Transport for London

London Highway Maintenance and Projects Framework

Volume B

South Area

Transport for London

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Volume B - Scope

South Area

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S100 Description of the *service*

Overall Objectives

S105

S105.1 Transport for London or TfL is the highway authority for all GLA Roads (S2A of the Highways Act 1980) and traffic authority for GLA side roads (S124 of the Road Traffic Regulation Act 1984). These roads are collectively referred to as the Transport for London Road Network (TLRN).

S105.2 The *Client* or its successors, retains these roles for the duration of the *service*.

S105.3 The *Contractor* provides highway maintenance, asset renewal and improvement projects in the Affected Property.

S105.4 The *Client* works closely with other highway authorities within and adjoining London who have responsibility for the rest of the road network in and around London.

Additional identified and defined terms

S106

S106.1 Activity Task Orders are Task Orders with the requirements that are described in S510.1.

S106.2 Core Working Hours are Monday to Saturday from 0800hrs to 1800hrs.

S106.3 The Client's Property is as defined in Schedule 7, Appendix 10.

S106.4 In relation to this Scope, a 'defect' is construed in the context given to the term in the Code of Practice, 'Well-managed Highway Infrastructure' published by the UK Roads Liaison Group.

S106.5 Immediate Task Orders are Task Orders with the requirements that are described in S510.2.

S106.6 Project Task Orders are Task Orders with the requirements that are described in S510.3.

S106.7 The Reactive Services Threshold is £2000.

S106.8 Technical Specification is as defined in S2205. References to 'clauses' refer to the Technical Specification unless otherwise stated.

S106.9 In this Scope, Day means a calendar day.

Description of the *service*

S110

S110.1 The *service* includes

- core cyclic activities and reactive works (the Core Service),
- Task Orders to carry out minor additional works to the Scope (Activity Task Orders),
- Task Orders to carry out larger or more complex additional works to the Scope (Project Task Orders) and
- any associated requirements as set out in this Scope.

S110.2 The Client's Property for each of the Core Service Areas is detailed in Appendix A to the Scope. The quantities stated are subject to a tolerance of 3%. The total number of bridges, tunnels and subways is not subject to tolerance.

S110.3 The *Contractor* updates and maintains the *Client's* asset management information system as an integral element of Providing the Service.

S110.4 The *Client* allocates each element of its road network against the following hierarchy.

Network	Feature	General Description
Carriageway	Very high flow	Roads typically carrying above 70,000 vehicles/day
	High flow	Roads typically carrying between 33,000 and 70,000 vehicles/day
	Medium flow	Roads typically carrying between 20,000 and 33,000 vehicles/day
	Low flow	Roads typically carrying below 20,000 vehicles/day
Footway	High pedestrian density	Footways typically with an hourly peak pedestrian density at or above 71/m
	Medium pedestrian density	Footways typically with an hourly peak pedestrian density between 14/m and 70/m
	Low pedestrian density	Footways typically with an hourly peak pedestrian density below 14/m
Cycling Facility	High cycle flows	Typically, with cycle flow over 4,000/day
	Medium cycle flows	Typically, with cycle flows between 800 and 4,000/day
	Low cycle flows	Typically, with cycle flows below 800/day

Mobilisation of the *service*

S110.5 The *Contractor* commences mobilisation as soon as is reasonably practicable to ensure that a state of readiness exists to be able to Provide the Service from the *starting date*. The *Contractor* determines the activities to be undertaken during mobilisation including

- establishing and testing all internal and external communication facilities and administrative systems,
- establishing communication with the *Client's* traffic control centre,
- becoming familiar with the Client's Property and all interfaces and boundaries, ensuring that there are no gaps or overlaps,
- appraising the services carried out by the outgoing contractors and identifying any activities required by the *Client* which have not been carried out,
- taking all reasonable steps to obtain from the outgoing contractors and the *Client* all records, plans, programmes and other information necessary for Providing the Service,
- identifying where these records, plans, programmes and other information are incomplete or missing and making recommendations to the *Service Manager* regarding actions necessary to complete them,
- carrying out design reviews of works designed by Others to be implemented after the *starting date* and notifying the *Service Manager* of any design concerns so that changes in scope, specification and cost can be agreed and incorporated,
- updating all draft documents issued identified by the contract as requiring finalisation and approval during mobilisation,
- ensuring that all necessary permits, consents and licenses are applied for to enable the *Contractor* to Provide the Service,
- establishing access to the *Client's* asset management information system, including attending training as required, to ensure usage and management of the data stored from the *starting date*,
- reviewing the results of any surveys, assessments or other investigations carried out by Others, where these are relevant to Providing the Service, and advising the *Service Manager* as to their adequacy and the need for any further survey or other work,

- liaising, as appropriate, with the outgoing contractors and any Others to ensure that the transitional arrangements operate smoothly,
- becoming familiar with any residual duties to be performed by the outgoing contractors and any ongoing work being performed on the Affected Property,
- advising the *Service Manager* of any addition to the Scope which the *Contractor* considers appropriate to be performed during mobilisation,
- preparing *service areas*, Plant, Materials and Equipment,
- preparing facilities for the *Client, Service Manager* and Others,
- establishing emergency response arrangements, including a 24/7 call handling service,
- developing incident management plans for a range of incident types such as road accident fatalities, chemical spillages and lane closures,
- establishing winter service arrangements and
- developing, finalising and obtaining approval to the quality plan, the Environmental Management Plan, the Equality and Diversity Action Plan and the Health and Safety Action Plan.

Demobilisation of the *service*

S110.6 The *Contractor* commences demobilisation one year before the end of the *service period*. The activities undertaken during demobilisation include

- delivering to the *Service Manager* all operational records, collected data, calculations and results of all analyses produced by the *Contractor* in connection with surveys and other investigations and enquiries to an extent and in a format, which will be as reasonably required by the *Service Manager*.
- providing all necessary facilities, advice and assistance to enable the incoming contractor to perform the duties equivalent to the *Contractor's* mobilisation duties.
- preparing to hand back all *service areas*, Plant and Materials, and Equipment that have been provided by the *Client*.
- transferring to the *Client* all digital information that has accumulated during the service period, other than the *Contractor's* commercially confidential digital information.
- complying with the TUPE requirements referred to in Appendix 2 of Schedule 7.
- preparing and submitting to the *Service Manager*, no later than three months before the end of the *service period*, a report on all outstanding defects, Scope Defects and

work in progress and identifying Task Orders that the *Contractor* expects to be completed after the end of the *service period*.

The *Contractor's* stock

S110.7 From the *starting date* the *Contractor* maintains stocks of Plant and Materials as and any additional stock that the *Contractor* considers necessary to emergencies. The list of *Contractor's* stock is as follows.

Item	Quantity		
	North	Central	South
Filled sandbags	100	100	100
Ordinary sand	5 tonnes	5 tonnes	5 tonnes
Dry sand	2 tonnes	2 tonnes	2 tonnes
Oil absorbent granules to remove oil from carriageways	30 kg	30 kg	30 kg
Bituminous instant repair material 5kg	10	10	10
Bituminous instant repair material 25kg	5	5	5
Woven netting mesh 100mm square, 1m high	50m	50m	50m
Road cones	50	50	50
Pedestrian freestanding safety barrier 2m long	10	10	10
Trench plates 2m x 2m	4	4	4
Sign posts 100mm dia. 5m long	6	6	6
"GIVE WAY" signs 750mm high	6	6	6
"ROAD CLOSED" signs 750mm high	2	2	2
Class 1 free standing sign to dia. 2702 (arrow reversible)	3	3	3
Class 1 free standing sign to dia. 2703 (arrow reversible)	3	3	3
Self-adhesive (peel off) capital letters and numerals (transport heavy 150mm 'x' height)	4 sets	4 sets	4 sets
Gully frames and covers, heavy duty	10	10	10
Pre-cast concrete gully pots	5	5	5
Chamber frames and covers, heavy duty	5	5	5

S110.8 The *Client* may require additional Plant and Materials to be brought into stock. The additional Plant and Materials are added to the list detailed in S110.7.

S110.9 All Materials and Plant required to be stored by the *Contractor* are stored at the *service areas* unless specifically instructed otherwise.

S110.10 When instructed by the *Service Manager*, the *Contractor* supplies and stores *Client* specified Materials and Plant. The method for procurement of *Client* specified Materials and Plant is as described in S1200.

Drivers and vehicles

S110.11 The *Client's* general requirements for drivers and vehicles are detailed in Appendix P to the Scope.

In addition to the requirements of Appendix P all the *Contractor*'s motor vehicles used to Provide the Service which can be driven under a category B driving licence are fully powered by electricity. The requirement to be fully electric powered also applies to company cars assigned to those who spend all of their working time Providing the Service.

Progress Photographs

S110.12 The *Contractor* provides progress photographs whilst Providing the Service in accordance with the requirements of the Technical Specification.

Traffic Management

S110.13 The *Contractor* implements all traffic management necessary to Provide the Service. The *Client's* requirements for traffic management are detailed in the Technical Specification.

S110.14 The *Contractor* resources so that it can respond to instructions from the *Service Manager* for the provision of traffic management and other Plant or Materials to support periodic and one-off special events, civil emergencies, work by Others and the like.

S110.15 The *Contractor* provides traffic management and access to the *Client*, the *Client's* other contractors and any Others nominated by the *Service Manager*. This can be in conjunction with the *Contractor's* own works or as dedicated traffic management and access. The *Contractor* works with the *Client*, the *Client's* other contractors and Others to make full arrangements including providing, requesting and obtaining all necessary information.

S110.16 Where, the *Contractor* provides traffic management and access to the *Client* and the *Client's* other contractors and

consultants, the *Contractor* also obtains all permits, consents, licences, agreements, wayleaves and the like.

S110.17 Full details of each event and the traffic management required will normally be supplied to the *Contractor* by the *Service Manager* in advance, but at times the requirement for support may evolve in response to ongoing and evolving developments.

S110.18 The *Contractor,* prior to the commencement of a planned event, proposes to the *Service Manager* for approval the level of resources to be used. The *Contractor* records all such resources as set out in S1500.

Description of the Core Service

S115

S115.1 The *Contractor* undertakes Cyclic and Reactive Core Services to the relevant Client's Property in the Core Service Area to the requirements of the Technical Specification and any other requirements of the Scope.

S115.2 Any items or components replaced as part of Core Service activities are to be on a like-for-like basis unless otherwise agreed by the *Service Manager*.

S115.3 All activities carried out as Core Services are recorded on the asset management information system as work orders and the *Contractor* records the information required by this Scope.

Cyclic Core Services

S115.4 The *Contractor* does not undertake Cyclic Core Services to traffic signals and other control systems, bus stands, bus facilities and bus stations unless otherwise stated in this Scope.

S115.5 An activity required to be performed once a day is carried out at approximately the same time each day.

S115.6 An activity required to be performed weekly/monthly is carried out on approximately the same day of the week/month.

S115.7 The plan for activities required to be carried out once every three years will be ⅓ complete after one year and ⅔ complete after two years.

S115.8 Seasonal activities are undertaken in the applicable season.

S115.9 The *Service Manager* where possible, provides details of when an activity was last carried out prior to the *starting date* in order that the *Contractor* can determine when it next needs

to be carried out. Where such details are not available, the *Contractor* carries out the activity as following.

For activities of frequency	Initial implementation from the *starting date*
1 week	within 1 week
2 weeks	within 2 weeks
1 month	within 2 weeks
3 months	within 6 weeks
6 months	within 3 months
1 year	within 6 months
more than 1 year	within 18 months

S115.10 The relevant Client's Property for Cyclic Core Services is as set out in the Appendix A to the Scope.

Core Service 1 – Cyclic Safety Inspections

S115.11 The *Contractor* undertakes cyclic safety inspections to the requirements of clause 3351AR.

S115.12 The *Contractor* also undertakes Core Service 1 to bus stands, bus facilities and bus stations.

Core Service 2 - Cyclic Service Inspections of Traffic Signs

S115.13 The *Contractor* undertakes cyclic inspections of traffic signs to the requirements of Clause 3352AR. Signs and markings associated with entry to the Congestion Charging Zone (CCZ), Ultra Low Emission Zone (ULEZ), Safer Heavy Goods Vehicle Zone and the Low Emission Zone (LEZ) are inspected monthly. All other signs and markings within the Core Service Area are inspected quarterly.

Core Service 3 – Cyclic Night Scouting

S115.14 The *Contractor* undertakes night scouting of the illuminated property to the requirements of Clause 3353AR and at the following frequencies.

Network Hierarchy	Period	Scout Frequency
Principal Roads High Pedestrian Density	1st April to 31st October	Once every 2 weeks
High Cycle Flows	1st Nov to 31st March	Once every week

All other parts of the Core Service Area	1st April to 31st October	Once every 4 weeks
	1st Nov to 31st March	Once every 2 weeks

S115.15 All other parts of the Core Service Area include bus stations, walkways, subways and other segregated pedestrian areas.

Core Service 4 – Cyclic Road Markings

S115.16 The *Contractor* undertakes cyclic road marking to the requirements of the Technical Specification. The *Contractor* renews all road markings (excluding road studs) to the following requirements.

a) Edge of carriageway and parking control markings within 8 years of initial marking or last renewal (in any case the *Contractor* undertakes this activity at least once during the *service period*).

b) Transverse markings (e.g. stop lines, box junction markings) within 1 year of initial marking or last renewal and every 1 year thereafter.

c) All other road markings (e.g. lane markings, letters, numerals and symbols) within 2 years of initial marking or last renewal and every 2 years thereafter.

S115.17 The *Contractor* may defer renewal of any road marking assessed as being in prime, good or fair condition until its condition rating has deteriorated to ‘just serviceable’ in accordance with clause 1257AR.

Core Service 5 – Cyclic Lighting and Electrical

S115.18 The *Contractor* undertakes the following requirements as part of cyclic lighting and electrical activities.

a) Cyclic maintenance of sign lighting units in accordance with clauses 1251AR and 1450AR.

b) Cyclic maintenance of street lighting units in accordance with clauses 1350AR and 1450AR.

c) Cyclic maintenance of feeder pillars, intake boxes and cabinets in accordance with clause 1455AR.

d) Bulk change of lamps other than LEDs, in accordance with clause 1453AR at the frequencies determined by reference to the lamp manufacturers published performance figures for the particular lamp type and load rating, so that the cyclic maintenance frequency will coincide with the published LSF EM rating of 95%, or where that precise figure is not published, extrapolated from published performance figures to derive that rating.

e) During bulk lamp changes, routine maintenance activities listed at clauses 1350AR and 1450AR (for units carrying LED light sources the routine maintenance activities listed at clauses 1350AR and 1450AR are carried out at intervals not exceeding ten years).

f) Routine maintenance of feeder pillars as specified at clause 1455AR at frequencies of no more than six years (where electricity meters are present the Contractor records energy consumption no less than once every two years and update the energy supplier's portal with the readings).

g) Electrical testing as specified at clause 1424 of all electrical equipment, together with associated cabling, feeder pillars, switchgear and other distribution points during routine maintenance activity and at intervals of no more than once every 10 years; the electrical test results are compiled in a data format capable of interrogation within the asset management information system.

S115.19 The *Contractor* also undertakes the requirements of Core Service 5 to bus stands, bus facilities and bus stations.

Core Service 6 – Cyclic Drainage

S115.20 The *Contractor* undertakes the following requirements as part of cyclic drainage activities.

a) Cleaning of gullies, linear drainage channel systems, combined drainage and kerb systems, interceptors, catchpits, chambers and soakaways at intervals not exceeding 24 months.

b) Removing of all accumulated silt, detritus, vegetation and roots from inverts and banks of drainage ditches at intervals not exceeding 24 months.

c) Cleaning of filter drains, loosening the filter material, controlling weeds and removing detritus from filter drains at intervals not exceeding 36 months.

d) Cleaning culverts (including open culverts, brooks and the like categorised as culverts in the asset management information system) at intervals not exceeding 24 months.

S115.21 The *Contractor* also undertakes Core Service 6 to bus stands, bus facilities and bus stations.

Core Service 7 – Cyclic Landscape and Ecology

S115.22 The *Contractor* undertakes the following requirements as part of cyclic landscape and ecology activities.

a) Grass cutting as specified in clause 3007MR to the following frequencies.

Area type	Frequency
enhanced high frequency	20 times per year
high frequency	14 times per year
medium frequency	8 times per year
low frequency	4 times per year
minimal frequency	Once per year
wildflower areas	Once in accordance with Clause 3007.26(i) and once in accordance with 3007.26(ii) per year
1.8m edge of carriageway	Once per year

b) Edge trimming so that the *Contractor*

- trims edges of high frequency grass cut areas to the requirements of sub-clause 3007MR.10 four times per year and
- trims edges of medium frequency grass cut areas to the requirements of sub-clause 3007MR.14 twice per year.

c) Edge re-forming so that the *Contractor*

- re-forms edges of high frequency grass cut areas twice per year and
- re-forms edges of medium frequency grass cut areas are re-formed annually.

d) Weed control so that the *Contractor*

- controls weeds in high and medium frequency grassed areas to the requirements specified in sub-clause 3002MR.6 four times per year,
- controls weeds in cultivated beds to the requirements specified in sub-clause 3010.2 four times per year,
- controls weeds in hedges to the requirements specified in sub-clause 3002MR.7 twice per year and
- controls weeds in paved areas of roads with a speed limit of 40mph or more as specified in sub-clauses

3002MR.3 with treatments undertaken in spring and summer of each year.

e) Pruning so that the *Contractor*

- prunes shrubs to the requirements of clauses 3010.5 to 3010.9 annually,
- coppices shrubs grown for stem colour once every three years during February and March,
- trims hedges to the requirements of sub-clauses 3010.11 through to sub-clause 3010.31 twice per year and
- removes basal sucker growths and epicormic growth from trees to the requirements of sub-clause 3010MR.53(i) and 3010.53(v) annually.

f) Managing water bodies so that the *Contractor*

- Provides the Service to lagoons and balancing ponds in accordance with the requirements of clause 3011MR and
- removes silt, overlying rubbish and debris in accordance with the requirements of clause 3011MR.8 once every four years.

g) Surveying including

- tree defect surveys in accordance with the requirements of clause 3354AR and
- tree condition surveys in accordance with the requirements of clause 3355AR.

S115.23 The *Contractor* also undertakes Core Service 7 to bus stands, bus facilities and bus stations.

Core Service 8 – Cyclic Street Cleaning

S115.24 The *Contractor* undertakes the following requirements as part of cyclic street cleaning activities.

a) In the North Core Service Area only, street sweeping of the following roads in in accordance with the requirements of clause 3150AR every six weeks,

Roads to be swept	The elevated section of the A40 Westway – between its separation with the slip roads connecting to the A219 Wood Lane and its junction with the A501 Edgware Road, a distance of approximately 3 miles.

b) Annual cleaning of all subways under, and footbridges over, roads together with any associated structures in accordance with the requirements of clause 3151,

c) Annual cleaning of all surface mounted expansion joints in accordance with the requirements of clause 3161AR,

d) Annual cleaning of all bearing shelves and bearings in accordance with the requirements of clause 3160,

e) Cleaning of all drinking fountains in accordance with the requirements of and to the frequencies given at clause 3164AR and

f) Cleaning of traffic signs including those mounted on gantries and bollards (both lit and unlit) in accordance with the requirements of clause 3158AR at the following frequencies.

Asset type	Cleaning frequency
Traffic bollards	Twice p/a in March and November
Traffic signs mounted on gantries	Every 6 years
All other traffic signs	Every 3 years

Core Service 9 – Winter Service

S115.25 As winter service activities, the *Contractor* undertakes the requirements in accordance with Series 2850 with the provision that

- the Client's Principal Treatment Route, as required in the Technical Specification, is the TLRN.
- the *Service Manager* instructs treatments as work orders as the requirements of 2857AR of the Technical Specification and pays these using the Price List part 2 and
- the *Service Manager* instructs the High Risk Period as required in the Technical Specification as a Task Order and pays for this using the Price List part 2.

S115.26 The *Contractor* holds the following minimum stocks of materials for winter treatments.

Material	Quantity		
	North	Central	South
Road salt to British Standard (tonne)	9,000	4,000	5,500
Liquid de-icer (litre)	250	1,000	200

Core Service 10 - Reactive Services

S115.27 Reactive services are provided dynamically in response to hazards, defects, incidents or events to maintain the Client's Property in a safe and serviceable condition.

S115.28 The *Contractor* provides the following reactive services in accordance with the Technical Specification.

a) Emergency service.

b) Safety inspections.

c) Inspection of traffic signs.

d) Night scouting.

e) other Reactive Services as described in this Scope.

S115.29 The *Contractor* reacts in response to identification of hazards, defects or incidents by the *Contractor's* people, notification by the *Client*, *Service Manager* or Others as part of this Core Service

S115.30 Reactive service includes making safe, temporarily repairing where necessary and permanently repairing of hazards or defects. Permanent repairs are made in accordance with the Technical Specification.

S115.31 The *Contractor* carries out the reactive service to the Client's Property and to property owned or managed by Others including but not limited to other highway authorities, utility companies, Statutory Undertakers and private parties if it is affecting the Client's Property by creating a hazard or defect.

S115.32 If a hazard or defect is not the Client's Property but it is necessary to react, such as to make safe defective statutory undertakers' apparatus, a permanent repair will only be undertaken on instruction from the *Service Manager*.

S115.33 Hazards or defects are recorded as works orders in the asset management information system. The *Contractor* records any information required by the Scope, including the making safe, temporary and permanent repair operations together with the price of the repair when calculated using the contract. If the cumulative price of the repair is greater than the Reactive Services Threshold, the *Client* pays for the repair.

S115.34 The *Contractor* does not proceed with any permanent repair under this Core Service that is forecast to cost more than the Reactive Services Threshold using the contract. An Activity Task Order is issued by the *Contractor* on the asset management information system and the *Contractor* only

carries out the permanent repair once the Activity Task Order is approved.

S115.35 If the eventual price of the repair is greater than the Reactive Service Threshold and the *Contractor* has not raised an Activity Task Order, the *Contractor* provides the *Service Manager* with the information required in S115.33 to determine if a retrospective Activity Task Order should be issued.

