures that are required to minimise the risks to the railway generally and to minimise the risk of works overrunning and delaying the railway.
- 3.2.4 All safety notices and equipment required by the LU Engineer shall be provided by the person undertaking the works and their use on site made mandatory by all persons undertaking the work. Copies of any relevant LU notices and regulations shall be supplied by the LU Engineer together with instructions as to how and where they are to be displayed on site.
- 3.2.5 Where the works proposed by the Outside Party is of a size or nature to fall under the requirements of The Construction (Design and Management) Regulations (CDM), the Outside Party shall be required to submit to the LU Engineer site specific CDM related information, including contact details of the key CDM duty holders.

3.3 Design Considerations and Risk Assessments

- 3.3.1 Prior to commencing any design, the Outside Party shall check with the LU Engineer and all other appropriate authorities and obtain written confirmation of the approximate location and depth of their tunnels, structures or equipment.
- 3.3.2 The Outside Party is to provide the LU Engineer with an initial assessment of the potential impacts that the works may have on LU infrastructure or operations. The LU Engineer will assist the Outside Party in preparing this initial impact assessment by giving guidance on the particular issues that may arise when working around the railway.
- 3.3.3 In preparing any design, the Outside Party shall consider the potential risks to the railway arising from the proposed works and potential risks caused to their works by the proximity of the railway. Matters that the designer should address include, but are not limited to, the following:-
 - a) noise and vibration impact on or from the railway;
 - b) emissions from tunnel and ventilation shafts or emissions from the proposed development;
 - c) electro-magnetic radiation impact on LU systems or the potential interference on Outside Party systems from the railway;
 - d) the proximity of balconies or fully opening windows to the railway and the associated risk of items falling or being thrown onto the railway;
 - e) access for maintenance to the railway or maintenance for the development without crossing or oversailing the other party's land or requiring inherently risky access techniques (e.g. abseiling). Note that where LU have land ownership adjacent to a structure, a 3m minimum clear maintenance strip from the structure should be allowed for;
 - f) no new support to be taken from LU Land or structures;
 - g) proximity to LU tunnels or other structures and the effect of works on these structures, including potential temporary or permanent weather proofing;
 - h) required site investigation, including boreholes, and the proximity of these investigations to tunnels or other structures;



- i) direct or indirect (such as that caused by ground movement) changes of existing loading on or from LU structures;
 - j) railway security and any required revisions to fencing;
 - k) the impact on the railway from any change of use of land, including potential flooding run-off;
 - l) obstruction of signals or affect on other railway equipment, including cables;
 - m) landscaping and planting works, how these will be maintained and the impact of vegetation on the operation of the railway;
 - o) potential environmental pollution from construction or occupation of the development;
 - p) road vehicle incursion risks and how these may be mitigated (road alignment, barriers, vehicle height or weight restrictions, etc.);
 - q) restrictions on vehicular access such as height or weight restrictions.
- 3.3.4 The Outside Party is to submit to the LU Engineer for their agreement suitable evidence to demonstrate that relevant design considerations have been addressed and that the risk to the railway resulting from the construction, use, maintenance and subsequent removal of the proposed works are as low as reasonably practicable.
- 3.3.5 A comprehensive risk assessment is to be undertaken for each separate aspect of the works that may impact on the railway and that have been identified and agreed following the initial assessment noted in 3.3.2 above. This assessment must be particular to the works and establish what could possibly go wrong and what steps are to be taken to minimise their effects. This must examine both the possible impact of the works on the railway and the effects of the railway upon the works.
- 3.3.6 This comprehensive risk assessment is to be sent to the LU Engineer at the same time as the method statement.

3.4 Method Statements

- 3.4.1 The Outside Party is to prepare a detailed method statement for each key construction activity identified in the initial impact assessment. This is to be a clear written site specific statement of what the works are, how they are to be done, the materials and plant to be used and the expected works programme.
- 3.4.2 Where the LU Engineer requires them, drawings showing the general arrangement of works and details of all below ground works are to be included in the method statement.
- 3.4.3 The method statement shall describe those parts of the proposed work could affect LU Land (or the operation of the railway, or both) and how the railway and works are to be separated and protected.
- 3.4.4 Where the LU Engineer requires them, appropriate calculations and other details showing the suitability and adequacy of the proposals to protect the railway are to be included.
- 3.4.5 Where the work is to be undertaken using mechanical tools or machinery then the basic types and sizes of equipment are to be listed (this might include for example: 'using hand held power tools', 'using a wheeled excavator', 'using a 25 tonne crane with 25m operating radius'). See also Section 3.26 for other construction plant related requirements.



- 3.4.6 The names and contact phone numbers of all key personnel and a 24 hour emergency contact are to be included.
- 3.4.7 The method statement shall be sent to the LU Engineer at least 6 weeks before the work is due to start to give sufficient time for it to be reviewed by LU and any necessary changes discussed and agreed. This is also to allow time for the LU Engineer to book access to the railway (if required). Where a longer time is necessary this shall be stated by the LU Engineer with an explanation as to why this additional duration is required.
- 3.4.8 If the Outside Party asks, the LU Engineer shall assist in the preparation of the method statement but LU shall make a charge to cover the costs of giving such assistance and the responsibility for the content of the method statement will always rest with the Outside Party.
- 3.4.9 Notwithstanding any advice and assistance afforded by LU in preparing or agreeing the method statement, the responsibility for the safety of the proposed works rests with the Outside Party. The acceptance of any method statement shall not in any way absolve the Outside Party from that responsibility, nor is it intended to confirm or suggest that the Outside Party fully meets statutory requirements or that the methodology is acceptable to any other stakeholder.