S115.36 The *Contractor* assesses the risk posed by hazards and defects in accordance with Appendix 33/1C of the Technical Specification.

S115.37 The *Contractor* responds to hazards or defects in accordance with Table 33.4 of Appendix 33/1C to the Technical Specification.

S115.38 When hazards, defects or incidents are communicated to the *Contractor* by other *Contractor's* people, the *Client*, the *Service Manager* or Others, and the *Contractor* is provided with insufficient information to categorise an appropriate response, it shall be assumed that an emergency call out (ECO) response is necessary and a first response vehicle or other appropriate resources shall be dispatched in order to carry out an on-site re-assessment.

S115.39 Hazards or defects which are categorised as ECO require the deployment of a first response vehicle. The *Contractor* attends the hazard or defect, assesses the situation and takes appropriate action. Appropriate action is the immediate commencement of a permanent repair or where that is not practicable, either a temporary repair or the making safe of the hazard or defect.

S115.40 Making safe may include, but not be limited to, displaying warning notices, coning off, fencing off, or using temporary barriers to effectively protect road users from the hazard or defect. In deciding the most appropriate measures for making a hazards or defect safe, the *Contractor* considers the disruption to road users that would be caused.

S115.41 The choice of the most appropriate action depends on

- the nature of the hazards or defect and whether the first response vehicle attending has the materials necessary to carry out an immediate repair,
- whether specialist advice is needed before deciding on the nature of a repair and
- the assessment of the overall disruption caused to Others.

S115.42 The *Contractor* puts in place a special inspection regime to ensure that temporary repairs or measures taken to make the hazard or defect safe remain effective until a permanent repair is made. For the avoidance of doubt, the act of making safe or implementing a temporary repair does not negate any obligation to affect a permanent repair.

S115.43 The *Contractor* does not attend to ECO's at Blackwall northbound, Blackwall southbound and Rotherhithe tunnels as part of this Core Service. The *Contractor* complies with the rest of the requirements of the Core Service at these geographical areas. The geographical areas that are excluded from this Core Service are shown below.

Blackwall Tunnel Northbound	From the (part time) traffic signal stop line immediately prior to the over-height vehicle barrier, through the northbound tunnel to the nose of the traffic island separating the A12 and A13 (westbound) off slip.
Blackwall Tunnel Southbound	From the gantry, just prior to the northernmost A13 on slip, through the tunnel to the end of the 'wing walls' beyond the exit portal.
Rotherhithe Tunnel	The section of the A101 between the segmental arches on the north and south sides of the river, formed of the shield cutting edges.

S115.44 The *Contractor* attends to ECO's at Blackwall northbound, Blackwall southbound and Rotherhithe tunnels when instructed by the *Service Manager* as Immediate Task Orders.

S115.45 The *Contractor* co-ordinates this Core Service with the *Client's* other contractors in accordance with the Scope.

S115.46 The *Contractor* assesses defects listed in S115.46 (a) through to (m) in accordance with Appendix 33/1C of the Technical Specification and applies the shorter of the resulting timescales.

Traffic Signs

a) The *Contractor* repairs defects to traffic signs and traffic bollards at Congestion Charging Zone (CCZ), Ultra Low Emission Zone (ULEZ), Safer Heavy Goods Vehicle Zone or Low Emission Zone (LEZ) entry points within 7 days. The *Contractor* refers all other defects to traffic signs and traffic bollards to the *Service Manager* within 48 hours, who then assesses the ongoing need for the asset and if

so confirmed the *Contractor* repairs the defect within 28 days of such confirmation.

Road Markings

b) The *Contractor* undertakes reactive maintenance to road markings should their condition fall to, or below 'just serviceable' in accordance with 1257AR. Road markings and road studs at Congestion Charging Zone (CCZ), Ultra Low Emission Zone (ULEZ), Safer Heavy Goods Vehicle Zone or Low Emission Zone (LEZ) entry points will be permanently repaired within 7 days, all other defects to road markings and road studs will be repaired within 28 days.

Lighting and Electrical

c) The *Contractor* undertakes the rectification of hazards or defects that are lighting and other electrical faults within 3 days, or 7 days if a permit is required. On highways with a speed limit of 50mph and above and where maintenance closures are already planned, then the repairs to lighting units will be deferred until the next maintenance closure, unless the lack of lighting constitutes a Cat 1 or Cat 2H defect as defined by Table 2 from Volume 8, Section 3 of the "Design Manual for Roads and Bridges, TD 23/99."

Drainage

d) The *Contractor* responds within 2 hours during Core Working Hours or within 4 hours at other times to implement appropriate action to rectify any report of a blockage of any drainage system. The *Contractor* permanently repairs defects to inspection chamber covers, grates and frames causing noise nuisance within 24 hours of being recorded or communicated.

Landscape and Ecology

e) The *Contractor* controls all injurious weeds in accordance with the requirements of clause 3002MR.

f) The *Contractor* controls all trees and shrubs in accordance with the requirements of clause 3010 ensuring no obstruction to the safe passage of vehicles, pedestrians and cyclists exists to maintain the minimum and maximum levels of vertical clearance shown below.

Carriageway	5.5m min	7.0m max
Footway	2.5m min	4.0m max
Off-carriageway cycle facility	3.0m min	4.5m max

g) The *Contractor* controls all trees and shrubs adjacent to all traffic signs and signals so that no vegetation obstructs the visibility of sign or signal faces within the distances shown in the following table relative to the speed limit of the road and measured from the driver's eye height of 1.05m to the top of the sign/signal face and over the full width of the adjacent carriageway, including any hard shoulder.

Road speed limit	Unobstructed clear visibility distance
40mph or less	50 metres
50 mph	75 metres
60 mph	100 metres
70 mph	150 metres

h) The *Contractor* controls all trees and shrubs adjacent to enforcement cameras to ensure a 100m unobstructed clear visibility distance for all drivers and unobstructed view from the camera to the enforcement zone.

i) The *Contractor* does not fell any tree under the Reactive Service without the prior approval of the *Service Manager*.

Street Cleaning

j) The *Contractor* clears litter and fly-tipped material from the roads identified in S115.24(a).

k) The *Contractor* clears traffic accident debris on instruction from the *Client* or the Police. When so instructed the *Contractor* responds within 2 hours of receipt of an instruction within Core Working Hours, and within 4 hours at other times. In undertaking reactive street cleaning services, the *Contractor* returns the location to Grade A standards as defined in the Code of Practice on Litter and Refuse published by the Department of Environment, Food and Rural Affairs.

l) The *Contractor* removes graffiti, unauthorised signs, illegal advertising, stickers and fly-posters, within 28 calendar days of them being identified or reported, unless of a racist, religiously bigoted, inflammatory or sexually explicit or obscene nature, in which case the *Contractor* removes them within 24 hours, all in accordance with clause 3154AR.

m) The *Contractor* removes the carcasses of dead cats, dogs, foxes, badgers and other animals of similar or larger size within 24 hours of them being reported or identified in

accordance with clause 3152AR. There is no requirement to remove the carcasses of smaller animals.

Core Service 11 - Damage by Others

S115.47 The *Contractor* rectifies damage by Others as a Core Service. Any hazard or defect that results from action or inaction by Others is included within this Core Service.

S115.48 In addition to the requirements of Core Service 10, where the hazard or defect is caused by Others, the *Contractor* obtains and retains such evidence and photographs as may be required to facilitate recovery of costs from the relevant Others, their insurer, or the “Motorists’ Insurance Bureau” where the Other was an uninsured driver.

S115.49 Where the price of the repair is under £10,000 when calculated using the Price List, the *Contractor* is responsible for the recovery of the costs. Any recovered sums are retained by the *Contractor*.

S115.50 Where the price of the repair is over £10,000 when calculated using the Price List, the *Contractor* provides such evidence and photographs to the *Client* or the *Client’s* representative to facilitate the recovery of the costs. The *Contractor* is reimbursed by the *Client* in accordance with the contract

S115.51 Damage by Others includes, but is not limited to

- damage to highway assets, fly posting, theft or attempted theft and vandalism and
- obstructions and hazards to highway users, spillages (including items falling from vehicles), and following the issue of any necessary statutory notices by the *Client*, dealing with unauthorised materials or items deposited on the highway, overhanging vegetation, dead or diseased trees within falling distance of the highway, unstable walls or fences adjacent to the highway and abandoned vehicles.

S115.52 Damage by Others does not include normal wear and tear, graffiti or damage to footway paving. Permanent repair may involve clearing, cleaning, repairing or replacement on a like-for-like basis to restore the lifespan or safe performance of the asset.

Core Service 12 - Facilities for the *Client*

S115.53 The *Contractor* provides Equipment, Plant, Materials and other services for the *Client*, the *Service Manager* and Others as the requirements of the Scope as a Core Service.

S115.54 The *Contractor* provides a rebate for Equipment, Plant, Materials, facilities for *service areas* and other services provided by the *Client* described in the Scope as part of this Core Service.

COVID-19 Lump Sum – Providing the Core Service in accordance with the COVID-19 Guidance

S115.55 The *Contractor* Provides the Core Service in accordance with the requirements of S265.

General constraints **S205**

S205.1 Control of working times for certain streets or activities may be imposed by the *Client* through the issuing of road space permits or by Others including the police or the local authority.

S205.2 The *Contractor* develops and maintains noise and vibration requirements as part of the “Environmental Management Plan”. The requirements set out how noise and vibration requirements are managed, and the *Contractor* Provides the Service in strict adherence to this plan.

S205.3 When Providing the Service with the potential to give rise to noise or vibration, the *Contractor* consults with the *Service Manager* and the relevant local authority over working hours, noise mitigation, and the potential need for a “Section 61” consent under the “Control of Pollution Act, 1974”.

S205.4 The *Contractor* provides the relevant local authority with all necessary information to enable them to understand the potential impacts of Providing the Service and determine whether a “Section 61” application is required.

S205.5 The *Contractor* complies with the requirements of any consent issued by the relevant local authority relating to the way in which Providing the Service is to be carried out.

S205.6 Compliance with the other requirements of the contract will not of itself constitute any grounds of defence against any proceedings instituted under “Section 59 of the Control of Pollution Act 1974”.

Noise control

S205.7 The *Contractor* ensures that the *service* is carried out in accordance with the “Best Practicable Means” as required by “Section 72” of the “Control of Pollution Act 1974” to limit noise and vibration levels so that residents, and other sensitive receptors, are protected from excessive or prolonged noise or vibration associated with Providing the Service. The *Contractor* Provides the Service to the provisions of “BS5228 - Code of Practice for Noise and Vibration Control”.

S205.8 Noise monitoring is undertaken using type 1 noise monitors complying with BS EN 61672-1:2003 and noise monitoring is undertaken by suitably trained and competent people.

S205.9 As far as practicable, all sources of noise from Equipment such as generators and compressors are enclosed, adequately insulated or otherwise mitigated. All Equipment

including vehicles is fitted with effective and efficient exhaust silencers. If necessary, advice from manufacturers is obtained to ensure that adequate ventilation is provided by the enclosures.

S205.10 The *Service Manager* has the right to instruct the *Contractor* to cease using any Equipment insufficiently silenced or generating noise levels in excess of those specified. In such circumstances, the *Contractor* changes the method of Providing the Service.

S205.11 Whenever possible, quieter techniques or Equipment is used. Examples include the use of an electric pump rather than diesel pump or the use of a white noise warning mechanism for reversing vehicles.

S205.12 All pneumatic Equipment is to be in good mechanical order and fitted with mufflers or silencers of a type recommended by the manufacturer to give the greatest possible reduction of noise. Electrically powered equipment is to be used in sensitive locations when instructed by the *Service Manager*.

S205.13 Where piling works are required, the *Contractor* complies with “BS 5228: Parts 1 and 2: 2014 - Code of practice for noise and vibration control on construction and open sites”. The *Contractor* demonstrates that the best practicable means in selecting the quietest piling rig suitable has been used.

S205.14 Equipment, including vehicles, in intermittent use is shut down between work periods or throttled down to a minimum. Equipment, including vehicles, is not to be left running unnecessarily.

S205.15 Acoustic screens or barriers are to be used to shield noisy operations wherever practicable. For maximum effectiveness, the barrier is brought as close as possible to either the noise source or the receiving positions. The maximum height of barriers is such that no part of the noise source is visible from the receiving positions.

Vibration control

S205.16 The *Contractor* takes all reasonable steps to limit vibration caused by Providing the Service and complies with “BS 6472: 2008 Parts 1 and 2 Evaluation of Human Exposure to Vibration in Buildings (1Hz-80Hz)”. When Providing the Service with the potential to give rise to vibration is to be undertaken, the *Contractor* installs vibration monitors at potentially affected receptor locations. Any vibration monitoring carried out is also in compliance with “BS 6472: 2008”.

S205.17 No Equipment is permitted which uses a system of dropping a heavy weight, whether power assisted or by gravity, for the purpose of breaking up paving without the *Service Manager's* acceptance to the use of such equipment.

Supervision

S205.18 One or more suitably qualified supervisors are nominated by the *Contractor* to be in attendance during the complete course of Providing the Service, unless otherwise agreed with the *Service Manager*, and these supervisors are to direct on all points relating to the mode of Providing the Service, or to the nature and quality of Plant and Materials used and workmanship executed, or on any other requirements of the *service*. Structures supervisors are always to be present at a site during periods of structural activity.

Security and protection of the site

S215

S215.1 All street furniture, signs, fences, trees, shrubs, greens, footpaths, footway and carriageway surfaces, etc. in, adjoining, or near where the *Contractor* is providing the Service are to be protected.

S215.2 The *Contractor* informs the *Service Manager* of any damages, and any rectification is carried out within 7 days.

Security and identification of people

S220

S220.1 The *Contractor* issues to all its people or Subcontractors that Provide the Service, a form of identification card which is to be produced on demand to identify the person and verify their authenticity to enter and execute works in the *service areas,* the *Client's* offices or on the Affected Property. The *Contractor* does not on any account allow any member of its people to attempt to gain entry to any premises owned or leased by the *Client* without possession of the identification card.

S220.2 The details on the identification card include

- a clear photograph of each person,
- the person's name and position within the organisation and
- the *Contractor's* name, address and telephone number.

Protection of the Affected Property and other areas

S225

S225.1 The *Contractor* obtains approval from the *Service Manager* prior to commencing any excavation on, under or adjacent to any highway structure. The *Contractor* submits to the *Service Manager* at least 28 days in advance of the date of the

excavation any method statements, drawings and the like required by the *Service Manager* to assess the effects of the *service* on the structure and to ensure that the safety of the structure and the public is not compromised. It should be noted that not all the required information may be available, and that trial holes and other investigations may be required prior to the excavation commencing. The *Contractor* allows for obtaining this information and the approval periods within the plan or Task programme.

S225.2 The *Contractor* locates buried services, apparatus or property owned by Others including Statutory Undertakers by means of detection equipment which can record cable depth prior to Providing the Service. The *Contractor* demonstrates, on request of the *Service Manager*, an ability to locate and mark as necessary, and to maintain and remove markings upon completion.

S225.3 Wherever there is risk of damage to services, apparatus or property owned by Others including Statutory Undertakers, the *Contractor* provides protection or installs new diversionary apparatus, to maintain electrical supplies to lighting columns and lit signs. The *Contractor* notes on the plan or Task programme of the proposed date of any changes to the cable network and does not proceed with arrangements for the switchover from existing to temporary cables until acceptance by the *Service Manager*.

S225.4 The *Contractor* takes all necessary precautions to prevent accumulation of water upon or adjacent to the where the *Contractor* is Providing the Service and removes such water as speedily as possible. Any damage caused by accumulation or percolation of water is made good.

S225.5 The *Contractor* takes every possible precaution to avoid damage to all green estate assets, including but not limited to trees, shrubs, hedges and grass, following the guidance in “BS5837 Trees in relation to design, demolition and construction”. Any damage to green estate assets is deemed to be an unavoidable consequence of Providing the Service and is included in the plan or Task programme for acceptance by the *Service Manager*.

S225.6 The *Contractor* puts in place measures to protect the green estate whilst Providing the Service which include but is not limited to protective temporary fencing, whilst not obstructing established footways and rights of way and visibility for the highway user. Such measures are not to be limited to the duration of site clearance works and are maintained for the whole of the period that the *Contractor* is Providing the Service near the trees and shrubs.

S225.7 Trenching close to trees and shrubs, and Providing the Service beneath the canopy of trees, will include such measures as necessary to avoid root damage and severance and to avoid damage to the canopy and foliage. The *Contractor*, when Providing the Service around and adjacent to the root systems of trees, shrubs and the like, fully complies with the requirements of the “National Joint Utilities Group Publication Number 10 - Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees”.

S225.8 The *Contractor* takes all reasonable measures to avoid damage to roadside planting and grass verges. Areas of grass and planting damaged whilst Providing the Service are to be reinstalled to the approval of the *Service Manager*.

Protection of property owned by Others

S225.9 The *Contractor* takes all necessary precautions to protect property owned by Others (such as forecourts, walls, gates, driveways, cellars, etc.) from damage, and makes good any damage caused whilst Providing the Service.

S225.10 Where Providing the Service, permanent or temporary, requires access to, or has the potential to affect, operational railways, the approval process for the specific track operator is followed in addition to the Scope. The *Contractor* makes suitable allowance within the programme for obtaining these approvals.

S225.11 Where Providing the Service, permanent or temporary, affect or have the potential to affect listed structures or Statutory Undertakers apparatus, the *Contractor* follows the approval process required by the statutory consultee. The *Contractor* makes suitable allowance within the programme for obtaining these approvals.

S225.12 The *Contractor* inspects each site and its environs prior to the commencement of Providing the Service, takes photographs and reports to the *Service Manager* any existing defects or damage to private property. The *Contractor* carries out such condition surveys considered necessary to protect the interest of the *Contractor* or *Client*. The *Contractor* does not commence any work considered to interfere with the integrity of adjacent property, irrespective of its state of repair, until the *Service Manager* and the property owner have been advised of any damage or defect.

Protection of archaeological artefacts and historical features

S225.13 The *Contractor* ensures that all heritage and archaeological assets which may potentially be affected by Providing the Service are identified when planning and designing the *service*.

S225.14 Where there is the potential to impact built or landscape heritage (including interior features) or archaeological assets, the *Contractor* obtains early advice from a suitably competent specialist with the aim of avoiding or minimising such impacts. Where impacts are unavoidable, the *Contractor* ensures that appropriate mitigation is incorporated into the design or construction proposals. The *Contractor* also liaises with the *Client's* heritage advisors who may assist with engagement with “Historic England” (where applicable) and the local authority conservation officer.

S225.15 Where feasible, heritage protection measures should achieve permanent preservation and retention of heritage assets (preservation in situ). Where this is not feasible, investigation and either the relocation of the asset or its recording prior to development (preservation by record) is undertaken. This must be completed in consultation with the *Client's* heritage advisors, the local planning authority and, where necessary, “Historic England”.

S225.16 The *Contractor* ensures that all necessary consents and licences are obtained prior to Providing the Service which may affect heritage assets.

S225.17 The *Contractor* ensures that the *service* is carried out in accordance with applicable legislation, planning or listed building consent conditions, central and local government heritage policy and guidance and good industry practice related to the protection of the historic environment.

S225.18 The *Contractor* ensures that Providing the Service on heritage assets is carried out using competent people to ensure that the required standards are met.

S225.19 If, during excavations, the *Contractor* uncovers unexpected remains of archaeological importance the *Service Manager* is notified, and the *Contractor* does not excavate through or remove the same until the authority of the *Service Manager* has been obtained. In such cases “English Heritage” or the “Museum of London Archaeological Unit” may attend site, and the *Contractor* provides all necessary facilities to allow them to carry out their operations for location and recovery of artefacts.

S225.20 All old coins, statues, articles of virtue or antiquities, including, but not limited to those covered by the “Treasure

Act 1996" and its code of conduct which are found whilst Providing the Service becomes the property of the *Client* and as soon as such articles are discovered the *Contractor* notifies the *Service Manager* and take proper precautions to prevent them being damaged, stolen or removed.

Protection of the work on the Affected Property **S230**

S230.1 The *Contractor*, whilst Providing the Service, keeps the whole of the site in a clean and tidy condition, and removes all material to be disposed of daily unless agreed otherwise by the *Service Manager*. Particular care is taken to ensure that no materials enter drainage systems. All water pumped from trenches or other excavations are confined to proper channels and are not permitted to flow across carriageways or footways.

S230.2 The attention of the *Contractor* is drawn to the likelihood of damage occurring to highway surfacing by oil deposits from stationary and standing equipment. Any such damage is made good.

S230.3 The *Contractor* keeps all fire hydrants, stopcocks, manhole covers, electricity supply boxes and all other public services readily accessible and free from all obstruction.

S230.4 The *Contractor* keeps all carriageways, private entrances, verges, paths, footways, drains and ditches free from mud, slurry or other material that is deposited whilst Proving the Service. If mud or other droppings are deposited on the highway by vehicles used whilst Providing the Service, the *Contractor* cleanses the deposits. If necessary, the Contractor provides a wash down bay for vehicles. The *Service Manager* has the authority to close any crossings and exits serving the works if any material deposited is not promptly removed by the *Contractor*.

S230.5 Only such quantities of Equipment, Plant and Materials as are necessary for Providing the Service are kept on a site at any one time. Equipment, Plant and Materials are to be placed only in such places as the *Service Manager* may allow, and all Materials are to be kept neatly stacked or trimmed to the *Service Manager's* direction and satisfaction. The *Contractor* temporarily removes from site all Equipment, Plant and Materials when instructed to do so by the *Service Manager*.

S230.6 Site lighting is kept at the minimum brightness necessary for adequate safety and security. Lighting is to be located and directed in such a way to reduce adverse impacts to residents and local wildlife (e.g. bat roosts and bird nesting areas).

S230.7 The *Contractor* makes arrangements, including applying for planning permission, with the owners, tenants and occupiers concerned for the use of any private land for plant, stores, working space, borrow pits or spoil dumps.

S230.8 On completion of the works, and before departing the site, the *Contractor* clears the site of all rubbish, materials, and any associated debris or materials and generally eliminates all signs of presence on the site to leave it in a clean and tidy condition. All areas used for the storage of materials and *service areas* is reinstated. The burning of any type of waste is prohibited.

Sites, and the storage of Equipment, Plant and Materials

S230.9 For each site the *Contractor* includes in the plan or Task programme for the approval of the *Service Manager* to the temporary siting of any compounds, mixing equipment, or workshops on the street. Sites are reinstated to their original condition after use.

S230.10 Materials are stored or stacked and kept in a neat and tidy fashion, located to minimise interference to public use.

S230.11 The *Contractor* accepts full responsibility for any damage or accident caused. All Equipment, Plant and Materials are always to be adequately fenced and lit during the hours of darkness.

S230.12 Combustible materials are not stored beneath any highway structure.

Advertisements and graffiti

S230.13 No advertisements are to be erected at or near the works by the *Contractor* or by any Subcontractor without the prior consent of the *Service Manager*. Should any advertisement be erected within the site without such consent, the *Service Manager* may instruct the *Contractor* in writing to remove it within 24 hours. Should such an instruction not be carried out, the *Service Manager* may remove the advertisement at the *Contractor's expense*.

S230.14 Any unauthorised fly-posting or graffiti appearing on any buildings, hoardings, fencing, etc. at the *service area*, compound or the site of the works is removed.

Consideration of Others S240

S240.1 The *Contractor* takes all necessary precautions to prevent danger, nuisance or inconvenience to the owners, tenants or occupiers of adjacent properties and to the public generally.

S240.2 The *Contractor* always minimises the effects of operations on pedestrian and vehicular traffic, minimising the duration of operations within the highway and carrying out those operations at times chosen to minimise disruption to normal use. The *Contractor* arranges the transport of equipment, plant and materials so that any additional traffic arising is limited as far as is reasonably possible to cause no avoidable congestion.

S240.3 Existing traffic (including pedestrian) flows are always to be maintained except where allowed for in the Scope or agreed with the *Service Manager*.

S240.4 The *Contractor* does not allow any of its vehicles to block dropped crossing points. All excavations, works and materials in the highway are adequately guarded, signed and lit to create the minimum inconvenience to disabled pedestrians, especially those with mobility difficulties or with impaired vision.

S240.5 If there is a need to suspend parking bays, every effort is made not to suspend any disabled person's parking bay. If that is unavoidable the *Contractor* agrees with the *Service Manager* a convenient position for it to be relocated.

S240.6 Road closures, temporary traffic routes, access arrangements and diversions are co-ordinated with the *Service Manager*, the police and the other emergency services as well as bus operators when affected. 7 days' notice of changes to traffic phasings and diversion routes is given to allow bus operators to plan alternative routes.

S240.7 Tunnel closures are only be permitted in accordance with a pre-determined programme which the *Service Manager* makes available to the *Contractor*.

S240.8 Clearly defined pedestrian routes are always to be maintained. These routes are to be signed, fenced and lit. Access to all adjacent properties, whether residential or commercial, is always to be maintained whilst Providing the Service. The *Contractor* engages with residents and business owners to agree temporary arrangements and to reduce inconvenience to a minimum. Emergency services are always to be granted access to and though a site.

S240.9 Existing bus stops will always remain operational unless temporary stop positions are agreed. Safe pedestrian routes

and crossing points are to be maintained to all permanent or temporary bus stops while these are in use.

S240.10 The *Contractor* does not store materials or plant in areas where they may be a hazard to pedestrians or motorists. To avoid vandalism, loose materials, debris, etc. are not left in areas open to the public, but are removed to a secure area, especially when the site is unattended.

S240.11 The use of vehicular equipment on footbridges is not permitted without agreement of the *Service Manager*. The *Contractor* also consults with the *Service Manager* regarding loading restrictions that may apply either in the temporary or permanent state for other bridges and highway structures. In general, the *Contractor* demonstrates that plant, equipment and materials do not exceed the safe working load of structures.

Providing the Service outside of the Core Service Area **S245**

S245.1 If the *Contractor* is required to Provide the Service to a part of the Affected Property outside of the Core Service Area, then in any part of the occupied area that remains accessible to Others (including the general public) the *Contractor* provides the requirements of Core Services 9, 10 and 11 to that part of the Affected Property.

S245.2 The *Contractor* stops providing the requirements of Core Services 9, 10 and 11 to a part of the Affected Property outside of the Core Service Area when the *Service Manager* is satisfied that the need for occupation has come to an end.

S245.3 The boundary of the area to be occupied by the *Contractor* when Providing the Service outside of the Core Service Area is proposed by the *Contractor* and approved by the *Service Manager*. The *Contractor* does not work in nor occupy space outside of the agreed boundary.

Control of works **S250**

Permits, consents, licenses and working times

S250.1 The *Contractor* obtains all permits, consents, licences, agreements, wayleaves and the like required to Provide the Service unless notified otherwise by the *Service Manager*. The *Contractor* sets out, in the plan or Task Programme, the organisations from which such authorisations are necessary. The *Contractor* complies with operating constraints imposed under the “London Permit Scheme for Road Works and Street Works” (as provided in Appendix R to the Scope),

when Providing the Service on a road on which the relevant highway authority operates a permit scheme.

S250.2 In addition to and not withstanding the above, the *Contractor* complies with the

- "Traffic Management Act 2004"
- "New Roads and Street Works Act 1991"
- "Street Works (Charges for Unreasonably Prolonged Occupation of the Highway, England) Regulations 2009 (the 2009 Charges Regulations)";
- "Street Works (Registers, Notices, Directions and Designations) (England) Regulations 2007" and
- "The Transport for London Lane Rental Scheme".

S250.3 The *Contractor* raises and issues permit applications and notices as may be required for Providing the Service. Applications are made electronically via the Client's or Others relevant system.

S250.4 The *Contractor* adheres to all notice and permit requirements and conditions.

S250.5 The *Contractor* sends all traffic management plans, works activity footprints and notifications to the relevant highway authorities.

S250.6 The *Contractor* checks and replies to all comments and ensure all communications have been sent successfully.

S250.7 For works classed in the "Traffic Management Act 2004" as "Immediate" (urgent or emergency), the *Contractor* notifies the *Service Manager* within two hours of commencing work.

S250.8 The "Fixed Penalty Notice" (FPN) offences listed in the "Street Works (Fixed Penalty) (England) Regulations 2007" and "The Traffic Management Permit Scheme (England) Regulations 2007" have affect as though the *Contractor* were a statutory authority and the charges or fees listed in those regulations apply to the *Contractor* as they do to a statutory authority.

S250.9 The *Contractor* complies with the "Transport for London Lane Rental Scheme" as provided in Appendix S to the Scope. The list of charges and the locations at which they apply is provided in Appendix T to the Scope.

S250.10 The *Contractor* complies with the "Mayor's Code of Conduct for Road Works". The code is described at Appendix U to the Scope.

S250.11 The *Contractor* complies with the "Roadworks Charter". The charter is described at Appendix Q to the Scope.

S250.12 The *Contractor* complies with the training, assessment and certification policy as required by the “Traffic Management Act 2004”. Qualifications of supervisors and operatives are as per the “New Roads and Street Works Act”.

On-Street Parking Controls

S250.13 Failure to obtain unobstructed access to the Affected Property due to the presence of parked vehicles is not to be interpreted as a failure on the part of the *Client* to provide access.

S250.14 The *Contractor* ensures that the site is free of obstruction caused by parked vehicles which may affect the planned progress of work. The *Contractor* gives adequate notice and liaises with the appropriate authorities to ensure that the necessary suspension of on-street parking and arrangements for dealing with parked vehicles, are made.

S250.15 The *Contractor* indicates within the Accepted Plan or Task Programme the dates that parking restrictions are to be introduced in individual roads to Provide the Service. The *Contractor* allows a minimum of 10 week notice to the *Service Manager* or Others for the appropriate traffic orders to be made.

S250.16 Seven days prior to any temporary parking restrictions coming into force, the *Contractor* distributes to every household and attach to the windscreen of every car parked within the extent of the temporary restrictions, a standard form of notice, the original copy of which is to be supplied by the *Service Manager*.

S250.17 On the day prior to the temporary parking restrictions, the *Contractor* attaches to the windscreen of every car within the extent of the temporary parking restriction, a standard form of notice the original copy of which is to be supplied by the *Service Manager*. The *Contractor* also places 'no waiting' cones to deter parking.

S250.18 When the *Contractor* encounters an obstruction that prevents Providing the Service, the *Contractor* makes every effort to identify who is responsible for the obstruction, including the owners and drivers of vehicles. This includes calling at all nearby residences, businesses and shops. In general, all addresses within 50m of the obstruction are visited (although where a building outside this distance may reasonably contain owners or drivers such premises will also be visited). When the *Contractor*, using best endeavours in accordance with the above requirements, fails to get an obstruction removed, the *Contractor* then becomes

responsible for removing the obstruction, if it is physically possible to remove it.

S250.19 Where the obstruction is caused by parked vehicles and the *Contractor*, having made best endeavours to have the vehicles removed by their owners or drivers, and/or to Provide the Service in the presence of the obstructing vehicle(s), then the *Contractor* may elect to request the removal of the vehicles by the police.

Communications to and from Others

S255

S255.1 The *Contractor* supports the *Service Manager*, the *Client* and representatives of the *Client*, in dealing with queries and complaints received relating to the contract, by providing detailed and accurate responses to requests for information within 4 days.

S255.2 The *Contractor* maintains close liaison with, and operates systems compatible with, those used by the *Client's* communication team. The *Contractor* deals promptly with any query or complaint referred to the *Contractor* because of an enquiry to the communication team, and on completion of the necessary action by the *Contractor* in relation to any such query or complaint, the *Contractor* informs the communication team of the action taken in addition to any other register, record or report required under the contract.

S255.3 The *Contractor* provides postal, telephone, and e-mail electronic transfer facilities for receipt and transmission of customer service enquiries and responses, as appropriate.

S255.4 The *Contractor* provides any information that is needed to enable the *Client* to prepare statements or responses to questions or issues raised by or on behalf of any public organisation (including the United Kingdom parliament, any local authority or any member or representatives of the foregoing), within any time periods which may be imposed by the *Client* (acting reasonably having regard to the purpose of the provision of the information requested and to the nature and extent of the information requested) unless it is impossible for the *Contractor* to do so, in which case the *Contractor* immediately informs the *Service Manager* setting out in full the reasons.

S255.5 The *Contractor* does not communicate directly with such public organisations without having obtained the prior written approval from the *Service Manager* to the form and terms of such communication, save to the extent that the *Contractor* is legally required to do so.

S255.6 The *Contractor* promptly informs the *Service Manager* of any communications in connection with the contract from

- MPs or MEPs;
- any public organisation; or
- any Others.

S255.7 Where the matters in question might reasonably be expected by the *Contractor* to have political significance or to be in the public interest, the *Contractor* promptly provides the *Service Manager* with copies of all such written communications and replies directly only when information already in the public domain is involved. The *Contractor* refers all other issues to the *Service Manager* for attention, after sending a holding reply.

S255.8 The *Contractor* provides the *Client's* communication team with the information necessary for the operation of the *Client's* information service specifically including, but not limited to, details of proposed lane closures and traffic safety and management measures.

S255.9 The *Client* carries out public consultations and serves statutory and other formal notifications where needed. The *Contractor* however, notifies the public of forthcoming works and for all other communication and liaison with the public necessary to complete projects in a considerate and safe manner.

S255.10 The *Contractor* makes recommendations to the *Service Manager* on publicity arrangements for any work on the Affected Property and, when requested by the *Service Manager*, the *Contractor* prepares draft circular letters advising local residents of works that will affect them and submits such letters, with addresses, to the *Service Manager* for approval. The *Contractor* delivers circular letters when requested by the *Service Manager* and informs relevant authorities affected by the *service*.

Claims by Others against the *Client* or the *Contractor*

S260

S260.1 Any communication received by the *Contractor* from Others (such as a member of the public or a business) which alleges a service failure and/or a potential financial liability for injury, loss or damage on the *Client* is referred directly to the *Service Manager*. The *Service Manager* leads in responding to all such claims and any further correspondence to the *Contractor* in respect of the claim is forwarded to the *Service Manager*.

S260.2 The *Contractor* supports the *Service Manager* in responding to such claims. The *Contractor* provides and maintains a

comprehensive library of good quality records, including photographs, to support the *Client*. Information provided by the *Contractor* includes records of safety and service inspections, dates that any defects were identified and dates that repairs were completed.

S260.3 The *Contractor* responds to the *Service Manager's* requests for information for the

- initial acknowledgement of request for information within 3 working days,
- investigation and provision of all information when the claimant has legal representation within 20 days and
- investigation and provision of all information when the claimant is acting independently within 20 days.

S260.4 If the *Contractor* is asked to provide information to a claim relating to Providing the Service but which is not on the Affected Property, the *Contractor* advises the *Service Manager* within 7 days.

S260.5 The *Service Manager* assesses the information provided by the *Contractor* and decides whether to meet the claim or not. Where compensation is not paid this may lead to legal action against the *Client* when further information and support from the *Contractor* may be required.

S260.6 Whenever the C*lient* decides, or is required, to pay compensation to Others, the *Client* assesses the extent to which the claimant's injury, loss or damage was a direct or indirect consequence of an act or omission on the part of the *Contractor*. Where this is deemed to be the case, the *Client* may pursue recovery of costs from the *Contractor*.

COVID-19 Guidance **S265**

S265.1 The *Contractor* uses additional people, Equipment, Plant and Materials and other services, including providing any necessary training, to comply with the requirements of 'Working safely during coronavirus (COVID-19) in construction and other outdoor work' as published by the UK Government on 11 May 2020.

Design procedures and requirements **S305**

S305.1 The *Contractor* carries out design of the *service* that the Scope requires the *Contractor* to design or reviews the design of the *Client* or Others.

S305.2 The *Client's* requirements for design are detailed in the Technical Specification.

S305.3 Design includes

- liaising with the *Client*, *Service Manager* and Others,
- visiting the site as required,
- consideration of the requirements of the Scope,
- production of any necessary drawings and
- gaining any design approvals that may be required.

S305.4 The *Client's* road safety audit procedure is detailed in Appendix I to the Scope.

S305.5 The *Client's* document "Requirements for the Development and Acceptance of Proposals for Structures & Tunnels Capital Schemes" is found in Appendix J to the Scope.

S305.6 For Activity Task Orders, the *Contractor* carries out design sufficient to Provide the Service but does not provide the *Service Manager* with calculations or drawings apart from where required for permits, consents, licenses and the like, or for CDM purposes.

S305.7 For Project Task Orders, the *Contractor* provides a design to the *Service Manager*. The design is subject to the requirements detailed in the Technical Specification.

S500 Task Order

Task Order types S510

S510.1 Activity Task Orders are recorded on the asset management information system and are for works that do not require the additional requirements for Project Task Orders.

S510.2 Immediate Task Orders are verbal, email or telephone instructions to commence works immediately which are subsequently recorded on the asset management information system by the *Contractor* within 2 days. They become and are subject to the same conditions as Activity Task Orders.

S510.3 Project Task Orders are recorded on the asset management information system and are for works that require the additional requirements detailed in this Scope.

S510.4 Any communications required under the contract for Task Orders are made using the contract management system.

Task specific quality plan S520

S520.1 The *Contractor* submits a Task specific quality plan for acceptance by the *Service Manager* before any Project Task Orders are commenced. The Task specific quality plan is in accordance with the Technical Specification. The Task specific quality plan is reviewed and updated as necessary or as instructed by the *Service Manager*.

Information required S525

S525.1 When working within the Affected Property, the *Contractor* notifies the *Service Manager* of the date that works have been completed on site.

S525.2 Where relevant, the *Contractor*

- updates the asset management information system,
- provides records of site surveys undertaken and
- updates the Health and Safety File with
  - full details of the Task Order,
  - the nature and location of significant services,
  - as-built drawings,
  - details of any residual hazards or risks associated with the works and information about anything encountered whilst Providing the Service.

S525.3 For Activity Task Orders, the *Contractor* completes these activities within 14 days of the date that works have been completed on site, or sooner if required by this Scope.

S525.4 For Project Task Orders, the *Contractor* completes these activities within 28 days of the date that works have been completed on site, or sooner if required by this Scope.

S525.5 The *Contractor* allows for the provision of this information and any other information required by this Scope in the Task Order programme.

Additional requirements for Project Task Orders

S530

S530.1 Prior to a Project Task Order being placed, the *Contractor* attends the *Client's* offices during Core Working Hours or on site at any time for the purposes of pre-inspection, providing consultation and advice, taking measurements, determining a works programme and other associated activities.

S530.2 Prior to Task Completion of a Project Task Order the *Contractor* prepares and submits

- a “Lessons Learnt” report to enable improvements to future processes,
- a commercial review explaining variances between budget estimates and final outturn costs and
- a review of risk management identifying where risk or optimum bias allowances need to be adjusted for future Project Task Orders.

S530.3 The *Contractor* allows for the provision of this information in the Task Order programme along with any other documentation required by the Scope.

S530.4 The *Client's* additional Information Model requirements for Project Task Orders are found in Appendix K to the Scope.

S530.5 Project Task Orders require the *Contractor's* design or the *Contractor's* review of design by Others in accordance with the Scope.

The *Service Manager's* delegations

S535

S535.1 In addition to any delegations noted in the Task Data and except for any exclusions set out in the contract, the *Service Manager's* actions and requirements relating to the Scope are delegated to the Task Manager for any Task Order.

Quality management system

S605

S605.1 The *Contractor's* quality management system complies with at least

- the ISO 9000 family of quality management system standards,
- the ISO 14000 family of environmental management system standards and
- the ISO 45001 Occupational Health and Safety management system standard.

Alternative management systems can be allowed should they be equivalent to or better than those listed above.

The *Contractor* when determining a strategy for applicable policies also considers the guidelines and ethos of

- ISO 26000 - Social responsibility and
- ISO 31000 - Risk management.

S605.2 The *Contractor* and all people operate a comprehensive and effective quality management system which

- includes BS EN ISO 9000 quality assurance certification or incorporate its principles
- focuses on the prevention rather than the detection of quality failures and leads to minimum faults and rectifications
- has a flexible, adaptable and innovative approach to service delivery that incorporates changing customer/road user/*Client* requirements
- takes advantage of all opportunities for innovation and seeks continuous improvement towards the needs of the community and
- incorporates an effective human resource management system which effectively achieves quality service delivery through people.

S605.3 The *Contractor* operates quality control procedures as part of the system, and the system is open to inspection by the *Service Manager*. The system ensures that all locations and processes involved in service delivery are well and properly maintained and that the Scope and contract are complied with in all respects. The system includes daily supervision, the carrying out of frequent inspections, and compliance with the instructions of the *Service Manager*.

S605.4 If any reasonable recommendations concerning the improvement of such a system are made by the *Service*

Manager, such recommendations are implemented by the *Contractor*. Likewise, the *Contractor* notifies proposals for improvements to quality, efficiency and effectiveness of the *Contractor*'s operations, to the *Service Manager* including proposals for enhancing the working arrangements of the *Client*.

S605.5 The *Contractor's* quality plan is in accordance with the requirements of the Technical Specification. In addition, the quality plan includes clear statements on how the *Contractor* Provides the Service.

Tests and inspections S705

S705.1 The *Contractor* carries out testing and inspections as required by the Technical Specification.

Project team **S805**

S805.1 The *Contractor* has available a competent representative who is responsible for the execution of all works in accordance with the contract and for attending (either personally or by engaging deputies) to emergencies or other matters of a similar nature relating to the works, as reasonably required by the *Client*, within a maximum period of 1 hour. All orders, directions and notices given by the *Service Manager* to such representative are acted upon expeditiously.

S805.2 The *Contractor's* representative attends meetings with the *Service Manager* to discuss progress of the contract. When required by the *Service Manager*, the *Contractor's* representative attends meetings with relevant stakeholders and/or members of the public. The *Contractor* is given reasonable notice of such meetings and the *Service Manager* advises the *Contractor* the scope of issues to be discussed. The *Contractor's* representative may be required to speak on, or respond to, questions on any matter within the purview of the contract. The *Contractor's* representative, during such meetings, maintains a “united front” with the *Client*. The *Contractor* accepts responsibility for all aspects of the works and is helpful, communicative and sympathetic regarding matters pertaining to the impact of the works on the community.

S805.3 The *Contractor* ensures that all supervisors and all operatives are qualified in accordance with the requirements of the Street Works (Qualifications of Supervisors and Operatives) Regulations 2016 (“the Regulations”). Supervisors and operatives carrying out work outside the scope of the mandatory units of the Regulations will also be qualified in the appropriate units covering the work that they are undertaking. All Operatives working in the highway will be qualified in 'Unit 2' under Schedule 3 of the Regulations (Signing, Lighting and Guarding).

S805.4 When any work is covered by a National Highway Sector Scheme (NHSS) listed in the Specification for Highway Works, Volume 1, Appendix A, then the *Contractor* ensures that all people engaged on them are competent to carry out the work to which they have been assigned and hold the appropriate certification.

S805.5 All supervisors and operatives will be holders of the relevant Construction Skills Certification Scheme (CSCS) card, as issued by the Construction Industry Training Board (CITB). Supervisors are capable of written and oral communication in English.

S805.6 All drivers undertake a fuel-efficient driver training course within three months of the *starting date*. The training course consists of theoretical training and practical implementation skills and is of a minimum duration of one hour. Any new people employed by the *Contractor* will also be required to undertake fuel-efficient driver training. The *Contractor* monitors Subcontractors to ensure fuel efficient driver training takes place. The *Contractor* maintains records in relation to all driver training which is made available to the *Client* on request.

S805.7 'Highway Safety Inspectors' are included in the Highway Inspectors Register, as maintained by the Institute of Highway Engineers.

S805.8 For works relating to highway structures, supervisors will have attained a minimum HNC/HND qualification in either structural or civil engineering (or be able to demonstrate equivalence) and experience within the past five years of undertaking or supervising similar activities.

S805.9 Supervisors of works relating to structural investigations and special inspections will be degree educated and a member of either the Institution of Structural Engineers or the Institution of Civil Engineers. They will have relevant recent experience (within the last five years) of undertaking similar works and be able to interpret the findings and make decisions on site regarding the need for additional tests, investigations, etc and be able to direct operatives accordingly.

S805.10 For any site where portable traffic signals are to be installed, the work will be undertaken by operatives competent in their operation and adjustment.