3.5 Flooding and Other Environmental Risk Management

- 3.5.1 Many changes to or near the LU railway can alter the flooding risk profile, such as lowering station thresholds, creating new routes for water into the system or a new installation (e.g. large water main) that creates an additional water source. All works (whether flooding related or not) require that flood risks are as low as reasonably practicable (ALARP). The Outside Party is to undertake the following with regard to flooding risks:-
 - a) identify and review the following information:-
 - (i) existing risk level;
 - (ii) water sources that could impact on the location, if any;
 - (iii) characteristics of the location that control inward water flow;
 - (iv) existing control measures;
 - (v) potential changes to flow rates.
 - b) prepare a risk assessment based on the proposed changes;
 - c) confirm the risk remains ALARP;
 - d) advise the LU Engineer of the outcome of the flooding risk assessment, proposed mitigations and any changes to the risk to LU.
- 3.5.2 In meeting their Sustainable Design obligations to minimise climate change, the Outside Party must consider the potential impact on LU of incorporating a sustainable design solution, such as Sustainable Drainage Systems (SUDS), in their project and must demonstrate to LU that these measures will not adversely impact on LU's climate change obligations.
- 3.5.3 The Outside Party must consider, with input from the LU Engineer, other environmental risks to LU arising from their development, including future risks brought about by climate change, and amend their design as required to minimise these risks.



3.6 Inspection of Works

- 3.6.1 The LU Engineer may wish to visit the site to inspect the Outside Party's works and requires free and open access at all times for this purpose.
- 3.6.2 If during such a visit the LU Engineer or LU Representative believes the works are being done in a manner that is threatening the railway or its operation (whether or not the works are in accordance with the agreed method statement) they shall issue instructions to remove the threat. These instructions shall be obeyed immediately, even if the instruction is to stop work.
- 3.6.3 If during a site visit any person undertaking the work is considered to be behaving in a manner, whether through ignorance, design or incapacity through drink, drugs (including medicines), or any other reason, as to put themselves, the railway or its operation at risk the LU Engineer or LU Representative shall issue such instructions as he considers appropriate to remove the risk. These instructions shall be obeyed immediately, even if they require the removal of the person from the site.

3.7 Security of Railway Boundaries

- 3.7.1 At no time shall the integrity of any railway boundary fence, or other barrier to the railway, be compromised.
- 3.7.2 A railway boundary fence or other barrier must not be removed without written permission from the LU Engineer and must be replaced by a temporary structure at least as secure as the original. If such permission is given, the work must be undertaken with an appointed LU Representative in attendance, who shall remain on site until such time as the barrier is secure. On completion of the works, the railway boundary fence or other barrier must be permanently reinstated to the satisfaction of the LU Engineer.
- 3.7.3 Materials or plant must not be stored against railway fencing as they can either damage the fence or aid trespass on the railway.
- 3.7.4 Equipment such as ladders or access scaffold must not be stored where they could be used to gain access over the fence.
- 3.7.5 Scaffolding erected near, adjacent to or over any railway fence must include measures to ensure that the scaffold can not be used to gain unauthorised access over the fence or other barrier.

3.8 Work to be done During Engineering Hours

- 3.8.1 The electric traction current to the live rails is generally turned off at night, except for times and locations where LU is running a 24 hour service. The time when there is no current to the live rails and works can be undertaken in the track environment is known as Engineering Hours. The LU Engineer will advise the Outside Party of the relevant published Engineering Hours timing if and when the Outside Party has to undertake works during Engineering Hours.
- 3.8.2 Works must be undertaken during Engineering Hours where these works are in certain parts of a station or on or near the track and there is no physical barrier. Engineering Hours working must also be undertaken where there is a possibility of anything falling onto a train or the tracks or the works create other similar risks to the operating railway and passengers.



- 3.8.3 At least six weeks notice is required from the Outside Party in order for the LU Engineer to book Engineering Hours access. Prior to booking access, an outline method statement is required from the Outside Party describing the point of access, type of work being undertaken, programme and any plant or materials being brought onto LU Land.
- 3.8.4 There shall be an appointed LU Representative on site whenever work is to be undertaken during Engineering Hours. The LU Engineer shall advise the Outside Party of the required track protection staff who shall manage the site works and give instructions to the Outside Party as to when it is safe for the work to commence and when it must be finished. Due to operational requirements, the actual times that Engineering Hours access can be provided may be different from the standard times initially indicated by the LU Engineer. Instructions from protection staff on site shall always take precedence over the published times.
- 3.8.5 In the event of the Outside Party cancelling an Engineering Hours shift, being prevented from working or delayed access by LU they shall remain liable for their own costs and LU staff costs either booked or in attendance during Engineering Hours.
- 3.8.6 Where there are works on or within a river bed, or to any river wall, within 50m of any LU tunnel, then specific mandatory procedures for tunnel closures and Engineering Hours working must be complied with. These can be found in LU Standard S1023 "Infrastructure Protection".