S805.11 Copies of certificates held by all supervisors and operatives will be made available to the *Client*, on request, at the *starting date* and when new people are employed.

S805.12 The *Contractor* ensures that all Subcontractors comply with the above in respect of their own people.

S805.13 No officer or employee in full time employment of the *Client* is to be employed by the *Contractor* unless approved by the *Client*.

Communication system **S810**

S810.1 The *Contractor* establishes, maintains and operates, to the approval of the *Client*, a system of communication operating 24 hours of every day throughout the *service period*. This system is to enable key people of both the *Client* and

Contractor to communicate with one another. So far as is practicable, all vehicles used by the *Contractor* and Subcontractors whilst Providing the Service will also be equipped with this same system.

S810.2 The *Contractor* uses the *Client's* contract management system for all contract communications. The contract management system is detailed in Appendix O to the Scope.

S810.3 The *Client's* asset management information system is detailed in Appendix N to the Scope. The asset management information system is also used for the instructing of Task Orders and for all applications of payment.

Contractor's application for payment **S820**

S820.1 The application for payment is assessed and processed based on the information uploaded by the *Contractor* into the asset management information system.

S820.2 The *Contractor* agrees with the *Client* the format of the application for payment within 28 days of the Contract Date. The application for payment includes

- the purchase order number,
- the *Client's* reference number,
- the Task Order or Works Order reference,
- the name of the Task Manager,
- the *Client's* relevant programme or body of works,
- the description of the Task Order or Works Order,
- whether the application is interim or final,
- the task price,
- the application price,
- the previously paid price and
- the *Contractor's* comments.

Security of network and information systems **S825**

S825.1 The *Client's* requirements for security of network and information systems are detailed in Appendix V to the Scope.

Business resilience and continuity **S835**

S835.1 The *Contractor* develops and provides a "Business Resilience and Continuity Plan" and "Business Continuity Test Specification" aligned to the *Client*'s "Business Resilience and Business Strategy". The *Contractor* reviews these annually with the *Service Manager*.

Sharing the Affected Property **S905**

S905.1 In Providing the Services, the *Contractor* liaises and co-ordinates with Others, including but not limited to

- the *Client*'s traffic control centre,
- other Contractors employed by the *Client*,
- the Police (Metropolitan Police Service and City of London Police), London Fire Brigade and London Ambulance Service,
- other highway authorities within and adjacent to London,
- Statutory Undertakers and
- Others working in or near the Site.

S905.2 In Providing the Service, the *Contractor* takes all necessary steps to avoid prejudicing the *Client's* relationship with Others owing to actions, inaction or otherwise on the part of the *Contractor's* people, Subcontractors or any other persons under their control.

S905.3 The *Contractor* may be required to co-ordinate access to the site with Others and assists the *Client* in planning and co-ordinating all works to minimise disruption to the traffic flow and to the public.

S905.4 The *Contractor* allows in its plan and take all reasonable steps to work within the *Client*'s cyclical road closures such as those operated by the Others on the Affected Property.

S905.5 Access to certain property involves crossing land owned or controlled by Others. The *Contractor* complies with any reasonable request by the owners to ensure the safety and security of their property and to establish procedures for emergency access.

S905.6 When instructed, the *Contractor* provides traffic management, access equipment and associated attendance in accordance with the Technical Specification for the *Client* or Others to undertake their work.

Co-ordination **S915**

S915.1 The works have a significant interface with Others in a variety of locations. These interfaces will require the *Contractor* to co-ordinate its works with Others.

S915.2 The *Contractor* liaises and co-operates with Others in obtaining and providing, via the *Service Manager*, information required in connection with the works and the works of Others.

S915.3 Certain operations will be carried out within or adjacent to the works by Others under separate arrangements with the *Client*.

S915.4 The *Contractor* provides access to Others within the Affected Property to complete their works and be required to work in a collaborative manner with Others.

S915.5 The *Contractor* holds and attends co-ordination meetings with Others who share the Affected Property. The *Service Manager* is invited to these meetings.

S915.6 The *Contractor* is responsible for the co-ordination of Providing the Service with the activities of Others. The *Contractor* demonstrates these interfaces on the Plan or Task programme.

Authorities and utilities providers **S920**

S920.1 The *Client's* requirements for authorities, utilities providers and Statutory Undertakers are detailed in the Technical Specification.

Road tunnels and pump stations **S925**

S925.1 The *Client* has employed a contractor to maintain and manage certain property in its road tunnels and pump stations (the Maintenance and Management Contract for TfL Road Tunnels and Pumping Stations contractor or T&PS).

S925.2 When working with the T&PS contractor to maintain and manage the road tunnels and pump stations, the *Contractor's* indicative roles and responsibilities in relation to specified activities are set out in Appendix C to the Scope. The *Contractor* develops and reviews the roles and responsibilities with the T&PS contractor and the *Service Manager* throughout the *service period*.

S925.3 The *Contractor* co-ordinates these activities with the T&PS contractor.

Services and other things provided by the *Contractor* for use by the *Client*

S1005

S1005.1 The *Contractor* provides services and other things for the use by the *Client*, *Service Manager* or *Others* for the Core Service Area and that are detailed in the following table.

	North	Central	South
air-conditioned offices	210m^2	150m^2	140m^2
air-conditioned conference room (shared use but priority for the *Client*)	30m^2	30m^2	30m^2
air-conditioned interview room	10m^2	10m^2	10m^2
office desks (1.6m x 0.8m)	35	24	22
3-drawer pedestals with lockable drawers	35	24	22
office chair with arm rests and adjustable seat, tilt and backrest	35	24	22
personal storage locker	35	24	22
locking storage cabinet (2m high x 1m wide x 0.47m deep)	6	7	6
locking storage cabinet (1m tall x 1m wide x 0.47m)	6	7	6
rectangular board room tables (2.5m x 1.25m)	5	5	5
conference chairs	20	20	20
bandwidth through TfL line for TfL-supplied desktop computers	50MB	50MB	50MB
ports (minimum two per desk)	70	48	44
space for *Client* supplied networked colour laser printer	2	2	2
dedicated, resilient and secure internet connection points	35	24	22
telephone handsets	35	24	22
switchboard to provide 25% concurrent use for above handsets	√	√	√
secure, air-conditioned space for *Client* supplied 42U floor-to-ceiling server cabinet (800mm wide x 600mm deep, see note 2)	√	√	√

suitable receptacles for recycling	√	√	√
pool cars for the sole use of the *Client*	10	8	10
electric vehicle charging point	4	4	4
hardstanding car parking space for sole use of the *Client*	25	18	20
male and female WCs (shared with the *Contractor*)	√	√	√
shower facilities (shared with the *Contractor*)	√	√	√
tea and coffee making facilities (shared with the *Contractor*)	√	√	√
microwave oven (shared with the *Contractor*)	√	√	√
fridge (shared with the *Contractor*)	√	√	√
first aid box	√	√	√
secure covered cycle storage spaces (shared with the *Contractor*)	10	10	10

S1005.2 Pool cars for the sole use of the *Client* are to be as Technical Specification, Appendix 1/2. The cars are to be replaced with new every 4 years.

S1005.3 For *Client* supplied information technology (IT), the *Contractor*

- enables 24/7 access for *Client* provided IT maintenance and repair,
- provides all internal cabling, to the *Client's* standards,
- confirms the precise location and nature of accommodation no less than 3 months before the *starting date*,
- enables and facilitates installation of the *Client's* IT no less than 1 month before the *starting date*.

S1005.4 The *Contractor* maintains, furnishes and repairs these services and other things for the duration of the *service*.

S1005.5 The *Contractor* regularly cleans and disposes of any waste arising from the use of these services and other things for the duration of the service.

S1005.6 The *Contractor* provides all consumables required by the *Client* with respect to these items.

Services and other things to be provided by the *Client*

S1010

S1010.1 Prior to the *starting date* the *Client* provides the *Contractor* with access to the asset management information system or provides updated asset inventory information. The *Contractor* uses the information in the asset management information system or the updated asset inventory information to amend the Plan.

S1010.2 In the Central Core Service Area only, the *Contractor* has the use of the following Equipment, Plant, Materials and services provided by the *Client.* The *Contractor* maintains and insures these until the end of the *service period*.

Item	No.
Shipping containers	11
Temporary concrete blocks	49
Gas Cage (Holds approx. 20 bottles)	1
Steel Gantry (For vehicle cleaning)	1
Red and white water filled barriers	100
Metal Pedestrian Barriers	200
30,000 litre Brine Solution Tank	1
Mechanical wheeled sprayers	2
Holden Tractor Units	2
Black and White delineators	300
Various red route parking signage	400
Tower Lighting unit	1

S1010.3 Some of the services and other things provided by the *Client* will be in a used condition. The *Contractor* inspects these services and other things to determine their condition. The *Contractor* carries out any renewal and refurbishment required to bring these services and other things to a condition suitable for their purpose.

S1010.4 In the Central Core Service Area only, the *Contractor* has the use of *Client* owned facilities for use as *service areas*.

S1010.5 The *Contractor* maintains, cleans and repairs these facilities or services and other things for the duration of the *service*.

S1010.6 Any Equipment, Plant, Materials and services provided by the *Client* for use by the *Contractor* is for the sole use of Providing the Service.

S1010.7 The *Contractor* returns the services and other things to the *Client* at the end of the *service period* in a condition similar to when the *Contractor* took possession of them.

Health and safety requirements **S1105**

S1105.1 The *Client's* requirements for health and safety are detailed in the Technical Specification.

S1105.2 The *Client's* CDM management requirements are detailed in Appendix L to the Scope.

S1105.3 The *Contractor* uploads health and safety files and related data to the *Client's* asset management information system.

S1105.4 All serious injuries and significant near misses are reported on Alcumus Info Exchange within 24 hours of their occurrence.

Environmental requirements **S1110**

S1110.1 The *Client's* requirements for environmental management are detailed in Appendix E to the Scope

S1110.2 The *Client's* requirements for biosecurity are detailed in Appendix F to the Scope.

Deleterious and hazardous materials **S1125**

S1125.1 The *Client's* requirements for deleterious and hazardous materials are detailed in the Technical Specification.

Pre-construction information **S1130**

S1130.1 The *Client's* pre-construction information is found in Appendix D to the Scope.

Restrictions or requirements for subcontracting **S1205**

S1205.1 Where the *Contractor* is unable to Provide the Service without the use of Subcontractors or specialist suppliers, the *Contractor* will have a minimum of three subcontracts or specialist suppliers in place to provide resilience, unless agreed with the *Service Manager.*

Acceptance procedures **S1210**

S1210.1 When the *Service Manager* requires the *Contractor* to provide rates and prices from *Subcontractors* or specialist suppliers, the *Contractor* provides a minimum of three rates and prices from its Subcontractors or specialist suppliers, unless agreed with the *Service Manager*.

S1210.2 That sufficient rates and prices have not been provided is amongst the reasons that the *Service Manager* can instruct to submit a revised quotation or make the assessment.

Works and services subject to work orders **S1305**

S1305.1 The Core Services subject to work order are

- Core Service 9 – Winter Service (the instruction of treatments only),
- Core Service 10 – Reactive Services and
- Core Service 11 – Damage by Others.

Work order procedure **S1310**

S1310.1 Work orders are raised on the *Client's* asset management information system by the *Service Manager* or other *Client's* people, or by the *Contractor* if required by the Scope.

S1310.2 The *Contractor* records on the asset information management system the plan date for works, the contact details for the *Contractor's* people, the requirements, the conditions to be achieved, the forecast price of the works, the final assessment price of the works, the location within the Affected Property and any other requirements of the Scope.

S1310.3 The *Contractor* records the date that the works are complete on the asset information management system and provides the information required by the Scope.

S1310.4 Work orders are assessed in the same way as Task Orders in the contract.

S1310.5 Final assessment of work orders is included in the relevant Core Service.

S1310.6 The term "work order" may be given another title according to the *Client's* asset management information system.

Additional records **S1505**

S1505.1 In addition to the requirements of the contract, the *Contractor* keeps detailed records of:

- timesheets, site records and work allocation sheets where required by the Scope, or when assessing Defined Cost, or where the unit in the Price List is a measure of time, including a detailed description of the nature of the work carried out,
- reconciliations of materials incorporated into the works,
- procurement records of Equipment, Plant and Materials showing that best value has been sought and
- records of stock holdings to the requirements of the Scope.

Information Model requirements

S1805

S1805.1 The *Client's* Information Model requirements are found in Appendix K to the Scope.

Client's technical specification

S2205

S2205.1 The Technical Specification is a part of this Scope and is in the document entitled Technical Specification.

S2205.2 In the Technical Specification or any documents referenced therein, any references to the Overseeing Organisation mean the *Client*, any references to labour mean people, and any references to plant mean Equipment, all as defined in the contract. Any actions required of the Overseeing Organisation are carried out by the *Service Manager* or the Task Manager as appropriate. Any references to Contract-specific means Task-specific.

Amendments to the Technical Specification for the Central Area

S2210

S2210.1 For the Central Core Service Area only, Clause 2860AR of the Technical Specification is deleted and replaced with the following:

2860AR

Principal Treatments

1. The Principal Treatments to be instructed by the *Client* are shown below, where spread rates will depend upon the state of calibration of the equipment applying the treatment.

Spreader Calibration state

2. Spreader calibration shall be undertaken as described in NWSRG Spreader Calibration Guidance. Calibration shall be undertaken in September, December and February, or more frequently if instructed by the *Client*. Calibration uniformity ratings will be valid for nine weeks, then downgraded from good to fair, or fair to poor until recalibrated. Spreaders with a 'poor' uniformity rating shall not be used.

Table 28.3 -Spread Rates

Treatment using dry salt		
	Calibration / spread rate	
Treatment No	Good g/m^2	Fair g/m^2
D8	8	11
D9	9	12

D11	11	14
D13	13	17
D15	15	20
D17	17	23
D20	20	27

3. Principle route treatments may be supplemented by “spot gritting” either by spreaders or hand treating.

4. The *Contractor* shall also note that, where specified in the *Client*’s Scope, the *Client* may instruct the use of liquid de-icer on cycle super highways, bridges, other structures and footways.

SCOPE

APPENDIX A

Property Index
(Central – North – South)

The documents comprising Volume B, Scope, Appendix A of the Framework Agreement are listed in the Index below forming part of this Volume B Appendix A to the Framework Agreement and copies of which were issued to the Contractor via the e-tendering system (https://procontract.due-north.com) on 14 May 2020 at 19:01 (GMT) under the following file references:

- tfl_scp_001746a_isft_volume_b_v1.zip/tfl_scp_001746a_isft_vol_b_scope_appendices_v1.zip\tfl_scp_001746a_isft_vol_b_scope_appendix_a_v1.zip\property_index_central_final

- tfl_scp_001746a_isft_volume_b_v1.zip/tfl_scp_001746a_isft_vol_b_scope_appendices_v1.zip\tfl_scp_001746a_isft_vol_b_scope_appendix_a_v1.zip\property_index_north_final

- tfl_scp_001746a_isft_volume_b_v1.zip/tfl_scp_001746a_isft_vol_b_scope_appendices_v1.zip\tfl_scp_001746a_isft_vol_b_scope_appendix_a_v1.zip\property_index_south_final

These documents are accessible via the following link (”File-Sharing Link”):

- https://procontract.due-north.com/RFx/ViewRFxSummary?rfxId=08c283cd-fe89-ea11-80ff-005056b64545

The below listed documents, all of which are included in the above File-Sharing Link, are hereby expressly incorporated by reference and form part of the Framework Agreement.

Client's Property Index - Central Area

Annex	File Name	No.	Sub-Folder File Name
9.5a	9.5a - TfL Roads and allocation to hierarchy - Central		
9.5b	9.5b - TfL Side Roads - Central		
9.5c	9.5c - Winter service bus stations and garages - Central		
9.7	9.7 - Highway network information - Central		
9.8	9.8 - Asset Register - Central		
9.8a	9.8a - Asset Register (Summary) - Central		
9.10a	9.10a - Clients Property Information_All Areas		
		1	9.10aAdvertising Boards_AB_All Areas
		2	9.10aAncillary Structures_SA_All Areas
		3	9.10aBollard_SB_All Areas
		4	9.10aBridge_Over_BO_All Areas
		5	9.10aBridge_Under_BU_All Areas
		6	9.10aCarriageway_CW_All Areas
		7	9.10aCarrier Drain_CA_All Areas
		8	9.10aCentral_Island_CI_All Areas
		9	9.10aCentral_Reserve_CR_All Areas
		10	9.10aChannels_CH_All Areas
		11	9.10aComms_Cabinet_CC_All Areas
		12	9.10aCrossover_XO_All Areas
		13	9.10aCulvert_CV_All Areas
		14	9.10aCycle Crossing (Excludes Toucan)_CX_All Areas
		15	9.10aCycle Track-Lane_CT_All Areas
		16	9.10aDitch_DI_All Areas
		17	9.10aDropped Kerb (Ped Assistance)_DK_All Areas
		18	9.10aEmbankment_Cutting_EC_All Areas
		19	9.10aEmergency Telephone Box_TB_All Areas
		20	9.10aEntry Treatment_ET_All Areas
		21	9.10aFeeder Pillar_FP_All Areas
		22	9.10aFence_Barrier_FB_All Areas
		23	9.10aFilter_Drain_FD_All Areas
		24	9.10aFootway_FW_All Areas
		25	9.10aGrip_GP_All Areas
		26	9.10aGully_GY_All Areas
		27	9.10aHatched_Rd_Mark_LH_All Areas
		28	9.10aHedge_HG_All Areas
		29	9.10aInspection Chambers_IB_All Areas
		30	9.10aJunction_JN_All Areas
		31	9.10aKerb_KB_All Areas
		32	9.10aLateral Drain_LD_All Areas
		33	9.10aLayby_LB_All Areas
		34	9.10aLighting_Point_LP_All Areas
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		36	9.10aOutfall_OL_All Areas
		37	9.10aPedestrian_Guardrail_PR_All Areas
		38	9.10aPedestrian_Xing(Marking)_PX_All Areas
		39	9.10aPiped Grip_PG_All Areas
		40	9.10aPlanted Area_PL_All Areas
		41	9.10aPrivate Cable_PC_All Areas
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		51	9.10aTrans_Spec_Rd_Mark_RM_All Areas
		52	9.10aTree_TR_All Areas
		53	9.10aVerge_VG_All Areas
		54	9.10aWoodLand_WL_All Areas
9.10b	9.10b - Bridges and other Structures - Central		
9.10c	9.10c - Traffic Sign and road markings - Central		
9.10c1	9.10c1 – Longitudinal road marking - Central		
9.10d	9.10d - Controlled pedestrian crossings - Central		
9.10e	9.10e - Grass areas - Central		
9.10f	9.10f - Trees and Hedges - Central		
9.10g	9.10g - Cultivated areas and shrubs - Central		
9.10h	9.10h - Water bodies - Central		
9.10i	9.10i - Channels etc - Central		
9.10j	9.10j - Street lights etc - Central		
9.10k	9.10k - Traffic signals, VMS, OVD, camera sites - Central		
9.10l	9.10l - Vehicle and Ped Restraint System - Central		
9.10m	9.10m - Bus Stations (Core Services) - Central		
9.10n	9.10n – Gullies – All Areas		

Client's Property Index - North Area

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9.5b	9.5b - TfL Side Roads - North		
9.5c	9.5c - Winter service bus stations and garages - North		
9.7	9.7 - Highway network information - North		
9.8	9.8 - Asset Register - North		
9.8a	9.8a - Asset Register (Summary) - North		
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		9	9.10aCentral_Reserve_CR_All Areas
		10	9.10aChannels_CH_All Areas
		11	9.10aComms_Cabinet_CC_All Areas
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		13	9.10aCulvert_CV_All Areas
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SCOPE

APPENDIX B
[NOT USED]

SCOPE

APPENDIX C

Interface with the Tunnels and Pump Station Contractor

Appendix C - Interface with the Tunnels and Pump Station Contractor - Summary of Responsibilities

Ref	Activity	Maintenance and Management Contract for TfL Road Tunnels and Pumping Stations (T&PS) Contractor Responsibilities	London Highway Maintenance and Projects Framework Contractor (the 'HMC") Responsibilities
1	Planned maintenance activities in road tunnels	Coordinate planned activity with the HMC, maintain and repair M&E Infrastructure in tunnels, including but not limited to: 1/ pumped drainage systems, including clearing sumps, 2/ lighting systems, 3/ electrical infrastructure, 4/ ventilation systems, 5/ illuminated intelligent road studs, 6/ cleaning of assets and traffic signs. If under planned tunnel closure: a/ permit / notice and road space applications b/ closing tunnel if necessary, c/ implementing established diversion arrangements, d/ traffic management for safe operation until completion, e/ competent supervision and management, f/ any comms required.	Coordinate planned activity with T&PS Contractor, maintain and repair Pavements (see note 5) If under planned block closure: a/ permit / notice and road space applications b/ closing tunnel if necessary, c/ implementing established diversion arrangements, d/ traffic management for safe operation until completion, e/ competent supervision and management, f/ any comms required.
2	Highway Safety Inspection	1/ assess and respond to defects or safety issues notified by HMC	1/ public access drive-through; 2/ notify the T&PS Contractor of any defects or safety issues not related to Pavements, otherwise respond appropriately.
3	Emergency fault associated with defective tunnel M&E infrastructure	1/ closing tunnel if necessary, 2/ implementing established diversion arrangements and traffic management for safe operation/works and removal on completion, 3/ repairing defect including any additional traffic management required, 4/ competent supervision and management, 5/ permit / notice and road space applications, 6/ any communications required.	

Appendix C - Interface with the Tunnels and Pump Station Contractor - Summary of Responsibilities

Ref	Activity	Maintenance and Management Contract for TfL Road Tunnels and Pumping Stations (T&PS) Contractor Responsibilities	London Highway Maintenance and Projects Framework Contractor (the 'HMC") Responsibilities
4	Emergency in tunnels other than defective tunnel M&E infrastructure, i.e. Cat 1 (ECO) hazard or defect, vehicle fire or breakdown	1/ liaison and collaboration with HMC to coordinate works, 2/ first response and make safe at River Crossing Tunnels (see Note 1) are to be undertaken by T&PS Contractor, with permanent repair to Pavements undertaken by HMC. 3/ first response includes: a/ removal of broken-down vehicles, b/ clearance of spillages, debris and deposits, c/ traffic management including tunnel closure / diversions if necessary and removal on completion, d/ if structural damage notifying Inspections Contractor to attend site, e/ repairing defects including any additional traffic management required, f/ competent supervision and management, g/ permit / notice notification (retrospective) and any comms required (including NMCC updates).	1/ liaison and collaboration with T&PS contractor to coordinate works, 2/ first response and make safe at River Crossing Tunnels (see note 1) are to be undertaken by T&PS Contractor, with permanent repair to Pavements undertaken by HMC. 3/ all other tunnels HMC undertakes works including: a/ clearance of spillages, debris and deposits, b/ traffic management including tunnel closure / diversions if necessary and removal on completion, c/ if structural damage notifying Inspections Contractor to attend site, d/ removal of hazard or Pavement defect repair including any additional traffic management required, e/ competent supervision and management, f/ permit / notice notification (retrospective) and any comms required (including NMCC updates).
5	Flooding at River Crossing Tunnels	1/ closing tunnels if necessary, 2/ implementing established diversion arrangements and traffic management for safe operation until flooding resolved, 3/ repairing defects including undertaking pumping station repairs and any additional traffic management required, 4/ debris / detritus / deposit wash-down and removal if/as required, 5/ competent supervision and management, 6/ permit / notice and road space applications and approvals (retrospective, if required), 7/ any comms required (including NMCC updates).	1/ liaison with T&PS contractor to programme drainage gravity system cleansing or repairs, 2/ compliance with any requirements of T&PS contractor (as Principal Contractor).

Appendix C - Interface with the Tunnels and Pump Station Contractor - Summary of Responsibilities

Ref	Activity	Maintenance and Management Contract for TfL Road Tunnels and Pumping Stations (T&PS) Contractor Responsibilities	London Highway Maintenance and Projects Framework Contractor (the 'HMC") Responsibilities
6	Flooding other than at River Crossing Tunnels	1/ liaison with HMC to programme repairs to pumped systems. 2/ undertake repairs to pumped systems. 3/ compliance with any requirements of HMC (as Principal Contractor). 4/ in liaison with HMC, implementing established diversion arrangements and traffic management for safe operation until flooding resolved.	1/ traffic / pedestrian management including closing subways and tunnels if necessary, 2/ implementing established diversion arrangements or traffic management for safe operation until flooding resolved, 3/ repairing defects / clearing blockages to gravity systems, debris / detritus / deposit wash-down and removal if/as required, 4/ competent supervision and management, 5/ permit and road space notifications, 6/ any communications required.
7	Urgent works associated with Pavements within or in close proximity to tunnels or related assets	1/ collaboration and liaison with HMC to programme works, 2/ compliance with any requirements of HMC (as Principal Contractor) if using traffic management for incidental works, 3/ supporting the operation of tunnel closure systems if applicable.	HMC, as Principal Contractor, responsible for: 1/ permit / notice and road space applications, collaboration and liaison with T&PS contractor and coordination of works, 2/ implementing TM, including standard diversion plans all necessary repairs to Pavements, returning to a safe operational condition.
8	Routine fault repair associated with defective tunnel structure or M&E infrastructure,	1/ implementing established diversion arrangements and traffic management for safe operation/works and removal on completion of works, 2/ repairing defect, 3/ competent supervision and management, 4/ permit / notice and road space applications 5/ any comms required.	1/ liaison with T&PS Contractor and implement cyclic maintenance activity if appropriate.

Appendix C - Interface with the Tunnels and Pump Station Contractor - Summary of Responsibilities

Ref	Activity	Maintenance and Management Contract for TfL Road Tunnels and Pumping Stations (T&PS) Contractor Responsibilities	London Highway Maintenance and Projects Framework Contractor (the 'HMC") Responsibilities
9	Routine fault repair associated with defective Pavement in road tunnel	1/ liaison with HMC to programme works, 2/ compliance with any requirements of HMC Contractor, 3/ supporting the operation of tunnel closure systems if applicable. 4/ any comms required.	1/ liaison with T&PS Contractor to programme works, permit / notice and road space applications. 2/ closing tunnel if necessary, implementing established diversion arrangements and traffic management for safe operation/works and removal on completion,, 3/ repairing defect, 4/ coordination with the T&PS Contractor in their role, as Principal Contractor.
10	Maintenance of tunnel M&E equipment beyond the tunnel or immediate approaches	1/ permit / notice and road space applications. closing tunnel if necessary, implementing established diversion arrangements and traffic management for safe operation/works on open road network if requested and removal on completion of works, 2/ collaboration and liaison with HMC and coordination of works	1/ collaboration and liaison with T&PS contractor and coordination of works. 2/ for assets maintained by HMC that contain tunnel equipment maintained by T&PS contractor, HMC contractor ensures assets are accessible to T&PS Contractor.
11	Maintenance of pumped drainage systems, including those in underpasses and subways.	1/ implement traffic management including diversion arrangements for safe operation, 2/ maintenance and repair of defects including undertaking pumping station repairs. 3/ debris / detritus / deposit wash-down and removal if/as required, 4/ competent supervision and management, 5/ permit / notice and road space applications, 6/ any comms required.	1/ maintain gravity drainage systems, road markings and studs, kerbs and any footway / verge. 2/ provide access to T&PS Contractor where required.

Appendix C - Interface with the Tunnels and Pump Station Contractor - Summary of Responsibilities

Ref	Activity	Maintenance and Management Contract for TfL Road Tunnels and Pumping Stations (T&PS) Contractor Responsibilities	London Highway Maintenance and Projects Framework Contractor (the 'HMC") Responsibilities
12	Planned works associated with pavements within or in close proximity to tunnels or related assets	1/ collaboration and liaison with HMC to programme works, 2/ compliance with any requirements of HMC contractor, as Principal Contractor, if using TM for incidental works. 3/ supporting the operation of tunnel closure systems if applicable	HMC as Principal Contractor responsible for: 1/ collaboration and liaison with T&PS contractor and coordination of works, 2/ implementing traffic management, including diversions works permit application and any comms required, coordinated with the T&PS Contractor. 3/ delivering the works
14	Planned Special Event Tunnel Closures, e.g., Ride London	1/ implement that part of any agreed traffic management plan involving the closure of River Crossing Tunnels, 2/ implementing established diversion arrangements and traffic management for safe operation, including tying into any adjacent Contractor's Traffic Management Plans, 3/ competent supervision and management, 4/ any comms required. 5/ undertake cost recovery procedures.	1/ implement traffic management plans coordinated with other contractors / parties, implementing established diversion arrangements and tying into any adjacent Contractor's traffic management Plans. 2/ any comms required. 3/ undertake cost recovery procedures
15	Winter Service	1/ collaboration and liaison with HMC and coordination of works with winter maintenance activities. If T&PS Contractor has a tunnel closure, then appropriate TM arrangements need to be made to allow the HMC to deliver Winter Service.	1/ Delivering the Winter Service as instructed

Appendix C - Interface with the Tunnels and Pump Station Contractor - Summary of Responsibilities

Note 1	River Crossing Tunnels are - Blackwall Northbound, Blackwall Southbound and Rotherhithe Tunnels. Blackwall Tunnel Northbound From the (part time) traffic signal stop line immediately prior to the over-height vehicle barrier, through the northbound tunnel to the nose of the traffic island separating the A12 and A13 (westbound) off slip. Blackwall Tunnel Southbound From the gantry, just prior to the northernmost A13 on slip, through the tunnel to the end of the 'wing walls' beyond the exit portal. Rotherhithe Tunnel The section of the A101 between the segmental arches on the north and south sides of the river, formed of the shield cutting edges.
Note 2	"M&E" covers all mechanical and electrical assets, including any connected or intelligent monitoring or control systems e.g. B-Scout, PLCs, SCADA, etc.
Note 3	T&PS Contractor and HMC engage and liaise with Inspections Supplier as necessary.
Note 4	A13 Tunnels are Limehouse Link Tunnel and East India Dock Tunnel. Access to A13 DBFO Roads assets arranged via the DBFO Concessionaire, Road Management Services (A13) Plc.
Note 5	Pavement means "Carriageway, footway / verge surfaces, kerbs, road markings and studs, and gravity drainage systems"

SCOPE

APPENDIX D
Generic Pre-Construction Information

Generic Pre-Construction Information

Contents

1. Introduction

1.1 This Pre-Construction Information (PCI) document sets out the general health and safety information available and the arrangements for undertaking cyclic and reactive activities and under the London Highway Maintenance and Projects Framework. This document should be read in conjunction with all other tender documentation.

1.2 Work other than of a routine or reactive nature (projects) commissioned under the contract shall be supported by suitably developed PCI as necessary under the Construction (Design and Management) Regulations 2015 (CDM).

2. Description of Project

2.1 The works comprise cyclic and reactive maintenance, asset renewal and improvement within London, including but not limited to, carriageways, footways, verges, trees, road and foot bridges, underpasses and subways, street furniture, street lighting, drainage, traffic signs and structures that are integral to the road network.

2.2 The works may include the following (non-exhaustive list):

a) Working on the public highway and other areas involving high speed roads, residential and commercial environments, where the protection of the workforce and general public will require vehicle and pedestrian traffic management;

b) Working at height;

c) Excavation of the highway;

d) Entry into confined spaces;

e) Working with electrical installations;

f) Drainage installation / maintenance;

g) Carriageway resurfacing / reconstruction;

h) Footway repaving;

i) Realignment of road junctions;

j) Manual / mechanical handling of loads;

k) Maintenance / installation / removal of street furniture, public lighting columns, traffic signals, pedestrian barriers, ducting; and

l) Works to structural elements of the highway i.e. retaining walls and bridges.

3. Site Location

3.1 The works will be undertaken across London. Site areas and locations will be established throughout the contract. Specific health and safety information will be required from the Principal Contractor (PC) for each site based on such information as is available from the *Client* and others. Existing Health and Safety File information is available through a number of systems which the Principal Contractor is provided access to, and where necessary PCI packs will be developed and issued by the appointed individual/organisation.

4. *Client*'s Considerations and Management Requirements

4.1 *Client*s' Safety Goals and Rules for the contract.

4.1.1 The following safety goals have been established by the *Client* :

a) To have a 'Zero Harm' injury/incident approach to the management of all works under the contract;

b) Site personnel and the public should not be placed at risk as a result of the works;

c) To establish safe working arrangements and improve supply chain awareness of safe working practices; and

d) All accidents/incidents occurring to *Contractor*'s staff involved with delivery of the contract, any injury to a member of the public arising out of the works and any accident/incident involving any *Contractor* involved in delivery of the contract/works, is to be reported to the *Client* in the prescribed format.

4.1.2 The following *Client* site rules are to be incorporated within the PC's site rules.

a) All site personnel to wear high visibility clothing to the appropriate standard for the class of road being worked upon;

b) No dry cutting of paving flags, kerbs, etc. to be undertaken on site;

c) Where reasonably practicable handling of loads to be undertaken via mechanical plant/equipment;

d) Works shall progress only where the senior operative on the site is sufficiently experienced and competent to ensure they are undertaken in a safe manner;

e) Traffic management/ pedestrian barriers/signs to be maintained at all times and inspected at appropriate frequencies when the site is not occupied;

f) All sites to provide sufficient access for pedestrians, cyclists and other moving traffic; and

g) All sites to provide sufficient and appropriate access for members of the public with sight impairment, restricted mobility etc.

4.2 Arrangements for Liaison between Parties

4.2.1 The PC shall identify to the *Client* an appropriate number of personnel to ensure and maintain effective liaison with the *Client* and Designer/Principal Designer. As part of this liaison, the PC's representative(s) shall attend as appropriate regular contract monitoring meetings. The PC shall be required to ensure and maintain suitable liaison with all interested parties identified by the *Client*.

4.2.2 Due to the nature of the works under the contract, the PC must expect to engage with other specialist and/or *Client* nominated contractor's i.e. Utility Companies. The PC must ensure that site boundaries are established to ensure construction sites between other contractors do not clash.

4.3 PC Management Monitoring Arrangement on Site

4.3.1 The PC shall have competent supervision for all works that are under their control at all times. Before commencement of works, the *Contractor* shall provide the *Client* with a written procedure setting out their monitoring arrangements, identifying the person with responsibility for undertaking the monitoring. Written records of inspections and monitoring shall be agreed with the *Client* before commencement of the works. This may be incorporated or appended to the contract level

Construction Phase Plan (CPP).

4.4 Site Security Arrangements

4.4.1 All sites shall be secured so as to provide protection of the public and workforce during works and prevent unauthorised access, particularly during hours when the site is unoccupied. All excavations shall be fenced or covered with a suitable road plate. Such arrangements shall include as a minimum compliance to the New Roads and Streetworks Act and Approved Code of Practice or Chapter 8 of the Traffic Signals Manual. Consideration must be given to maintaining access to priority areas such as hospitals, fire stations, schools, care homes, commercial premises, residential properties etc. It is unlikely that 'site hoarding' will be required for maintenance works on the highway. However, if required, its use will be identified to the PC by the *Client* through the project specific PCI.

4.4.2 Additional or enhanced security arrangements may be required in areas that pose a high security risk. The security arrangements will be reviewed prior to works commencing on each site and the PC will notify the *Client* representative of the specific arrangements being proposed. Information on specific security risks, where known, will be provided to the PC before works commence on site. The PC shall make security arrangements for protection of the works, workforce and equipment according to the particular risks posed by the location of each site.

4.5 Welfare provisions

4.5.1 The PC will be required to identify their arrangements for the provision of welfare prior to commencing construction work at each site. Shared welfare may be available to the PC at various locations throughout London. As a minimum, the PC will be expected to provide welfare facilities that meet the requirements set out in Schedule 2 of the CDM Regulations 2015. Arrangements should also take into account provisions for transient work, including reactive and planned short term works.

4.5.2 The PC is required to provide adequate first aid provisions at all transient and fixed sites, including all depots and compounds used under the contract. As a minimum first aid arrangements shall meet the requirements of the First Aid at Work Regulations and the associated guidance.

4.6 Site Transport, Vehicle Movements, Pedestrian Movement

4.6.1 Vehicle movements on and around site shall be planned and managed by the PC as specified in Series 0100. The arrangements agreed at scheme Traffic Management meetings shall form part of the PC's Construction Phase Plan submission.

4.6.2 It is anticipated that variation to parking controls may be required at some sites to allow the safe execution of works. The PC shall take particular care to ensure that the works do not interfere with access to facilities provided for vulnerable sections of the community, such as hospitals, clinics, surgeries, care homes and schools, etc.

4.6.3 There will be a requirement for excavation works in the footways and carriageways and therefore traffic and/or pedestrian management will be required on sites and the PC shall expect to close pedestrian crossings, close traffic lanes and install pedestrian and traffic diversions.

4.7 Permit to Work

4.7.1 The PC will need to demonstrate the operation of suitable safe systems of work including permits to work including, but not limited to:

a) Entry to confined spaces;

b) Hot works;

c) Excavations;

d) Working on/near live electrical equipment; and

e) Working at height.

4.8 Fire Precautions

4.8.1 The PC shall ensure that suitable fire fighting appliances are provided on all sites where hot works are taking place or there is a risk of fire from the use/operation of plant and/or equipment. On transient sites, as a minimum a fire extinguisher of the suitable type will be available on vehicles used to transport staff/materials. On fixed sites, arrangements for fire protection will be detailed in the Construction Phase Plan (CPP) and shall include arrangements for protecting facilities on and adjacent to the site.

4.9 Emergency Procedures

4.9.1 The PC shall detail their procedures for addressing emergency situations on site including fire, striking of utilities during excavation, threat of violence to staff, dealing with sharps, accidents/incidents involving the workforce, including the reporting and investigation of RIDDOR reportable accidents/dangerous occurrences.

4.10 No-go Areas/Authorisation Requirements

4.10.1 At times works will be undertaken close to or affecting London Underground, London Rail, London Trams, London Buses or Network Rail sites, the river Thames and other watercourses, schools, care homes, other public buildings, commercial and residential areas . Where such works take place, the PC shall liaise with the appropriate authority ensuring that any specific works requirements are met.

5. Environmental Restrictions and Existing on Site Risks – Safety Hazards

5.1 Site Access, Egress, Unloading & Storage Areas

5.1.1 Before works commence the PC shall obtain all necessary permits, permissions and approvals from the Highway / Traffic Authority. Any restrictions imposed must be accounted for in any CPP's and site packs issued before works commence. The PC will encounter one-way traffic flows and roads with restricted access or width during the term of the contract. Unloading and storage areas will be within the confines of the site or a designated area that has been agreed with the *Client*.

5.2 Surrounding Land Uses and Related Restrictions

5.2.1 The PC shall expect sites to be in heavily populated commercial, retail and residential areas where access to properties will need to be maintained throughout the works and during hours of non occupation. Some sites will be located close to a range of public transport infrastructures i.e. Underground, Train and Bus stations and may encounter properties with basements or cellars that may have an impact on any excavations required. There will also be several areas sensitive to noise, vibration and dust such as hospitals, schools and residential care homes. The PC shall ensure that they liaise with LA's with regard to works during unsocial hours.

5.3 Existing Storage of Hazardous Materials

5.3.1 Storage of hazardous materials, including compressed gas cylinders, may be contained within commercial, retail, residential or public buildings adjacent to/or on the road networks that are not under the control of/or known to the *Client*. The PC shall remove all hazardous materials they are responsible for at the end of each working day and shall ensure that any used in conjunction with works are stored and secured appropriately when in use. Where used, assessments undertaken under the appropriate Regulations i.e. Control of Substances Hazardous to Health (COSHH), shall be available on site along with the manufacturers hazard information sheet(s).

5.4 Existing Services

5.4.1 Buried services i.e. electrical cables, water mains, gas pipes and communication cables will be present on sites across the road networks. On some locations the PC may also encounter overhead

services. The PC shall verify the accuracy of any information made available by the *Client* by obtaining current and/or additional information before works commence. They will also be expected to verify the information on site through the use of utility detecting equipment, marking out locations and hand digging trial holes as necessary. Adequate attention should be given to utilities mapping and identification, with the use of appropriate technologies to ensure H&S of workers.

5.5 Ground Conditions/Underground Structures/Water Courses

5.5.1 The presence of basements, cellars or other sub-surface/shallow structures may be encountered and the PC must make all necessary preparations prior to commencing work including but not limited to, liaison with the LA, the Highway Authority and infrastructure owners.

5.6 Health and Safety Information from Previous Work

5.6.1 Information from previous works (Health and Safety File) is available from a range of databases and file systems. The *Client*'s Service Information contains *Client* specific information on where such information may be obtained/viewed.

5.7 Site Waste Management Plan

5.7.1 Individual schemes within the contract may meet the requirements for a Site Waste Management Plan (SWMP). Where these schemes meet the requirements the PC will be required to produce a SWMP for that site in order to maintain compliance with the Site Waste Management Plans Regulations 2008.

6. Environmental Restrictions and Existing on Site Risks – Health Hazards

6.1 Asbestos

6.1.1 Asbestos Containing Materials (ACM's) may be encountered whilst undertaking works across the road networks, particularly in electrical equipment, insulation panels etc. The PC must confirm access to Asbestos registers held by the *Client* before works are undertaken. The PC shall have a procedure in place for dealing with situations where its employees encounter unidentified ACM's and where damage to ACM's is identified. The PC shall keep the *Client* informed of all works on ACM's in order for the appropriate register to be maintained. Where information is known to the Client, information available will be shared with the PC.

6.2 Contaminated Land

6.2.1 Coal Tar may be encountered in road pavements. The PC must consult with the *Client* where they suspect the presence of coal tar. Information where available relating to contaminated land will be made available to the PC.

6.3 Existing Structures Containing Hazardous Materials

6.3.1 It is possible that lead based paints may have been used to protect structural steelwork and in other finishes. ACM's will be present in some structures and may have been used in the lighting/electrical equipment, insulation panels etc., see paragraph 6.1, and tar may be present in some road surface materials, see paragraph 6.2.

6.4 Manual Handling

6.4.1 Works will involve the manual handling of materials i.e. paving flags, kerbs etc. The PC shall reduce the need for manual handling through the use of mechanical means wherever reasonably practicable. Before works are undertaken the PC shall provide the *Client* with detailed risk assessments and method statements covering their arrangements for undertaking the works.

6.5 Respiratory Silica

6.5.1 In the course of their works, the PC shall be required to undertake the cutting of flags and kerbs. Where this is undertaken on site, the PC shall employ methods which control dust. Where a cutting process generates dust, the PC shall ensure that suitable suppression systems such as water suppression or localised dust collection is used. The PC shall take all reasonable practical steps to ensure that the public are not exposed to risk from the operation.

6.6 Contamination of Water Courses

6.6.1 The PC shall be responsible for managing the discharge of all substances into the drainage system and/or water causes as a result of the works being undertaken. The PC shall maintain liaison with the relevant authority (Environment Agency) reporting any incidents to the *Client*.

7. Significant Design and Construction Hazards

7.1.1 Design information will be issued to the PC on a site by site basis as necessary, including site layout drawings and any other available information that may be relevant.

8. Health and Safety File

8.1 The *Client*, Designers, PCs and other contractor's shall provide information for compiling and updating existing and/or developed Health and Safety Files (HSF) where appropriate. It will be required to provide clear information in accordance with the Health and Safety Executive's (HSE), Approved Code of Practice covering the CDM Regulations.

8.2 Items to be addressed (but not exclusively) in the file include:

a) A brief description of the works carried out:

b) Information on residual hazards and how they should be dealt with, including copies of risk assessments.

c) Key information on construction methods.

d) Locations of all hazards associated with any materials used, including copies of COSHH assessments.

e) Location of and types of fragile materials.

f) Information relating to the maintenance, removal or dismantling of plant/equipment.

g) Information about equipment provided for cleaning or maintaining the structure

h) The nature and location of services.

i) As-built drawings or their location.