3.9 Fire and Emergency

- 3.9.1 The Outside Party shall prepare a suitable emergency plan (including emergency contacts) addressing the proposed mitigations should the works have an unplanned impact on LU infrastructure or operations. The title, format and content of this plan will be agreed by the LU Engineer and made available to Outside Party and/or LU operational staff as appropriate.
- 3.9.2 The Outside Party shall take strict fire precautions to protect the railway, LUL Land any adjacent property, his own works, and all people that may be in the vicinity of the works.
- 3.9.3 Without prejudice to their responsibilities in law or contract, the Outside Party shall observe the following rules:-
- a) no waste or other material is to be burned on site;
 - b) no heaters or other appliances using gas, oil or petrol shall be used or stored on LU Land without the written permission of the LU Engineer;
 - c) any appliances so approved shall be removed at the end of the working shift;
 - d) power sockets are not to be overloaded at any time and no form of adapters shall be used in connection with any electrical appliance.
- 3.9.4 Where the LU Engineer considers it appropriate, he shall arrange for LU Representatives of the LU fire safety team and the local fire brigade to visit the works. Any instructions issued by either of these people to the Outside Party shall be complied with immediately.
- 3.9.5 The Outside Party shall ensure that an adequate and robust fire emergency procedure is in place for works on LU Land and that all personnel on site know their duties and responsibilities under the plan.
- 3.9.6 The Outside Party shall ensure that in accordance with the above procedure, adequate fire extinguishers and other emergency equipment is in place throughout the area of work. These are to be removed from site at the end of each shift unless secured in a manner approved by the LU Engineer.



3.10 Household Type Minor Maintenance

- 3.10.1 This section is a simple guide for residents giving pointers to enable basic household maintenance tasks near to the railway to be undertaken safely. This is to enable a resident to prepare a method statement that shall demonstrate sufficient thought has been given to safe working methods; minimising both the risks to the householder, handyman or builder and the railway, its staff and passengers
- 3.10.2 Good practice is to be followed throughout the works. It is assumed that all works shall be undertaken to the standard expected of a normally competent accredited member of an appropriate trade body.
- 3.10.3 No work is to be undertaken on LU Land or in a position that could put the operation of the railway at risk other than during Engineering Hours. See Section 3.8 above for more information on the criteria and provisions for Engineering Hours working. In some very special cases, the LU Engineer may decide (at their absolute discretion) that certain works may safely be done outside Engineering Hours with permanent supervision by a LU Representative.
- 3.10.4 Any access onto LU Land or into the airspace of LU shall only be permitted if the Outside Party has entered into a licence or form of indemnity (as appropriate) with LU. The LU Engineer will advise on the relevant requirements.
- 3.10.5 All waste material and rubbish generated from the works is to be removed from LU Land at the end of every shift.
- 3.10.6 Unless permission has been granted in writing by the LU Engineer, all material, plant and equipment used for the works is to be removed from LU Land at the end of every shift.
- 3.10.7 No cables shall be allowed in any location where they can interfere with the railway. The Outside Party should note that:-
- a) the live rails carry a 630V direct current which could easily be picked up by an electrical lead causing severe injury;
 - b) cables could be caught by a passing train;
 - c) current within the cable could interfere with signalling or other railway equipment.

3.11 Tree Surgery

- 3.11.1 If there is a risk that any part of the tree could fall onto LU Land, property or equipment during tree surgery then the Outside Party should consider commissioning LU staff or contractors to undertake this work.
- 3.11.2 Tree surgery within LU Land shall normally only be permitted during Engineering Hours unless a suitable safe system of work is agreed by the LU Engineer.
- 3.11.3 Ladders and hoists may be used adjacent to LU Land only where there is no possibility of any part of them falling or toppling onto LU Land. Where they could fall onto LU Land they may only be used with the written permission of the LU Engineer who may require the permanent presence of a LU Representative during the works (see also Section 3.26 regarding construction plant on or near LUL Land).
- 3.11.4 Lopped, pruned and felled material shall be dropped outside LU Land wherever possible. Where this is not possible it shall be dropped in a designated area that has been agreed by the LU Engineer and is to be cleared immediately on completion of that element of tree surgery.



- 3.11.5 No material is to be burned on site.
- 3.11.6 Steps are to be taken to avoid wind blown debris being carried onto the railway.

3.12 Scaffolding

- 3.12.1 All scaffolding proposed by the Outside Party on LU Land is to be undertaken in accordance with the relevant parts of LU Standards S1050 "Civil Engineering – Common Requirements", S1062 "Temporary Works" and S1027 "Site Hoarding, Fencing and Barriers".
- 3.12.2 The LU Engineer shall provide guidance on the interpretation of any clause in the above LU standards where there appears to be a conflict with any clause of these Special Conditions; or where the meaning is unclear.
- 3.12.3 All scaffolding shall be designed, erected, used and struck in accordance with industry standards and best practice. Where scaffolding is near to LU Land as to pose a risk to the railway, due regard shall be taken by the Outside Party of the relevant parts of the standards listed in 3.12.1 above. Particular attention shall be given to stability of both complete and partially erected scaffolds and to the prevention of materials crossing the railway boundary (especially when handling long poles or ladders).
- 3.12.4 Any scaffolding on LU Land or oversailing the airspace of LU shall only be permitted if the Outside Party has entered into a licence with LU.