SCOPE

APPENDIX E

Environmental Management Requirements

Contents

1. **TfL Environmental Management Requirements**

a) For the full duration of the contract, the *Contractor* shall operate a suitably scaled Environmental Management System (EMS).

b) Within one year from the Starting Date, the EMS shall be independently accredited to the latest version of the BS EN ISO 14001 standard, or equivalent.

c) The *Contractor* shall define their EMS within an Environmental Management Plan (EMP) which shall cover the full scope of the Works - including any design work.

d) The EMP shall clearly set out the identified environmental aspects and the mitigation measures that the *Contractor* will employ to mitigate adverse environmental impacts (threats) or enhance beneficial environmental impacts (opportunities).

e) The *Contractor* shall submit their EMP to the *Client* for acceptance within 28 days of appointment.

f) Works shall not start on site until the *Client* has accepted the EMP.

g) The *Contractor* shall comply with the accepted EMP at all times. Additionally the *Contractor* shall ensure that all Sub-contractors comply with the EMP.

h) As a minimum, the *Contractor* shall review, and as necessary update their EMP every six months. The updated document shall be resubmitted to the *Client* for acceptance, clearly highlighting where amendments have been made. If, as a result of the review, no amendments are proposed to the EMP, the *Contractor* shall submit a statement to the *Client* to confirm that the review of the EMP has been undertaken and to verify how it remains fit for purpose and capable of delivering continual improvement.

2. **Travel Plan**

a) Within three months of appointment, the *Contractor* shall produce a Travel Plan. The plan shall be reviewed and updated every year. The plan shall clearly set out how the *Contractor* will reduce employees' travel by car and promote the use of more sustainable modes of transport. The Travel Plan shall contain annual targets to drive continual improvement. Progress against the targets shall be reported upon and the targets updated each year.

3. **Works Compounds and Depots**

a) The *Contractor* is encouraged to implement economically viable working methods and materials which may result in an improvement in environmental performance in the carrying out of the works or an improvement in environmental performance of the completed works.

4. **Reducing Carbon emissions and Water Usage**

a) The *Contractor* shall investigate, and where possible implement, innovative sustainable design and construction solutions that have the potential to lower whole life carbon and whole life cost.

b) Additionally, the *Contractor* shall, wherever possible, purchase and install products that qualify for the government's Enhanced Capital Allowance scheme by choosing plant and equipment from the Energy Technology List and Water Technology List. The *Contractor* shall also register compliant products it procures that are not on the aforementioned lists.

c) Where practicable, the *Contractor* shall:

   i. ensure that when replacing system assets, the *Contractor* uses more energy efficient equipment. The *Contractor* shall notify the Service Manager where this is not technically feasible; and

   ii. measure and report on carbon emissions and develop plans to reduce carbon emissions and energy usage that supports TfL in delivering its programme to improve energy efficiency, helping decrease emissions and lower costs.

d) In order to achieve the above the *Contractor* shall implement material efficiency principles wherever practicable, for example:

   i. using less materials,

   ii. adopting low-waste processes,

   iii. using recycled materials or by-products from other industries in preference to virgin materials,

   iv. using durable materials to extend the asset's serviceable life.

e) When selecting materials, the *Contractor* shall also make reference to available guidance, such as the Building Research Establishment's (BRE) Green Guide to Specification and shall use these resources to aid the selection of better rated products, and materials which have lower environmental impact.

f) When procuring materials, the *Contractor* shall comply with the Mayor of London's Responsible Procurement Code and with any other *Client* specific procurement guidance. The *Contractor* shall also endeavour to purchase products or materials which are certified under BRE's Responsible Sourcing Standard, BES6001.

5. **Identification, Mitigation and Recording of Environmental Impacts and Risks**

a) The *Contractor* shall systematically identify the environmental threats and opportunities of all planned works.

b) To gain an understanding of the environmental issues associated with the Works, the *Contractor* shall review the information provided by the *Client*. This may be contained within a Pre-Construction information pack, an Environmental Evaluation (EE), or other project documentation.

c) The EE defines the requirements for achieving the appropriate level of environmental evaluation and mitigation for a project or scheme so that environmental impacts are understood, environmental risks managed and the risk of challenges reduced.

d) Where the *Contractor* is provided with an EE, the *Contractor* shall become familiar with the content to understand the environmental risks and opportunities and the mitigation and enhancement actions proposed within the EE. The *Contractor* shall put in place systems for ensuring the full implementation of the actions and mitigation measures recommended in the EE. These may include the implementation of relevant controls, undertaking environmental surveys, or obtaining necessary consents.

e) It should be noted that the checklist contains a number of questions and bullet points which are intended to be key prompts. These do not represent an exhaustive list of best available practice or required consents. As such, expert legal, technical and environmental advice should be sought when in doubt.

6. **Environmental Advisor / Environmental Staffing**

a) The *Contractor* shall employ a sufficient number of competent and appropriately qualified and experienced environmental and sustainability professionals to ensure the full implementation of all the environmental and sustainability requirements.

b) As a minimum, the *Contractor* shall ensure that an Environmental Adviser is appointed to lead on environmental and sustainability matters. If this person is not a full-time member of the team, the *Contractor* shall ensure that they have regular attendance on site (e.g. weekly) and that they are available to attend periodic environment meetings with the *Client* to review environmental performance issues. The Environmental Adviser shall have:

i) Appropriate experience of managing environmental and sustainability issues on highway projects;

ii) A good knowledge, and practical experience, of developing and implementing environmental management systems compliant with BS EN ISO14001;

iii) A good knowledge and practical experience of legal and policy requirements related to environmental and sustainability disciplines;

iv) Practical experience of delivering high levels of environmental and sustainability performance;

v) Experience of liaison with stakeholders and competent authorities including the Environment Agency, Natural England and Historic England, local authorities and residents; and

vi) Experience of obtaining and complying with environmental consents.

c) From commencement of the contract, the Environmental Adviser must be able to demonstrate the attainment of suitable environmental qualifications and experience. They shall be a full member of the Institute of Environmental Management and Assessment (IEMA) (or an equivalent recognised competent body).

d) As necessary, based on the scope and the level of environmental risk associated with the works, the *Contractor* shall engage suitably qualified and experienced environmental specialists to support the Environmental Advisor and advise on matters such as noise/vibration, air quality, ecology, contaminated land etc.

e) The *Contractor* shall obtain the *Client*'s written consent before the proposed personnel take up any environmental or sustainability related positions, and prior to implementing any changes to the personnel undertaking these roles. The *Client* shall have the right to reject personnel on the grounds that they are not suitably qualified.

7. **Environmental Managers Meetings**

a) The *Contractor*'s Environmental Adviser shall attend the Environmental Managers' Meeting on a quarterly basis to discuss with the *Client* and other Contractor's:

i) Environmental legislation, Mayor of London strategies and *Client* policies

ii) Performance & benchmarking

iii) Innovations & efficiencies

iv) Training

b) Meetings shall be hosted by the *Client* and *Contractor*(s) on a rotating basis at venues agreed by the attendees. The frequency of meetings shall be reviewed as and when required. The meetings shall be chaired by the *Client*.

8. **Environmental Objectives**

a) Whilst planning and undertaking the Works, the *Contractor* shall take account of any applicable policies and proposals in relevant Mayoral documents - including the Mayor's Transport Strategy, Environment Strategy, Responsible Procurement Strategy, and the Sustainable Design and Construction supplementary planning guidance to the London Plan.

b) The *Contractor* shall also be aware of, and make a demonstrable contribution towards the following Environmental Objectives

i) Reduce Greenhouse Gas emissions (CO2)

ii) Reduce pollutant emissions to the air (NOX and PM10)

iii) Reduce transport related noise and vibration

iv) Maintain and, where possible, enhance the quality of London's built environment

v) Maintain and, where possible, enhance the quality of London's natural environment

vi) Reduce resource consumption and waste, and implement responsible procurement

vii) Reduce water consumption.

c) In addition, the *Contractor* shall contribute towards the achievement of the focus areas in the TfL's Corporate Environmental Framework.

9. **Environmental Targets**

a) As a minimum, the *Contractor* shall adopt the environmental objectives in 8 above and put in place appropriate systems to achieve them.

b) The *Contractor* shall propose additional environmental objectives to either take account of the identified significant environmental aspects or compliance obligations, or to support the attainment of the objectives in TfL's Corporate Environmental Framework, or their own corporate goals.

10. **Environmental Action Plan**

a) The *Contractor* shall produce an annual Environmental Action Plan. The actions contained within the Plan shall:

i) support the Environmental Objectives and Targets;

ii) be challenging but achievable;

iii) be presented to and agreed by the *Client* during mobilisation to commence delivery from 1 April in Year 1; and then in subsequent years to be presented to and agreed by the *Client* during March to commence delivery 1 April;

iv) be completed, evidenced and approved by the *Client* before the end of each financial year; and

v) include at least one action per financial year relating to collaborative working with others to deliver a pan-London environmental initiative or benefit.

b) Progress and approval of actions shall be monitored via quarterly progress meetings with the *Client*, in addition to the quarterly Environmental Managers' Forum. The *Contractor* may request additional meetings with the *Client* to discuss progress or to seek sign-off for completed actions.

c) The *Contractor* shall propose additional environmental objectives to either take account of the identified significant environmental aspects or compliance obligations, or to support the attainment of the objectives in TfL's Corporate Environmental Framework.

11. *Contractor*'s Environmental Performance Reporting

a) The *Contractor* shall report the following information to the *Client* as part of their 4-weekly report.

i) The environmental data as table E-1.

ii) Progress against the agreed environmental targets – including justification and / or proposals for achieving the target if it is not being met.

iii) Details of any environmental incidents or near misses that occurred and, how the issue was resolved (i.e. what corrective action was implemented)

iv) Details of any interaction with environmental regulators

v) Details of any complaints about noise, dust or vibration – including how these were resolved

vi) Details of any issues identified during environmental assurance activities and the status of closing out such issues

12. Competency and Training

a) The *Contractor* shall supply staff and Sub-contractors with all appropriate environmental information and training necessary to undertake their role.

b) To achieve this, the *Contractor* shall determine the environmental competency and training requirements for all staff working on the Contract. Documentation shall be maintained to detail the required competences, the schedule of planned training, and the receipt of the required environmental training.

c) The *Contractor* shall ensure that all staff receive environmental awareness training on the specific project risks and the contents of the EMP.

13. Internal Communication

a) The *Contractor* shall take a pro-active approach to informing their team about environmental issues so that there is a high level of awareness and the opportunities to implement good practice are maximised. As a minimum the *Contractor* shall:

i) Nominate a person responsible for promoting internal environmental communication

ii) Include environmental issues in the site induction

iii) Brief staff (including Sub-contractors) about the key environmental risks and the controls detailed within the EMP

iv) Display environmental / sustainability information (including the TfL HSE policy) on noticeboards

v) Include environment as an item on the progress review meetings

14. **External Communication – Advanced Notifications**

a) The *Contractor* shall take a pro-active approach to notifying residents, businesses and regulators (e.g. the Local Authority) about forthcoming works. The notifications, which shall be made using a format agreed with TfL, shall, as far as possible, be issued two weeks prior to the works taking place. As a minimum, the notifications shall include:

i) Details of the works to be undertaken

ii) The dates / hours of working

iii) Brief details of the potential impacts and how these are to be mitigated

iv) Contact details that can be used to seek further information or make a complaint

v) TfL operates a 24 hours hotline which customers can use to make complaints. The number is 0343 222 2424. Alternatively, customers can email contactus@tfl.gov.uk.

15. **Environmental Correspondence**

a) The *Contractor* shall provide the *Client* with a copy of all environmentally related correspondence with third parties (e.g. the Local Authority or Environment Agency) on the date of receipt.

16. **Emergency Preparedness and Response**

a) As a minimum, the *Contractor* shall detail within their EMP an Emergency Preparedness Plan.

17. **Response and Investigation of Environmental Incidents**

a) The *Contractor* shall notify the *Client* of all environmental incidents and ‘near misses’ as soon as practicable after they occur. In particular, the *Contractor* shall ensure that any incident which could result in significant damage to the environment, a breach of legislation, or reputational damage is reported to the *Client* immediately.

b) All environmental incidents and/or near misses shall also be reported to via the TfL Incident Line or the Info Exchange Online portal before the end of the shift in which the incident occurred.

c) In the event of any environmental incident or near miss, the *Contractor* shall record the following information and ensure it is reported to the *Client* within an initial written report which shall be submitted within forty eight (48) hours of the incident occurring:

i) Time and date;

ii) Location of incident;

iii) Description of incident – including an outline of events, personnel and parties involved and any mitigation measures applied;

iv) Whether the incident is considered an environmental incident, a major environmental incident, an environmental emergency or an environmental near miss;

v) An initial assessment of the root causes of the incident and any corrective actions proposed to prevent recurrence

d) The *Contractor* shall also report all environmental incidents and near misses to TfL Info Exchange system as soon as possible but within 24 hours of the event occurring.

e) In order to fully identify root causes and prevent recurrence, all environmental incidents and near misses shall be investigated by the *Contractor*. The *Contractor* shall produce a report of the investigation and shall submit this to the *Client* for Acceptance within 14 Business Days of the incident.

f) In addition to containing the bullet point information above, the report shall, as a minimum, include the following:

   i) Photographs / a sketch showing what happened and where;

   ii) Details of any notification/third party involvement;

   iii) Immediate causes;

   iv) Root causes – e.g. inadequate procedures, conflicting targets, poor communication, lack of training, inadequate maintenance, extreme weather conditions or lack of security;

   v) Remedial actions implemented and/or proposed and timescales; and

   vi) Measures to prevent recurrence and timescales.

   vii) Approvals by the *Contractor*'s senior individual responsible for ensuring the actions are completed satisfactorily.

g) The *Contractor* shall monitor the implementation of any actions / recommendations resulting from the investigation of the environmental incident and shall ensure that they are completed by the scheduled completion dates.

18. **Performance evaluation - Environmental Inspections and Audits**

a) The *Contractor* shall implement a programme of environmental inspections and audits to evaluate performance and ensure compliance with all legal and contract requirements (Compliance Obligations). The *Contractor* shall keep the *Client* apprised of the timing of these environmental inspections and audits so that a member of the TfL HSE Team may, on occasions, attend or participate in joint exercises.

b) The *Contractor* shall record the results of the environmental inspections and maintain records to demonstrate that the identified issues are effectively being closed out within suitable timescales.

c) The *Contractor* shall establish a programme for undertaking internal environmental audits. This programme shall initially be submitted to the *Client* for Acceptance within 28 days of appointment, and then updated at last annually.

d) The *Contractor* shall audit all parts of the EMS at least once every twelve months, and the *Contractor*'s environmental audit programme shall set out how this will be achieved.

e) The environmental audits shall be used to verify that the *Contractor* is complying with the EMP and the full range of environmental requirements.

f) The *Contractor* shall provide an environmental audit summary report to the *Client* within 2 weeks of each audit to highlight the findings and any corrective action that is proposed.

g) Internal audits shall be undertaken in accordance with the requirements of BS EN ISO 14001 by appropriately trained and qualified personnel – e.g. an IEMA Registered Environmental Auditor.

h) Where an external party or regulatory body undertakes an environmental audit or inspection of the Works, the *Contractor* shall provide the *Client* with a summary report within 2 weeks of the audit or inspection being carried out.

i) The *Client* reserves the right to audit any part of the *Contractor*'s EMS and environmental management activities. The *Contractor* shall assist with these audits and, as necessary, make personnel and records available.

19. **Management Review**

a) The *Contractor* shall carry out environmental management reviews to assess the on-going suitability, adequacy and effectiveness of the EMS.

b) Unless otherwise agreed with the *Client*, the environmental management reviews shall be undertaken at suitable intervals during the implementation of the project – e.g. annually. A final environmental management review shall also be undertaken when the Works are complete.

c) The *Contractor* shall ensure that representatives from the *Contractor*'s senior management team attend and participate in the reviews, and that members of the TfL team are given the opportunity to attend also.

d) As a minimum, the environmental management reviews shall cover:

i) The adequacy of the existing EMS

ii) Audit and inspection findings

iii) Progress towards achieving the environmental targets

iv) Actions taken / needed to address any environmental incidents or complaints

v) Environmental training

vi) Changes in legislation

vii) Lessons learnt and best practice initiatives

e) The *Contractor* shall summarise the outcomes of the environmental management reviews and share the results with the *Client*.

20. **Sustainable Design and Assessment**

a) The *Contractor* shall in any design activity required under the contract demonstrate the development and delivery of sustainable solutions whilst maintaining the project requirements. This should be in accordance with the Infrastructure Carbon Reviews four key principles of:

i) Build nothing - challenge the root cause of the need; explore alternative approaches to achieve the desired outcome.

ii) Build less - maximise the use of existing assets; optimise asset operation and management to reduce the extent of new construction required.

iii) Build clever - design in the use of low carbon materials; streamline delivery processes; minimise resource consumption.

iv) Build efficiently - embrace new construction technologies; eliminate waste.

b) TfL's Carbon Energy Efficiency Plan (CEEP) maybe used to demonstrate achievement of the above. Alternatively, the *Contractor* may propose an alternative method. However, whatever approach is used, it shall:

i) identify and estimate all significant sources of carbon throughout the life cycle of the solution, separating 'CapCarb' (carbon emissions associated with the delivery of a

solution) and 'OpCarb' (carbon emissions associated with the operation and maintenance of a solution);

ii) demonstrate how whole life carbon and cost have been reduced throughout the development and delivery of the solution.

iii) estimate the annual energy costs associated with the design solutions; and

iv) calculate the annual reduction in energy use and associated cost savings from the proposed sustainable design and construction solutions.

c) In accordance with the requirements in the Mayor's Transport Strategy and the London Environmental Strategy, TfL is endeavouring to ensure that all projects deliver a net gain in biodiversity. To help achieve this, the Contractor shall investigate, and where feasible incorporate green infrastructure and / or ecological enhancements into all design proposals.

21. **Climate Resilience**

a) The *Contractor* shall ensure that any design, installation and/or maintenance plans take into account the climate parameters over the whole design life in which assets (including Natural Assets they support, such as trees, vegetation and Green Infrastructure) must perform, to support resilience to extreme weather.

b) The *Contractor* shall take into account the range of extreme weather and climate parameters that may occur during the asset's design life. This includes, but is not limited to:

i) Keeping assets within specified temperature tolerances as defined in the *Client's* standards relevant to the building and asset type applicable to this contract.

ii) Incorporating measures to assist with keeping assets resilient during their design life, including but not limited to water efficiency, natural ventilation and shading, greening, and sustainable drainage.

22. **BREEAM and CEEQUAL**

a) If a project or scheme is registered under the BREEAM and/or CEEQUAL award scheme(s), the *Contractor* shall provide all necessary expertise and evidence during the design and construction phases to achieve the targeted award level.

b) The *Client* may decide to use 'CEEQUAL for Term Contracts' to undertake formal verified assessments of scheme and maintenance works. To facilitate this, the *Contractor* shall provide all necessary expertise and evidence.

c) It is the *Contractor*'s responsibility to ensure third party assurance of any BREEAM or CEEQUAL Assessments.

23. **Biodiversity Net Gain Toolkit**

a) To monitor the gains in biodiversity, the *Contractor* shall use and provide all necessary inputs into TfL's Net Gain Toolkit. Targets for the percentage of net gain in biodiversity to be achieved will be discussed and agreed between the *Contractor* and the *Client* at the design stage. The *Contractor* shall record the opportunities considered, the benefits that could be accrued, the constraints to implementation, the decisions taken, and justification for rejecting any potential opportunities.

24. **Ecology Surveys**

a) Where works have the potential to affect ecological receptors, the *Contractor* may be required to engage a suitably competent ecologist. Information provided as part of TfL's Environmental Evaluation will inform this process. Where required, the *Contractor* in liaison with a suitably qualified ecologist shall undertake the following:

i) Complete a background data search, sourced from the Greenspace Information for Greater London CIC (GiGL) (the local environmental records centre for London) using the TfL SLA, in accordance with the GiGL data licensing contract

ii) Unless otherwise agreed with the *Client*, the *Contractor* shall undertake the Extended Phase 1 Habitat Survey at an optimum time according to the most recent guidance to facilitate the identification of habitats and species that may be affected by the design proposals (i.e. mid April to the end of September, at the time of writing).

iii) Provide a Preliminary Ecological Appraisal Report which details the findings of the data search, survey and any ecological recommendation and mitigation measures.

iv) Provide the survey findings as a GIS data layer in accordance with TfL's requirements.

v) Complete the TfL Biodiversity Toolkit to calculate biodiversity units prior to, and post, project delivery, proposing mitigation measures to deliver a net gain in biodiversity.

b) The *Contractor* shall be responsible for ensuring the recommendations and mitigation measures set out in the Preliminary Ecological Appraisal Report are implemented. The *Contractor* shall confirm any necessary details to allow TfL and other bodies to update the Green Estate and ecological database.

25. **Low Carbon Circular Economy**

a) In line with the Mayor's Environmental Strategy, the *Contractor* shall promote re-use and recycling, minimise waste and play a supporting role in helping the *Client* achieve its environmental targets.

b) The *Contractor* shall minimise waste, promote recycling, and play a leading role in helping the *Client* achieve its environmental targets. The *Contractor* shall develop, implement and maintain a waste & resource management plan, as part of the EMP, to cover the waste arisings it is responsible for.

c) The *Contractor*'s Resource and Waste Management Plan shall document how the *Contractor* will:

i) Implement the waste hierarchy

ii) Comply with current legislation in relation to the storage, handling, treatment, transfer and disposal of all waste materials produced in the performance of the Services. As a carrier of waste, the *Contractor* shall be registered as a Waste Carrier with the Environment Agency and shall provide evidence of registration within the waste management plan and on renewal of the registration

iii) Set waste reuse, recovery and recycling targets that meet or exceed the *Client's* targets

iv) Monitor and report waste arising.

v) Ensure key staff are trained in waste minimisation and management techniques

vi) Increase recycled content of materials used in construction and any other materials purchased

vii) Document all decisions taken during any design work to reduce waste, and ensure this information is passed to *Client*.

d) The *Contractor* shall implement and update the waste management plan, maintain records throughout the duration of this Contract and make available these records for review by the *Client* on request.

e) The *Contractor* is responsible for the management and removal of all waste arising as soon as practicably possible in accordance with accepted good practice.

f) The *Contractor* shall comply with all current legislation relating to the handling, storage, transfer and disposal of waste materials.

g) The *Contractor* shall make available to the *Client*, within 3 Working Days of request, any waste records (such as Consignment notes and transfer notes).