3.13 Piling and Other Substructure Works

- 3.13.1 Driven or percussive piling shall be no closer than 15m from any LU substructure, tunnel or surface infrastructure unless a method (such as a push system) is proposed by the Outside Party that does not involve low frequency high amplitude vibrations and is agreed in writing by the LU Engineer.
- 3.13.2 Whenever any piling or other substructure works are proposed near to the railway, the Outside Party is to prepare and submit to the LU Engineer information (including a ground movement assessment report as noted in Section 3.24) describing the predicted impacts and proposed measures to protect LU assets from direct or indirect damage.
- 3.13.3 The Outside Party shall make every effort to design their works such that no piles or other works are constructed within a zone created by a rectangle around any bored tunnel that is 6m above the crown and 3m horizontally from the sides of the tunnel (the Tunnel Protection Zone). These dimensions are taken from the outside face of the tunnel structure. If new structures absolutely have to be constructed within the Tunnel Protection Zone, the Outside Party must demonstrate to the satisfaction of the LU Engineer the reasons why this is the case,. If LU owns the Tunnel Protection Zone then no new piles or other structures will be permitted within the Tunnel Protection Zone.
- 3.13.4 Bored piles shall not be under-reamed such that the under-ream encroaches into the Tunnel Protection Zone unless the requirements of 3.13.3 above have been satisfied.
- 3.13.5 Where there are piling works in a river or river wall works within 50m of any LU tunnel, then specific mandatory procedures for tunnel closures and Engineering Hours working must be complied with. These can be found in LU Standard S1023 "Infrastructure Protection".
- 3.13.6 Notwithstanding the above, notices as required under the Party Wall etc. Act or other Statutory Instruments shall still be formally served (where appropriate) and the relevant Acts shall still apply.



3.14 Temporary Hoardings, Barriers and Fences

- 3.14.1 The Outside Party shall provide all necessary barriers, fences and hoardings to enclose all working and storage areas. They shall be securely fixed and maintained during the works and removed (and the site made good) on completion. The requirements for hoardings and barriers on LU Land or on the boundary with LU Land is given in LU Standard S1027 "Site Hoardings, Fencing and Barriers".
- 3.14.2 The LU Engineer shall provide guidance on the interpretation of any clause in LU Standard S1027 where there appears to be a conflict with any clause of these Special Conditions or where the meaning is unclear.
- 3.14.3 No existing fences shall be used as a site hoarding without the written consent of the LU Engineer.
- 3.14.4 The Outside Party shall consider and mitigate the risk of wind blown materials landing on the railway when undertaking the design of any hoarding or sheeting or proposing the use of any existing fence as a site barrier. This shall also include appropriate general site housekeeping measures.
- 3.14.5 A clearly labelled duplicate set of keys to gates for hoardings on LU Land is to be given to the LU Engineer, who may also request an additional set to be kept by local LU operational staff.
- 3.14.6 The location and design of a hoarding or barrier on LU Land shall be agreed in writing with the LU Engineer who shall ensure that it complies with the requirements of LU Standard S1027 as appropriate.

3.15 Permanent Boundary Fences

- 3.15.1 All permanent fencing which is required to be erected by the Outside Party to bar access to the track shall be undertaken in accordance with LU Standard S1167 "Operational Boundary Fencing".
- 3.15.2 All other permanent fencing on or to LU Land shall be undertaken in accordance with LU Standard S1132 "Premises - Barriers and Fencing (Non-Lineside)".
- 3.15.3 The LU Engineer shall provide guidance on the interpretation of any clause in standards S1167 or S1132 where there appears to be a conflict with any clause of these Special Conditions or where the meaning is unclear.

3.16 Work on LU Land

- 3.16.1 The Outside Party must enter into a licence or other legal agreement (as appropriate) with LU before commencing any works on LU Land (see Section 3.17).
- 3.16.2 Generally works on that part of LU Land, which is inside the first adequate fence or structure barring access to the running tracks or inside the station gates barring access to the station and platforms, shall be carried out during Engineering Hours (see Section 3.8). In special circumstances, the LU Engineer may permit works on LU Land to be carried out when trains are running provided that:-
- a) in the LU Engineer's opinion (at their absolute discretion) the works are compatible with the safe operation of the railway;
 - b) an effective barrier has been erected to the requirements of the LU Engineer;
 - c) the works are not within an operational area of a station.
- 3.16.3 The Outside Party shall not interfere with, cover up, obstruct or in any way reduce the effectiveness of any LU equipment or property unless agreement in writing is first obtained from the LU Engineer.



- 3.16.4 Actions such as hot working or material storage on LU Land shall require a licence or permit from LU. The LU Engineer shall advise the Outside Party of such specific requirements.
- 3.16.5 The Outside Party should allow at least **6 weeks** (from receipt by the LU Engineer of an acceptable method statement from the Outside Party) for the LU Engineer to book Engineering Hours access and for obtaining hot works, storage or other permits.
- 3.16.6 Where a permit is required it shall be prominently displayed at all times that the work is in progress, in a position advised by the LU Engineer or LU Representative.
- 3.16.7 All personnel employed by the Outside Party working on LU Land shall wear orange high visibility clothing that complies with BS-EN-471.
- 3.16.8 LU has a strict non-smoking policy on the railway and the Outside Party shall ensure that no person smokes while working on LU Land.
- 3.16.9 In compliance with the LU Drugs and Alcohol Policy and the Transport and Works Act 1992, all employees of the Outside Party are forbidden to consume or be under the influence of alcohol, drugs, or other similar substances whilst on LU Land.
- 3.16.10 Access to sites on LU Land shall only be allowed (except where there is public access) via an authorised route. Alternative routes through trackside fencing may be agreed by the LU Engineer, but in all cases the security of the railway must not be compromised.
- 3.16.11 Those employed by the Outside Party must not be on LU property and/or the track unless proper training and protection measures have been taken. Training and protection requirements relevant to the type of access will be advised by the LU Engineer.
- 3.16.12 All works on LU Land shall be in accordance with the relevant LU standards as advised by the LU Engineer.
- 3.16.13 The Outside Party should note that existing metal and woodwork on LU Land is likely to have been coated at some time with lead-based paints. The Outside Party shall take this into account when preparing risk assessments and method statements for their works.
- 3.16.14 The Outside Party should be aware that all standing water encountered on LU Land is to be considered contaminated. Accordingly, all necessary precautions to protect against Leptospirosis (Weill's disease) and contaminated water generally must be taken.
- 3.16.15 The Outside Party shall take all appropriate precautions to protect their personnel, the general public, employees of LU and all other persons from any form of asbestos which may be encountered during their works.
- 3.16.16 Where the LU Engineer has knowledge that the presence of asbestos is possible and that this may affect the works proposed by the Outside Party, they shall inform the Outside Party of this and provide (if one is available) a LU asbestos survey / register. The Outside Party should then include specific information, precautions and mitigation in their method statement. They should also liaise closely with the LU Engineer to ensure that existing information (such as the asbestos register) is also updated at the end of the works.



- 3.16.17 The Outside Party must not assume a LU power supply will be available and shall provide their own electricity supply for their works unless otherwise agreed by the LU Engineer. Unless approved in writing by the LU Engineer, the electricity supply shall be 110V, centre tapped to earth and not exceed 55v to earth. The voltage of any lighting required in tunnels shall not exceed 50V, and the voltage of hand held apparatus in confined or damp conditions shall not exceed 25V.
- 3.16.18 All cabling below ground shall be low smoke, zero halogen and meet the relevant LU standards.
- 3.16.19 All temporary lighting is to be shaded to avoid glare or discomfort to LU staff and to minimise the risk of confusion to train drivers. Unless agreed by the LU Engineer, all such lighting must be disconnected when not in use.

3.17 Licence to Temporarily Occupy LU Land and Form of Indemnity

- 3.17.1 Temporary access to LU Land by Outside Parties for minor matters such as an inspection or visual survey requires the provision of indemnity against loss to LU in accordance with LU Guidance G0024 "Infrastructure Protection – Form of Indemnity to Access LU Land".
- 3.17.2 Outside Parties requiring temporary access to LU Land for any other purpose including the construction of temporary works, oversailing LU airspace, topographical surveys or the installation of monitoring equipment shall be required to enter into a licence. LU has pro-forma licences, which sets out the agreed scope, conditions applying to the works and the required fee payable by the Outside Party to LU. The requirements for a licence are set out in LU Guidance G0025 "Infrastructure Protection – Licence for Carrying Out Works on LU Land".
- 3.17.3 LU reserve the right to refuse to enter into a licence and are not obliged to state their reasons for so doing, subject to the terms of the Access to Neighbouring Land Act 1992.
- 3.17.4 The licence shall be prepared by the LU Engineer, based on the standard LU form, once a formal request to temporarily occupy LU Land has been received from the Outside Party. At least eight weeks should be allowed for the preparation of the licence in order for the LU Engineer to consult within LU as required..
- 3.17.5 Access onto LU Land shall not be permitted until:-
- a) the form of indemnity has been signed and returned to the LU Engineer; or
 - b) the Licence has been signed by the Outside Party and formally exchanged with LU and LU has been provided with satisfactory evidence of insurances required under the terms of the licence and any payment due under its terms has been received by LU.
- 3.17.6 Assuming it is acceptable to LU, any Outside Party seeking to occupy LU Land for a longer term or with permanent works shall enter into a lease, easement or other formal agreement as appropriate and will be subject to the provisions of S163 of the Greater London Authority Act 1999. The negotiations for these agreements and the commercial terms will be led by the Transport for London Property and Legal teams with support from the LU Engineer.

3.18 Accidents and Incidents

- 3.18.1 The Outside Party shall ensure they comply with all health and safety legislation appropriate to the diligent management of accidents and incidents.