26. **Water Resources**

a) The *Contractor* shall ensure that the layout of the Site and facilities and management of maintenance or construction operations complies with guidance contained within the relevant Construction Industry Research and Information Association (CIRIA) documents and accepted good practice.

b) The *Contractor* shall undertake the Works in a manner which protects the water environment – including any change to water quality, flow volume or levels.

c) To achieve this, the *Contractor* shall, as a minimum:

i) Identify any water sensitive receptors (such as ponds, watercourses, drains or groundwater) which may potentially be affected by the Works, and assess the risk to them;

ii) Identify any mitigation measures which shall be employed to minimise the risk to these water sensitive receptors – including any necessary pollution prevention measures;

iii) Obtain and comply with any necessary abstraction, discharge and other water environment consents;

iv) Undertake any water quality monitoring programmes agreed with the *Client*.

d) The *Contractor* shall not make temporary or permanent connections to any mains, drains, pipes, watercourses or utility services without the necessary consent.

e) Where works are within 16m of a watercourse or 8m of a main river, the *Contractor* shall liaise with the Environment Agency to obtain any necessary licences or exemptions to carry out works.

27. **Effluent discharge consents**

a) When providing maintenance of drains and/or interceptors, the *Contractor* shall ensure that it maintains effluent discharge within the legal effluent discharge consent limits.

28. **Water Conservation**

a) The *Contractor* will implement working methods and measures that reduce water consumption and improve water efficiency. The *Contractor* shall set out how this will be achieved and monitored/reported within their EMP or EAP.

29. **Resource and Waste Management Plan**

a) As part of the project develop process, the *Client* may have commenced the development of a Resource and Waste Management Plan (RWMP) to record the decisions made to design out waste and improve material efficiency.

b) Where a RWMP has been developed, this shall be passed to the *Contractor* for information and use – including the implementation of any applicable actions.

c) Where the *Contractor* is responsible for undertaking design work and a RWMP has not been developed during earlier stages of the Project, the *Contractor* shall develop and use the RWMP to record the decisions taken to reduce materials use, select sustainable materials, and implement the waste hierarchy.

d) The *Contractor* shall maintain the RWMP throughout the design phase and shall periodically provide the *Client* with information or data extracted from the RWMP to demonstrate that they are on course to meet the preceding requirements (and any associated targets).

e) At the end of the design phase, the *Contractor* shall submit the completed RWMP to the *Client* to confirm how the above requirements have been met.

f) For the construction phase, the *Contractor* shall develop and implement a Site Waste Management Plan (SWMP) that, as far as practicable, ensures:

   i) full delivery of the actions and decisions detailed in the RWMP

   ii) fulfilment of all compliance obligations relating to resources, materials and waste

   iii) compliance with the waste duty of care

   iv) achievement of project targets and expectations relating to resources, materials and waste

g) The *Contractor* shall develop the SWMP prior to commencing the works on-site.

h) The *Contractor* shall not commence Works until the *Client* has issued written acceptance of the SWMP.

i) The *Contractor* shall regularly review and as necessary, update the SWMP to take account of changing circumstances. Such reviews shall take place at least every six months during construction (unless otherwise agreed with the *Client*). The updated SWMP shall be submitted to the *Client* for acceptance.

j) The *Contractor* shall make site waste management records available to the *Client* on request.

k) The *Contractor* is encouraged to use the Electronic Duty of Care (EDOC) system.

l) The *Contractor* shall implement measures to minimise the use of single use plastics.

m) The *Contractor* shall make arrangements to reuse or recycle non-contaminated PPE and hard hats after they have been used on the project.

30. **Designing out Waste**

a) If the EE indicates a need for a ‘Designing out Waste’ workshop, the *Contractor* shall arrange for this to be undertaken. The workshop shall be led by a suitably experienced practitioner and shall be attended by members of the *Contractor*’s design and construction teams, and the *Client’s* Environmental Team. The workshop shall be undertaken in line with the guidance given in WRAP’s Designing out Waste: A design team guide for civil engineering. The output from the workshop shall be recorded in the RWMP.

Timber

b) Where it is necessary to use timber, the *Contractor* shall ensure that only timber from recycled, reclaimed or sustainable sources (i.e. timber sourced in accordance with the UK Government's Timber Procurement Policy or accredited to the Forest Stewardship Council (FSC) or and equivalent scheme) is incorporated into the temporary and permanent works.

c) Should the *Contractor* propose to use timber that is not from the aforementioned sources, then written justification must be submitted to the *Client* to outline the reasons why this is necessary, and the *Client*'s written consent must be obtained prior to using such timber.

d) The *Contractor* shall maintain records of all timber deliveries in order to verify compliance with the above requirements.

31. **Air Quality**

a) The *Contractor* shall ensure that air quality impacts (including dust) from demolition, construction-related activities and construction traffic are controlled by using best practicable means during the planning and management of the Works.

b) The *Contractor* shall ensure they implement mitigation and monitoring measures appropriate to the site's level of risk in accordance with the guidance set out in the Mayor of London's Supplementary Planning Guidance (SPG) on The Control of Dust and Emissions During Construction and Demolition.

c) Where a site is determined to be 'high' risk, the *Contractor* shall develop an Air Quality and Dust Management Plan (AQDMP) prior to commencing any construction or demolition works. The content of the AQDMP shall be agreed with the *Client* prior to the *Contractor* commencing Works on site.

32. **Contaminated Land**

a) The *Contractor* will comply with Industry Good Practice in relation to contaminated land.

b) Prior to commencing the Works, the *Contractor* shall identify any areas of potential contaminated land that may be affected by the Works. Unless the *Contractor* can demonstrate that there is sufficient information available to understand the risks posed by the identified contaminated land, the *Contractor* shall undertake a programme of site investigations to enable the risks to human health and the environment to be quantified, and any necessary mitigation measures or remediation proposals to be developed. Such proposals, which shall comply with statutory guidance and industry best practice, shall be submitted to the *Client* for acceptance. Landfill shall only be used if other remediation options (e.g. on-site treatment, off site treatment) are not reasonably practicable.

c) The *Contractor* shall plan and undertake the Works in a manner which minimises the disturbance of any contaminated land and avoids the creation of pollution pathways. This shall include the use of excavation and piling techniques which minimise the potential for vertical contamination pathways to be created.

d) The *Contractor* shall undertake all necessary and appropriate health, safety and environmental monitoring to ensure the adherence to, and the continuing suitability of the mitigation measures or remediation proposals developed for working on, or adjacent to, contaminated land. As necessary, the *Contractor* shall also undertake monitoring to verify the

effectiveness of the measures implemented – e.g. to demonstrate that the remediation proposals have been effective.

e) The *Contractor* shall notify the *Client* and relevant statutory bodies if any contaminated land or water has been discovered.

33. **Unexpected Contamination**

a) The *Contractor* shall monitor excavation activities to check for unexpected or unusual materials with a contaminative potential. The unusual material may consist of, but not be limited to, buried drums, tanks or containers, soil, groundwater or liquids with an unusual colour or odour, or other evidence of contamination.

b) In the event of discovery of unexpected contaminated land the *Contractor* shall inform the *Client* as soon as practicable. The *Contractor* shall implement all reasonably practicable measures to ensure the unexpected contaminated land does not give rise to risks to human health and the environment. The *Contractor* shall develop and implement measures to deal with the unexpected contaminated land after obtaining the *Client*'s acceptance of the proposals.

34. **Asbestos**

a) If ground containing asbestos is encountered during the Works, the *Contractor* shall stop the activity in question. Works on the activity shall not restart until the *Contractor* has developed appropriate proposals to minimise the risk to the workforce and other potential receptors. The proposals developed by the *Contractor* shall comply with all relevant statutory guidance and controls and the *Contractor* shall undertake the works in compliance with the proposals at all times.

b) The removal of asbestos will be undertaken by a suitability licensed asbestos removal *Contractor* and managed in accordance with the relevant statutory controls.

35. **Unexploded Ordnance**

a) Where excavation works are required, unless the *Contractor* can demonstrate that there is sufficient existing assessment information available, the *Contractor* will undertake a risk assessment to determine the risk of unexploded ordnance being found on site. As necessary, the *Contractor* will develop and implement suitable mitigation to reduce the risks to an acceptable level.

36. **Required Contents of Emergency Preparedness and Response Plan**

a) Definitions of what constitutes an environmental incident, a major environmental incident, an environmental emergency, harm or damage to the environment, and an environmental near miss;

b) Details of the potential types of environmental incident relevant to the works and the envisaged control measures;

c) The procedures to be implemented to comply with the emergency preparedness and response requirements set out within the latest ISO14001;

d) Responsibilities of the Contactor's staff for dealing with an environmental incident or near miss;

e) Details of the Equipment to be used to bring environmental incidents or emergencies under control, including details of the location of spill kits and the minimum acceptable stock requirements;

f) An up-to-date site drainage plan which details critical connections manholes, direction of flow, pipe diameters, interventions points and final discharge points to foul and surface water resources;

g) The systems (and contact details) for notifying the appropriate statutory authorities, emergency services, *Client* and the *Contractor*'s personnel in the event of an environmental incident or near miss;

h) The information to be recorded in the event of an environmental incident (to include date, time, location, description of incident, action taken, personnel involved and notifications, photographs); and,

i) A simple flowchart to show the process and responsibilities.

Environmental Data template (Table E-1)

Table E-1 sets out the minimum environmental data the *Contractor* provides each period. This information is required to track performance and facilitate the *Client's* corporate environmental reporting.

Table E-1

Environmental Aspect	Data Required	Units
Basis for normalising performance	Spend per period	£100k
Energy consumption, by type	Electricity consumption (normal grid mix)	kWh
	Natural gas consumption	kWh
	Petrol consumption	litres
	Diesel consumption	litres
	Heavy fuel oil consumption	tonnes
	Other (please specify)	Please specify
Noise complaints	Noise complaints	number received
	Noise complaints / 100,000 hrs worked	number/100,000
Waste produced and proportion recycled	Amount of construction and demolition (C&D) waste produced	tonnes
	Amount of non-hazardous C&D waste **recycled** (does not include recovered / incinerated)	tonnes & %
	Amount of non-hazardous C&D materials **diverted from landfill** (i.e. reused, recycled and/or recovered)	tonnes & %
	Amount of non-hazardous C&D waste **diverted from landfill** (i.e. reused/ recycled/ recovered) per £100K project spend	Tonnes / £100K
	Amount of excavation waste produced	tonnes
	Amount of non-hazardous excavated materials put to **beneficial reuse** (i.e. recycled / reused / diverted from landfill)	tonnes & %
	Amount of waste classified as hazardous	tonnes
	Amount of hazardous waste recycled	tonnes & %
Water consumption	Mains water consumed	m^3
	Non-mains water consumed	m^3
	Total water consumed	m^3
Environmental Incidents	Number of environmental incidents per period	number
	Number of environmental enforcement/regulatory notices	number

SCOPE

APPENDIX F
Biosecurity

TfL Biosecurity Requirements

Introduction

The introduction of Dutch elm disease and oak processionary moth are just two examples of damage caused to UK trees and plants from imported pathogens. These can enter the UK via infected trees and plants as well as timber material such as packaging. Best arboricultural and horticultural practice as recommended by the Arboricultural Association, Forestry Commission, Defra and London Tree Officers Association is that all reasonable steps should be taken to mitigate the risk of importing any pathogens.

Poor biosecurity practices would put TfL's customers, services and Green Estate at risk. It would be extremely reputationally damaging for TfL to be responsible for importing a new pathogen into the UK. The likely associated loss of trees would compromise London Mayoral policy such as the Mayor's Transport Strategy and London Environment Strategy, both of which state the importance of trees and other green infrastructure for the health and wellbeing of those who live, work and play in London.

The risk of accidentally importing pathogens can be mitigated through good biosecurity practices, particularly around the importation of trees and plant material. By sourcing only UK-grown stock and ensuring that any imported material has undergone an appropriate quarantine period prior to being planted on TfL land, the risk of TfL introducing pests and diseases to the UK will be significantly reduced. This ambition is supported by TfL becoming signatories to the Arboricultural Association's 2016 Biosecurity Position Statement.

Requirements

In order to meet TfL's biosecurity commitments **the Contractor shall purchase and plant trees and plant material only from responsible nurseries who can guarantee that their trees, shrubs or bedding plants are UK-grown or – if imported – have undergone a quarantine period appropriate to the species prior to being purchased.** This applies to all parts of TfL and its supply chain and should therefore be incorporated into all contract and sub-contract documentation and procedures.

The Arboriculture & Landscape Team, based within the Engineering Directorate, provides the specialist in-house service for all matters relating to trees and other green infrastructure across TfL. The Team is available to provide any additional advice about biosecurity which may be required and should be consulted prior to any tree or plant material being sourced and planted by TfL.

For more information contact : GreenInfrastructure@tfl.gov.uk

SCOPE

APPENDIX G
[NOT USED]

SCOPE

APPENDIX H
[NOT USED]

SCOPE

APPENDIX I
Road Safety Audit Procedure

Management System Document – Procedure

Road Safety Audit

Document reference: SQA-0170 - issue: 1

Contents

1 Purpose

This document describes the Procedure that must be followed when carrying out Road Safety Audits (RSAs) on the Transport for London Road Network (TLRN), its assets and locations managed or maintained by TfL (such as Station forecourts and footways). It should be noted that TfL is also Traffic Authority for roads in proximity to the TLRN and this Procedure must also be followed when undertaking RSAs in these locations.

This procedure will also be followed when TfL undertakes RSAs on non-TLRN schemes (e.g. Borough schemes), with the exception of Trunk Road locations, which must be carried out in accordance with the latest Road Safety Audit Standards in the Design Manual for Roads and Bridges (DMRB), currently HD19/15. This Procedure is commended to all others involved in commissioning and undertaking RSAs on non-TLRN schemes in London.

An RSA considers the road safety implications of all measures, their impact on the network under all anticipated operating conditions, and their road safety implications on all types of road user. Fundamental to the principle of an RSA, is ensuring that due consideration is given to the effects of any proposal on all road users and especially all vulnerable user groups, generally regarded to include the very young, the elderly, people with a disability, pedestrians, cyclists and riders of powered two wheeled vehicles. In some cases, the specific needs of equestrians will also need to be considered.

This is in accordance with the following:

- Mayor's Transport Strategy, Chapter 5, Part 3
- Safe Streets for London – The Road Safety Action Plan for London 2020

2 Background / Scope

This Procedure is **mandatory** and must be followed without exception to identify when a Road Safety Audit is required and set the standard and process for carrying out RSAs.

The **mandatory** workflow process for Road Safety Audits undertaken internally by Transport for London is shown in Section 3.

The **mandatory** workflow process for Road Safety Audits undertaken by all other parties, including those employed under TfL Contracts, developers and third parties is shown in Section 5.

This Procedure will be subject to frequent revision to ensure it reflects current best practice. Users of this Procedure should ensure they are using the most recent

version, a copy of which will be available on TfL's website. Notifications of updates will be sent to registered interested parties. If you wish to be included on this distribution list please notify TfLSafetyAudit@tfl.gov.uk.

This Procedure shall apply to:

- All measures proposed on the TLRN, its assets and locations managed and maintained by TfL (including where TfL is the Traffic Authority) that involve permanent changes to the highway;

- Works carried out under agreement with TfL resulting from developments alongside or affecting the TLRN;

- Temporary Traffic Management Schemes lasting longer than 3 months or where it is anticipated that the proposals are likely to have a significant impact on the highway network or road safety concerns have been identified. Phased traffic management schemes where each phase is less than 3 months, but the combined total of all phases exceeds 3 months, must be audited; and,

- Like for like replacements where there is a known collision risk. For example, the replacement of a non-passively safe traffic sign in the same location where it has been previously struck by errant road users on numerous occasions.

The RSA will not include:

- A technical check to ensure compliance to standards.

- Non-safety related issues (although discretion is given to Auditors to provide comment on these issues separately within the standard Road Safety Audit reporting method).

- Issues relating to the stability of any structure, or the structural integrity of any proposed element or method of construction.

- Construction and maintenance issues as covered by current Construction Design and Management (CDM) Regulations. The RSA covers only the future operational road safety of the scheme. Overseeing Organisation Project Clients, Sponsors and Directors should make themselves aware of current Health & Safety legislation and consider the implications of their instructions to Design Teams and Road Safety Audit Teams in terms of Health & Safety.

- Traffic signal design / safety checks which are covered by separate TfL Procedures. These exist to ensure that all aspects of safety are considered during the design stage so that the traffic signal scheme can be implemented, operated, maintained and decommissioned in a safe manner and the design accords with the requirements of CDM. Those

design / safety checks do not replace the necessity for an RSA in accordance with this Procedure.

- A definitive judgement on which option is preferable if separate options are submitted for audit. The RSA Team will assess each option individually and make recommendations accordingly. The decision on which option to develop will remain entirely with the Client Organisation.

The RSA is not an opportunity to:

- Query why other measures are not being proposed;
- Comment on the operational characteristics of the proposals where there are no adverse safety implications; or,
- Suggest alterations or additions to the proposals which are not as a result of a specified safety concern.

No part of an RSA report should be regarded as a direct instruction to include, remove or amend any scheme element. Responsibility for designing the scheme lies with the Design Organisation and as such the Audit Team will accept no design responsibility for any changes made to a scheme following the completion of an RSA Report.

All pre-construction RSAs have a maximum shelf life of two years and should be repeated if the next stage in the scheme's development has not begun within two years following completion of the RSA. This is to ensure that the schemes interface with the current highway network and its current usage is assessed. Similarly, RSAs should be repeated if any element of a scheme is significantly changed, or the highway layout is substantially altered, subsequent to an RSA having been undertaken.

<u>Road Safety Audit Stages and Associated Milestones</u>

Road Safety Audit is not a single Procedure undertaken once for each scheme. An RSA and its subsequent actions shall be undertaken following completion of specific stages of a scheme's development. The scheme design must be sufficiently progressed such that all significant features are clearly shown to a degree that would enable it to progressed to the next stage of the design or proceed to construction accordingly. These stages are:

a) Stage 1: Completion of Preliminary Design / Conceptual Design

b) Stage 2: Completion of Detailed Design

As a guide, the following information should be provided as appropriate:

- General arrangement details (fully dimensioned)
- Site clearance details

- Traffic signs and road markings
- Drainage alterations
- Street lighting alterations
- Traffic signal details and traffic signal staging alterations
- Carriageway and footway level alterations
- Swept path analysis
- Surfacing and material details / specifications

c) Stage 3: Completion of Construction

To be undertaken as soon as practicable after the works are complete. The Client may also deem it prudent to carry out an RSA on a scheme prior to full completion, so that any significant issues arising can be addressed with immediacy. Where an RSA is carried out before a scheme is complete, a further RSA will also be carried out as soon as practicable upon completion.

Under normal circumstances, a Stage 3 RSA should be completed as soon as reasonably practicable, but within 3 months following completion of a scheme. A scheme is regarded to be complete and operational from the date construction ceases on site, the location is open to the general public and all traffic management has been removed. Consideration should be given to allow a period post construction for the modified layout to bed-in.

d) Stage 4: Monitoring

Stage 4 RSAs are not routinely undertaken on TfL schemes. TfL monitors the performance of highway engineering schemes through the Traffic Accident Diary System (TADS). Where TADS identifies an emerging collision problem, the Client should commission a Stage 4 RSA. Stage 4 RSAs are purposely not shown on the workflow in Section 3 and Section 5.

At stage 4, the collision records are analysed in detail to identify the locations at which personal injury collisions have occurred, where collisions appear to arise from similar causes or show common factors and how the scheme may have affected collision patterns and rates. Comparisons with control data such as Collision Risk in Greater London, will also be undertaken to identify collision patterns and trends. The Stage 4 Audit report will comprise of an analysis of the collision data to identify the impact of problems and recommendations at previous Audit stages; details of other notable events that have occurred since construction where this is known to the Audit Team; identify any road safety problems linked to the scheme and indicated by the data analysis and observations during any site visits undertaken. The reports should make recommendations for remedial action.

If a pattern of collisions are identified during the hours of darkness, it may be prudent to consider a night time site visit supplementary to the daytime visit.

- A Stage 4a RSA will be prepared using 12 months of collision data from the first full month after the scheme became operational and 36 full months of collision data from prior to the commencement of construction works.

- A Stage 4b RSA is prepared using 36 months of collision data from the first full month after the scheme became operational and 36 full months of collision data prior to the commencement of construction works. The Client Organisation must decide if a Stage 4b RSA needs to be prepared. This decision may be led by the results of the Stage 4a report, the scale of the changes instigated by the original scheme, TADS outputs and any issues highlighted since the completion of the scheme.

e) Supplementary Road Safety Audit stages

In addition to the defined stages specified above, it may at times be beneficial to conduct Interim or combined Stage 1 & 2 audits as follows:

- For large, complex schemes, particularly with accelerated programmes, the Client Organisation may consider at any time during the design or construction stages, that it is appropriate to undertake an Interim RSA. Interim RSAs shall be carried out following the same procedure as for the formal Audit stages, which must still be undertaken in full. Where applicable, the Audit Team, Client and Designer can meet if considered necessary to enable the Design Organisation to explain their designs and the Audit Team to explain any identified problems and recommendations.

- Combined Stage 1 & 2 RSAs can be carried out on the overall design of smaller and simpler schemes. Combined Stage 1 & 2 RSAs may have the disadvantage of identifying potential safety issues late in a scheme's development when corrective action may be more difficult. It is envisaged that schemes such as road marking alterations, traffic signing schemes and small footway modifications would fall under this category. Stage 1 and Stage 2 Road Safety Audits must not be combined as purely a cost and/or programme saving measure.

In exceptional circumstances, such as when auditing unique and complicated schemes to tight deadlines, it is permissible to deviate away from this Procedure to suit the specific scheme circumstances. The decision to change the way in which Audits are undertaken can only be made by TfL's Road Safety Audit Manager without exception. In all cases, written approval must be sought and the reasons for modifying the Road Safety Audit Procedure must be stated within the Audit report.

f) Pre Stage 1 Road Safety Audit comments

For large complicated schemes or for schemes with multiple possible options, it may be beneficial to enlist the help of Road Safety Audit to provide advice on the potential road safety implications of the proposals to assist optioneering. Providing this advice does not preclude the necessity to undertake a formal Stage 1 Road Safety Audit.