- 3.18.2 The Outside Party shall report to the LU Engineer and the appropriate Regulator (e.g. The Office of Rail and Road, the Health & Safety Executive, or the Environment Agency) all incidents and near misses involving anyone working on LU Land on their behalf. This includes incidents and near misses involving plant or materials. The Outside Party shall also report to the LU Engineer and appropriate Regulatory body occurrences away from LU Land which did or could have the potential to affect the railway. The LU Engineer shall provide the necessary form for the Outside Party to complete (however this should not detract from the Outside Party's obligation of reporting to the Regulatory body in a timely manner).
- 3.18.3 In cases of incident or dangerous occurrence on LU Land the Outside Party shall not leave the site (except for medical attention) until authorised by the LU Engineer, LU Representative or a Police Officer. The Outside Party shall make the formal notification to the relevant Regulatory body and a copy of this notification shall also be sent by the Outside Party to the LU Engineer.

3.19 Temporary Works

- 3.19.1 The Outside Party shall be responsible for all temporary works necessary to complete their works. All temporary works that have the potential to impact on LU shall have been approved (in relation to their interface with the railway) in writing by the LU Engineer before they are executed on site. Temporary works on LU Land shall be designed and executed in accordance with LU Standard S1062 "Temporary Works".
- 3.19.2 Where required by the LU Engineer, drawings and calculations of temporary works are to be submitted before erection on site. All such submissions shall have been signed as checked and approved before issue to LU. In certain circumstances checks may need to have been carried out by an independent engineer. Approval or acceptance by the LU Engineer shall in no way relieve the Outside Party of their responsibilities in law.
- 3.19.3 All temporary works shall be executed completely in accordance with the relevant LU approval.
- 3.19.4 Any temporary access routes that are designed to be used by LU passengers and/or staff, including ramps, landings, stairs and platforms shall be designed to the relevant LU standards and shall be maintained by the Outside Party in a clean and safe condition. Non slip surfaces are to be used and the Outside Party shall not permit wide joints, rough edges or slippery surfaces.

3.20 Drainage Connections

- 3.20.1 The Outside Party should design new drainage systems such that they connect directly to the public sewerage system or other suitable outfall independently of LU owned systems. Connection to LU drains ditches or watercourses will only be agreed if the Outside Party can demonstrate to the satisfaction of the LU Engineer that there is no viable alternative and that the drain etc. is capable of accommodating the increased flow. This requirement also applies to any connection the Outside Party makes to a third party drain that subsequently discharges into a LU drain. A discharge licence or some other agreement with LU may be required for any connection into a LU drainage system.
- 3.20.2 Any new or altered drainage connection to a LU drain, ditch or watercourse, carrying any discharge other than that classified as 'domestic' shall require a consent to discharge in accordance with LU Standard S1052 "Civil Engineering – Gravity Drainage Systems". LU reserves the right to make any reasonable restriction as they, the sewerage undertaker, the SUDS approving authority or the Environment Agency may require and also to make such charges as are reasonable.



- 3.20.3 All new or altered drainage connections must be made to an appropriate pipe or watercourse. Foul or grey wastes (whether domestic or non-domestic in nature) must only be connected to a drain connecting to a foul sewer; surface water must connect with a surface water drain, ditch or watercourse.

3.21 Service Crossings

- 3.21.1 The Outside Party shall not commence laying any service crossing until an easement or similar service crossing agreement is completed and entered into with LU.
- 3.21.2 The service crossing installation shall be designed to carry railway or highway loading to meet the requirements of LU Standard S1051 "Civil Engineering – Bridge Structures". The crossing shall have a minimum cover from lowest rail level to the crown of the installation of 2.5m or half a metre plus four times the external diameter of the installation, whichever is the greater.
- 3.21.3 The construction, use and maintenance of any service crossing must not interfere with the day to day running of the railway nor its associated services and facilities. If appropriate, the Outside Party shall demonstrate to the LU Engineer that the installation meets electromagnetic compatibility in accordance with The Electromagnetic Compatibility Regulations 2006.
- 3.21.4 Construction of a service crossing under any railway track shall be undertaken using trenchless techniques to the agreement of the LU Engineer. Open cut type construction will not be permitted by LU where the service crossing would cross under railway tracks or earth structures.
- 3.21.5 Permanent marker plates, indicating the line and level of the service crossing and the asset or structure number allocated by the LU Engineer shall be erected at positions to be agreed by the LU Engineer and maintained by the Outside Party at their own expense.
- 3.21.6 Manholes and other access or inspection points shall be sited outside the railway boundary wherever possible.
- 3.21.7 On completion of construction of the service crossing, the Outside Party shall carry out a full and thorough inspection of the works. Once satisfied, the Outside Party shall issue a written statement that the works are fit for purpose, a certified copy of which shall be delivered to the LU Engineer. Until this statement has been delivered to the LU Engineer, the service crossing may not be commissioned.

3.22 Movement of Heavy Vehicles and Plant

- 3.22.1 Outside Parties intending to transport heavy loads on the public highway through the area served by LU shall serve notice to LU as required under the Road Vehicles (Construction and Use) Regulations 1986 and the Motor Vehicles (Authorisation of Special Types) General Order 1979. The LU Engineer shall provide relevant LU contact details to the Outside Party if required.
- 3.22.2 Outside Parties intending to use cranes or other heavy plant in streets directly over or adjacent to railway tunnels or bridges, shall undertake a suitable assessment of the structure supporting the load and obtain the agreement of the LU Engineer to the use of that plant and associated measures not to overload the structure.
- 3.22.3 Access over LU's tunnels and bridges for construction plant and heavy vehicles shall be by such routes as the LU Engineer may stipulate in writing and be subject to any weight restrictions as the LU Engineer may consider necessary. The Outside Party shall be responsible for ensuring that all abnormal load journeys use only the routes so approved.



3.23 Condition Surveys

- 3.23.1 Before any works are undertaken by an Outside Party on or adjacent to LU Land, a full and complete inspection of all parts of the railway including structures and land affected by the works is to be undertaken. The scope and format of the condition survey report shall be agreed by the LU Engineer.
- 3.23.2 The condition survey shall normally be undertaken by a suitably qualified surveyor appointed by the Outside Party, who shall be accompanied by a competent LU Representative to witness and agree the condition survey.
- 3.23.3 Before the condition survey is carried out, the Outside Party shall submit the name of the proposed surveyor and a copy of their curriculum vitae to the LU Engineer who shall agree if they consider them to be suitable for the inspection.
- 3.23.4 The condition survey report shall be submitted to the LU Engineer who shall check and agree that the survey accurately reflects the current condition of LU assets.
- 3.23.5 Upon completion of the works, a final inspection is to be undertaken and the results compared with the earlier survey. The Outside Party shall be responsible for meeting the costs of any work required to bring LU property or assets up to the standard of the earlier survey. Additional interim surveys may also be required at key stages in the Outside Party's works.
- 3.23.6 The full costs of all inspections (including LU costs) are to be met by the Outside Party.

3.24 Loading onto LU Structures Including Ground Movement

- 3.24.1 Prior to commencing any detailed design for excavations, piling, or other works near LU infrastructure, the Outside Party shall undertake a topographical survey of the site which shall show the relationship of the LU structure or tunnel to the ground surface features and the proposed works.
- 3.24.2 Prior to any work (including structural demolition) being carried out on any part of a site which is over or adjacent to an LU structure or tunnel, the Outside Party shall prepare and submit to the LU Engineer for his written approval:-
- a) the results of ground investigations and tests;
 - b) details of any temporary or permanent changes in loading which may affect the LU structure or tunnel;
 - c) a statement of the predicted effects of the works and in particular:-
 - (i) changes in stresses;
 - (ii) changes in heave or settlement;
 - (iii) distortion of the structure or tunnel;
 - (iv) potential for introducing new water paths around the structure or tunnel;
 - (v) risks associated with the construction technique being considered (e.g. grout injection or ground freezing).
 - d) proposals for the limitation of the effects identified in (c) above;
 - e) suitable design check certificates for the design work associated with assessing ground movements, including the relevant loads applied from the development;
 - f) proposals for carrying out inspections and condition surveys of LU structures or tunnels; and
 - g) proposals for monitoring the effects of the works on LU structures, tunnels, track or other infrastructure before, during and after construction.



- 3.24.3 The Outside Party is to assess any cumulative effects on LU infrastructure arising from other co-existent projects in the immediate vicinity of their works. The Outside Party shall demonstrate to the LU Engineer's satisfaction that due consideration has been taken of other projects. Where there is a risk of cumulative impacts on LU, it may be appropriate for the Outside Party to work with other Outside Parties and possibly agree the joint appointment of an independent engineer to manage interfaces between the project, assess the cumulative predicted impacts, propose joint monitoring regimes and review monitoring results.
- 3.24.4 Outside Parties are not normally permitted to take new support from new or existing LU structures. However, if the works form part of a TfL property deal and legal agreements between TfL and the Outside Party contemplate LU providing support from LU infrastructure, then the requirements of LU Standards S1023 "Infrastructure Protection" and S1050 "Civil Engineering – Common Requirements" shall apply.
- 3.24.5 Any new structures within LU airspace, or works affecting direct loads on existing LU structures will require the submission for approval by LU of a Conceptual Design Statement and other assurance information in accordance with LU Guidance G050 "Civil Engineering – Common Requirements" and other appropriate LU standards and processes (as specified by the LU Engineer).

3.25 Lift Shafts over LU Operational Areas

- 3.25.1 LU has experienced a number of incidents where items falling down a lift shaft have caused damage to the lift pit, and has put at risk the LU operational area below the lift.
- 3.25.2 The Outside Party shall in their design give full consideration to not locating lifts directly over or immediately adjacent to railway tracks, platforms, booking halls and other public or staff areas. The Outside Party shall demonstrate to the LU Engineer that there is no viable alternative to situating lifts directly above operational areas.
- 3.25.3 Where the LU Engineer has accepted the principle of a lift shaft over LU operational areas, additional safeguards shall be adopted in the design and construction of the lift, lift pit and associated structures over the operational areas.
- 3.25.4 The lift pit shall be designed to take full account of all vertical and horizontal nominal loads including any concentrated loads imposed by any supporting lift framework, tower, or guide rails. Typical loading events can be found in LU Standard S1053 "Civil Engineering – Building and Station structures".
- 3.25.5 The vertical sides of the lift pit adjoining an LUL operational area shall be designed to withstand the horizontal loads as shown in Table 1. This load shall be applied as a single point load over an area of 300mm x 300mm in any position on the wall.

Car and counterweight rated load (mass) kg	Horizontal concentrated load kN
100 - 449	20
450 - 749	25
750 - 1124	30
1125 - 1145	35
1150 - 1799	40
1800 - 2500	45

Table 1 - Horizontal Concentrated Load

- 3.25.6 To allow for the possibility of failure of temporary supports when maintaining the car or counterweight, the lift pit shall be designed for the load which might be imposed by the car or counterweight falling from a height of 2m above the base of the lift pit.



- 3.25.7 The construction of the base to the lift pit shall also be designed to withstand a nominal load at any point (150mm x 150mm) from a 5m length of guide rail weighing 24 kg/m falling down the shaft during construction or maintenance.
- 3.25.8 The nominal loads shall be multiplied by load factors and applied in the worse case combination of loading as specified in LU Standard S1053.
- 3.25.9 In the event of a failure, the lift safety gear may impose significant loads on the guide rails and supporting structure. To avoid damage to any adjoining lift shaft separate supports for guide rails shall be provided for each lift.
- 3.25.10 The construction of the lift pit, including the walls of the pit, shall be cast in continuous in situ reinforced concrete
- 3.25.11 The lift installation including suspension, compensation, safety gear and overspeed governors shall be designed in accordance with LU Standard S1093 "PMVT Lifts (Including Managed evacuation Lifts)" or other more onerous industry standards as agreed by the LU Engineer. Safety mechanisms shall be applied to both the lift car and counterweight. Where the car is suspended by wire ropes a minimum of 5 No. steel wire ropes shall be provided.

3.26 Plant Working on LU Land or Outside Party's Land (Particularly Cranes, Other Lifting Appliances and Other Tall Plant)

- 3.26.1 The Outside Party is to satisfy the LU Engineer that risks to the railway associated with any construction plant working near the railway are mitigated to as low as reasonably practicable.
- 3.26.2 Any construction plant to be used or stored on LU Land or likely to oversail LU Land will be subject to some form of plant approval (depending on the type and location of the plant) in accordance with LU Standard S1171 "All Plant – Acceptance, Use and Maintenance". The LU Engineer will advise on the application of LU Standard S1171 and will assist the Outside Party with the plant approval submission.
- 3.26.3 When lifting loads or operating tall plant near the railway, the Outside Party is to comply with the general requirements of LU Guidance G050 "Civil Engineering – Common Requirements".
- 3.26.4 At no time shall loads be permitted to be lifted over LU airspace unless this is undertaken during Engineering Hours. Any oversail of LU airspace by loads, crane booms, counterweights or similar (either during normal operation or in "free-mode") shall be subject to a licence.
- 3.26.5 Cranes or other tall plant set up or working within LU Land shall be subject to the requirements of LU Standard S1050 "Civil Engineering – Common Requirements". Any submissions required under LU Standard S1050 should be issued to the LU Engineer for acceptance.
- 3.26.6 The LU Engineer shall provide guidance on the interpretation of any clause in S1171, G050 or S1050 where there appears to be a conflict with any clause of these special conditions or where the meaning is unclear.

3.27 Insurances

- 3.27.1 The Outside Party shall provide and maintain an insurance policy against all expense liability loss and claims whatsoever in respect of death or injury to any person, loss of or damage to property and any other loss, damage, cost or expense which may arise out of or in consequence of the Outside Party its employees and agents performance or non-performance of the works or the presence or use of any material, plant and equipment.



- 3.27.2 Where the Outside Party is working on LU Land, insurance requirements shall be as specified in the relevant licence for these works.
- 3.27.3 The Outside Party shall provide satisfactory evidence of the insurance policy to the LU Engineer before commencing the works. Thereafter the Outside Party shall submit evidence no later than the renewal date of such insurance that the insurance has been renewed.
- 3.27.4 If, during the course of the works on LU Land, the Outside Party shall fail on request to produce to LU satisfactory evidence that the insurances which the Outside Party is required to effect under these conditions are in force, the LU Engineer shall stop the work until such time as the Outside Party provides the evidence requested.

3.28 Record Information on Completion of Works

- 3.28.1 The Outside Party shall prepare and provide to the LU Engineer, copies of as constructed drawings, surveys, specifications, maintenance manuals and calculations (where relevant), in an agreed format, of all parts of the finished works that have either a direct or indirect effect on LU Land or infrastructure. LU shall have free licence to utilise these documents as they so wish in connection with their interests.

4 References

4.1 Subject Matter Expert

Subject Matter Expert
Steven Lugg, Principal Outside Parties Engineer, Infrastructure Protection

4.2 Document History

Issue no	Date	Changes	Author
G-023 A1	October 2007	Authorised for use. Previous authorisation is valid	
G0023 A2	July 2011	As per DRACCT No 00379 and 00380 G-023 was renumbered, reformatted, and updated to bring in line with current practice and regulations. Incorporation of relevant clauses from E3368 (lifts) & E3607 (service crossings). Expansion of drainage section.	Richard Davies
A3	June 2015	General update to reflect current practice and document references; additional design requirements in section 3.3 as per DRACCT 3771.	Richard Davies
A4	November 2015	As per DRACCT 04105; shared structures provisions clarified and requirements relating to plant approval added (see also DRACCT 02865).	Richard Davies