In providing advice the RSA team will not form part of the project team and will remain impartial. Providing pre-Stage 1 advice does not prevent the same Auditors from undertaking the formal Audit of the proposals.

Retention of Records

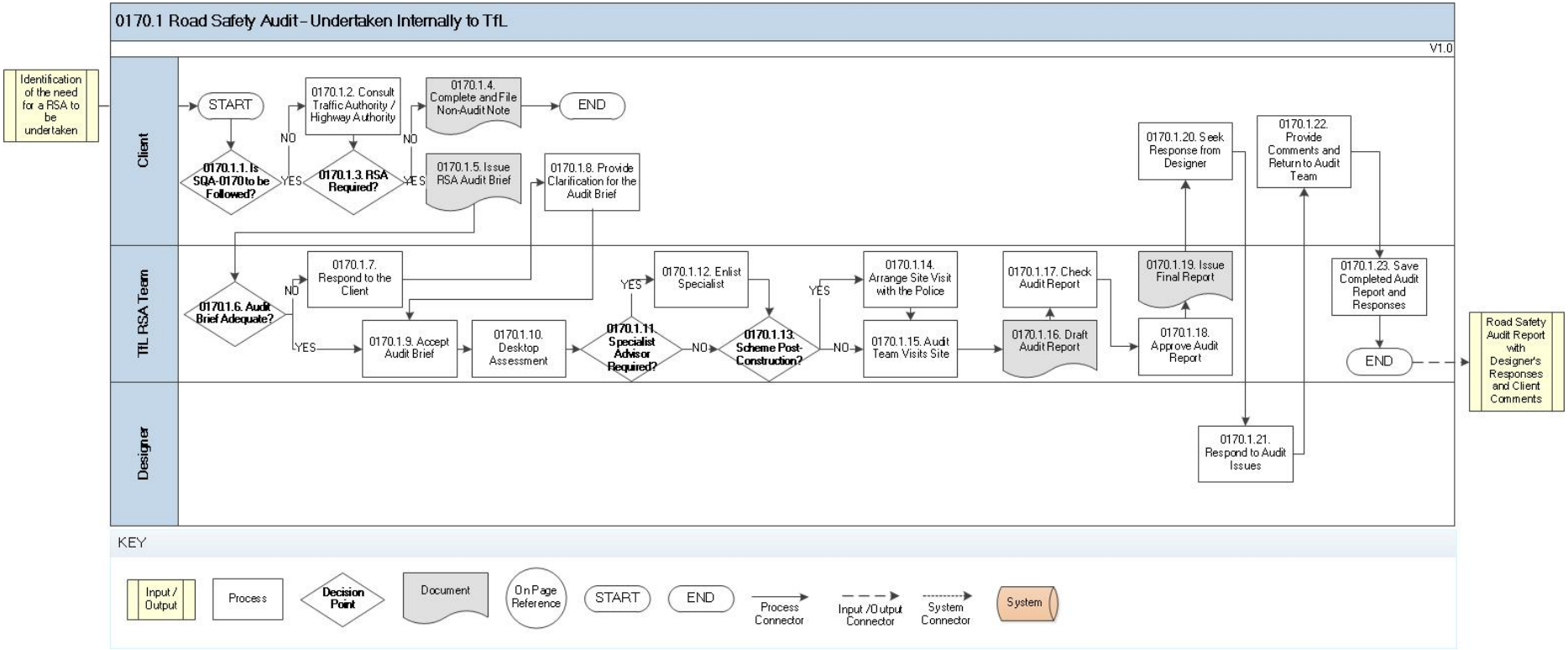
In accordance with TfL's document retention Policy for Road Safety Audit reports and related information, these records must be retained for a period of 21 years from the date the report is issued.

It is the responsibility of any Client Organisation's external to TfL to ensure all Road Safety Audits are retained in accordance with their own Policy.

Filing and retention arrangements for Road Safety Audits must pay due regard to complying with the Freedom of Information Act.

3 Procedure Flow 1

Where an Audit Team internal to TfL is to be appointed



A Visio version is available here: LINK.

4 Procedure Description 1

Where an Audit Team internal to TfL is to be appointed:

Inputs:

- Identification of the need for a Road Safety Audit to be undertaken.

0170.1.1. Is SQA-0170 to be followed?

The Client should identify the ownership of the road network / asset. If the proposal is located on or affects the TfL road network, land or assets, or if a non-TLRN road is to be audited by the TfL RSA Team, SQA-0170 must be followed.

This requirement specifically excludes the scenario where a Road Safety Audit is required on the Highways England road network. In this scenario, the requirements of the Design Manual for Roads and Bridges HD19 must be followed.

If the answer is YES, please refer to step **0170.1.3**.

If the answer is NO, please refer to step **0170.1.2**.

0170.1.2. Consults Traffic Authority and/or Highway Authority

The Client liaises with the Traffic Authority and/or Highway Authority to ascertain the requirements for Road Safety Audit.

0170.1.3. RSA Required?

Does the scheme constitute a change to the highway as outlined in Section 2 of this Procedure and therefore requires an RSA to be carried out?

If the answer is YES, please refer to step **0170.1.5**.

If the answer is NO, please refer to step **0170.1.4**.

0170.1.4. Client Completes and Files Non-Audit Note

If the Client deems that an RSA is not required for the scheme, they must complete a Non-Audit Note stating the reasons that an RSA will not be undertaken and retain the document within the project file.

0170.1.5. Client Completes and Sends RSA Audit Brief to TfL RSA Team

The Client compiles the Audit Brief consisting of a completed Audit Brief Checklist and any drawings and further supporting information necessary to assist the Audit Team. Details of what drawings and further information may be required can be discussed with TfL's RSA Team, but as an absolute minimum the Audit Brief Checklist and a General Arrangement drawing should be provided.

0170.1.6. Audit Brief Adequate?

TfL RSA Team assesses if the Audit Brief has the necessary information required to undertake the Audit.

If the answer is YES, please refer to step **0170.1.9**.

If the answer is NO, please refer to step **0170.1.7**.

0170.1.7. Respond to the Client

TfL RSA Team responds to the Client indicating why the Audit Brief has not been accepted or seeks clarification.

0170.1.8. Provide Clarification for Audit Brief

The Client provides the TfL RSA Team with clarification or additional drawings and information as required.

0170.1.9. Accept Audit Brief

The Audit is added to the central repository database, prioritised accordingly and the internal Audit Team selected by the Road Safety Audit Manager.

The Audit Team will comprise of at least two persons, one of which will lead the Audit (Team Leader), the other (Team Member) will provide technical expertise to assist the Audit Team Leader.

The educational and experience requirements of the Audit Team are at the discretion of TfL's Road Safety Audit Manager. As a general principle, educational and experience requirements for internal Road Safety Auditors will exceed the mandatory requirements for Auditors external to TfL.

On occasions an individual with the appropriate training, skills and experience may accompany the RSA Team as an Observer in order for them to gain experience of the Audit process and they are actively encouraged to contribute. As a minimum an Observer must have undertaken a 10-day formally structured and recognised Collision Investigation or Road Safety Engineering course and have a minimum of 1 year's Collision Investigation or Road Safety Engineering experience.

0170.1.10. Desktop Assessment

The appointed Audit Team collects the latest collision data and carries out analysis to ascertain any underlying collision patterns. This data is to be used to determine current safety concerns which may not be discernible from the site visit alone and builds a greater appreciation of the future operation of the proposals. A desktop assessment of the drawings and information supplied is carried out prior to visiting the site.

0170.1.11. Specialist Advisor Required?

If there are any unusual or specialist measures to be audited, then the Audit Team Leader may elect to appoint an appropriate specialist to advise the RSA Team.

If the answer is YES, please refer to step **0170.1.12**.

If the answer is NO, please refer to step **0170.1.13**.

0170.1.12. Enlist Specialist

Audit Team identifies a Specialist Advisor and obtains their comments, advice and suggestions. It may be necessary to visit the site together.

The Police, Specialist Advisors and Observers do not form part of the formal Audit Team and are not required to be members of the Society of Road Safety Auditors (SoRSA) or meet the requirements of the formal Audit Team Members.

0170.1.13. Scheme Post-Construction?

The Audit Team identifies if the scheme has already been constructed and therefore requires a Police visit / comments and a night-time site visit.

If the answer is YES, please refer to step **0170.1.14**.

If the answer is NO, please refer to step **0170.1.15**.

0170.1.14. Arrange Site Visit with the Police

At Stage 3, the Team Leader shall invite representatives from the Police to accompany the Audit Team to offer their views for the Audit. Where it proves not possible to arrange a mutually convenient time, the Police will be invited to submit their views in writing. To expedite the Audit process, the Audit Team may visit the site and compile the Audit report in advance of the Police visit, at which time the Audit may be issued in draft.

At Stage 3 and in addition to the daylight site visit, all members of the Audit Team should visit the site of the scheme together during the hours of darkness to identify hazards particular to night-time operation. Seasonal variation will sometimes necessitate undertaking night-time site visits at a late hour. In such cases, the Team Leader may elect to defer the night time site visit, particularly if the personal safety of the Audit Team is considered to be an issue. When deferring the night-time site visit, the Audit report will be issued in draft form until such time as the night-time site visit is undertaken. Night time site visits may not be deferred for more than three months from the daytime site visit.

At the Team Leader’s discretion, and in consultation with the Client Organisation and TfL Road Safety Audit Manager, the site may not require a visit during the hours of darkness. In such instances the reasons for not visiting the site at night must be stated within the Audit report. It should be noted that choosing not to visit the site at night should be adopted only in exceptional circumstances.

0170.1.15. Audit Team Visits Site

At each stage of the Audit process, all members of the Audit Team must visit the site of the scheme together during daylight hours. The Audit Team must consider the measures from the perspective of all the road users that may be anticipated to use the scheme. Where appropriate, a combination of driving, walking and cycling through the scheme may be used to assist their evaluation and ensure that they have a comprehensive understanding and appreciation of the scheme. The Audit Team should also consider the effects of different weather conditions and site conditions that may affect the operation of the scheme.

Where the Audit Team identifies an immediate safety concern, they should notify the Client as soon as reasonably practicable. This is particularly important for problems identified during the Stage 3 RSA process.

The Audit Team Leader liaises with the Client, Police and Specialists Advisors as necessary in order to ensure the Audit report can be appropriately completed. It may be necessary to revisit the site.

0170.1.16. Draft Audit Report

The Audit Team compiles the Audit report at pre-construction, post-construction or Stage 4. The problems and recommendations in the Audit Report should be set out in a logical sequence. The use of headed sections and the details of those headed sections are at the Audit Team Leader’s discretion. The Audit Team must avoid the use of superfluous headings for which no issues have been identified.

Road Safety issues that are beyond the scope of the RSA but that the Audit Team believes should be brought to the attention of the Client Organisation, may be included within Section 4 of the RSA report. These issues could include areas where repair or renewal may be required, operational concerns or existing poor provision. Such issues should be clearly identified as being beyond the scope of the RSA and should not be integrated into the main Problem and Recommendation section of the report.

Section 4 is not intended as an opportunity to provide a record of inspection of the existing site conditions. Only significant issues should be included as a large number of issues within this Section may remove focus from the genuine areas of concern. Existing issues and problems outside the geographical extents of the scheme should not normally be included within Section 4, unless they impact directly on the operation or delivery of the scheme.

0170.1.17. Check Audit Report

The draft Audit report shall be distributed amongst other members of the Audit Team to check and provide comments. Any necessary changes to the Audit report will be made, but the Audit Team Leader shall take responsibility for the content of the Audit report.

0170.1.18. Approve Audit Report

The amended draft Audit report will be read by the TfL's Road Safety Audit Manager or their delegated representative as appropriate, to ensure that the Audit report is understandable by those without a background in the field. The Audit Report approver will not instruct the Audit Team to modify the technical content within Road Safety Audit reports.

0170.1.19. Issue Final Report

The Audit Team Leader issues the Final Audit report to the Client and the Designer where appropriate.

0170.1.20. Seek Response from Designer

Where necessary, the Client sends the Audit report to the Designer and seeks their response to the Audit.

0170.1.21. Respond to Audit Issues

The Designer responds to each problem identified in the Road Safety Audit and this is recorded in the Designer's response areas of the Audit report. The response will contain details of how the problems identified in the Audit report will be resolved. Where the Designer disagrees with the problems or recommendations identified in the Audit report, or decides that the solutions recommended are not appropriate, the response justifies the alternative action to be taken. The Audit report is then signed off by the Designer and sent to the Client for comments.

It should be noted that the Designer must demonstrate due consideration of the problems raised when responding to the RSA report.

0170.1.22. Provide Comments and Return to Audit Team

It is the responsibility of the Client to review the RSA report and ensure that each problem identified is given due consideration by the Designer, adding comments in the relevant sections of the RSA report as appropriate.

The RSA report incorporating the Designer's and Client Organisation's comments is signed off by the Client Organisation and a copy is forwarded to the Audit Team Leader for information.

The Audit report is not an opportunity for the Client and the Designer to document their differences. Any disagreements relating to the progression of the proposals should be discussed and agreed separately. The agreed way forward should be documented within the Designer's response section. The Client Organisation is encouraged to use the Client section to provide background information to complement the Designer's decisions that may be beneficial to those reading the Audit report.

The Client Organisation should familiarise themselves with the requirements of CDM when issuing instructions to the Designer that could constitute a design decision.

With the agreement of TfL's Road Safety Audit Manager, alternative response / comment / sign-off roles and arrangements may be considered to suit local circumstances, but only with the approval of all parties involved.

The Client Organisation commissions the Design Organisation or others if applicable, in respect of changes required to the scheme arising from the Audit response. A scheme should be submitted for Audit again if significant changes are made to it as a result of an Audit.

The response sections of the Audit report must be completed and signatures added before the next stage in the scheme's development is begun.

0170.1.23. Save Completed Audit Report and Responses

The Audit Team Leader then saves the completed Audit report and responses within the central repository for their records. The Audit Team Leader ensures that all working documents supplied as part of the Audit Brief, including plans and maps are collated and retained. However, the record of Road Safety Audits is held by the Road Safety Audit Team for reference and should not be relied upon as a master record.

It is the responsibility of the Client Organisation to retain the master copy of the signed final Road Safety Audit Report incorporating the Road Safety Audit Response. Filing and retention arrangements for Road Safety Audits must pay due regard to complying with the Freedom of Information Act.

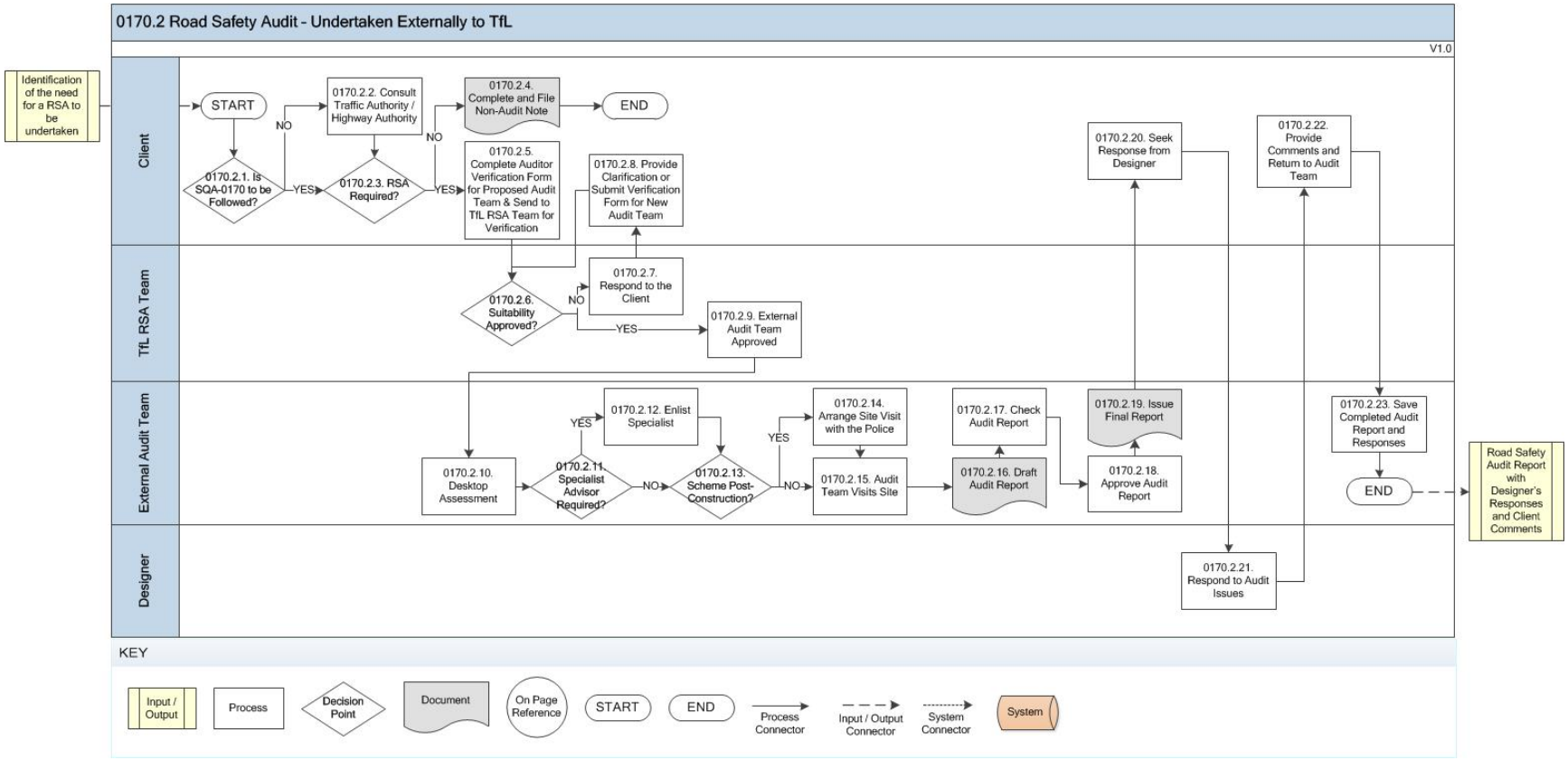
It is the responsibility of any Client Organisation's external to TfL to ensure all Road Safety Audits are retained in accordance with their own Policy.

<u>Outputs:</u>

- Road Safety Audit Report with Designer's Responses and Client Comments

5 Procedure Flow 2

Where an Audit Team external to TfL is to be appointed, including LoHAC contractors and private developers



A Visio version is available here: LINK.

6 Procedure Description 2

Where an Audit Team external to TfL is to be appointed, including LoHAC contractors and private developers

Inputs:

- Identification of the need for a Road Safety Audit to be undertaken.

0170.2.1. Is SQA-0170 to be followed?

The Client should identify the ownership of the road network / asset. If the proposals are located on or affect the TfL road network, land or assets, SQA-0170 must be followed.

If the answer is YES, please refer to step **0170.2.3**.

If the answer is NO, please refer to step **0170.2.2**.

0170.2.2. Consult Traffic Authority and/or Highway Authority

The Client liaises with the Traffic Authority and/or Highway Authority to ascertain the requirements for Road Safety Audit.

0170.2.3. RSA Required?

Does the scheme constitute a change to the highway as outlined in Section 2 of this Procedure and therefore requires an RSA to be carried out?

If the answer is YES, please refer to step **0170.2.5**.

If the answer is NO, please refer to step **0170.2.4**.

0170.2.4. Client Completes and Files Non-Audit Note

If the Client deems that an RSA is not required for the scheme, they shall complete a Non-Audit Note noting the reasons that an RSA will not be undertaken and retain the document within the project file.

0170.2.5. Complete Auditor Verification Form for Proposed Audit Team & Send to TfL RSA Team for Verification

The Client identifies the proposed Audit Team Leader, Team Member(s) and any Observers and instructs them to complete the Auditor Verification form. The Client collects this information and sends the completed forms to TfL RSA Team for verification.

TfL does not issue ‘blanket’ approval for Auditors external to TfL. Auditor approval is given on an Audit specific basis following demonstration of relevant Auditor

competency. Previous approval for an Audit on the TLRN is not approval for any subsequent or alternative Audits, all of which will need individual approval.

It is fundamental to the auditing process that no member of the RSA Team has had any design involvement with the measures being audited and will maintain this independence throughout.

The Audit Team will only be made up from individuals that have the necessary qualifications, adequate and relevant training, skills and experience. This will be assessed, without exception, through a formal verification process by way of the submission of the Auditor Verification Form to the TfL Road Safety Audit Manager. Road Safety Audit Teams comprised of highway design engineers with little or no experience of road safety work will not be accepted.

The Audit Team will comprise of at least two persons, one of which will lead the Audit (Team Leader), the other (Team Member) will provide technical expertise to assist the Audit Team Leader.

The **mandatory** minimum qualifications and experience for RSA Team Leader and RSA Team Member positions is as follows:

- Membership or Fellowship of the Chartered Institution of Highways and Transportation's (CIHT) Society of Road Safety Auditors (SoRSA).

- Completion of a 10-day formally structured and recognised Collision Investigation or Road Safety Engineering course (or equivalent 9-day condensed or modular course).

- A minimum of 4 years Collision Investigation or Road Safety Engineering experience (Team Leader), or a minimum of 2 years Collision Investigation or Road Safety Engineering experience (Team Member).

- Audit Team Leader - Completion of at least **5** Road Safety Audits in the past 12 months, and completion of at least **25** Road Safety Audits during their career as either a Team Leader or Team Member. Audit Team Leaders must demonstrate audit experience in a diverse range of Traffic Engineering measures.

- Audit Team Member - Completion of at least **5** Road Safety Audits in the past 24 months as either a Team Leader or Team Member.

- A minimum of 2 days certificated Continued Professional Development (CPD) in the fields of Road Safety Audit, Collision Investigation or Road Safety Engineering in the past 12 months.

In addition to the mandatory qualifications and experience, the following **preferred** experience for RSA Team Leader and RSA Team Member positions is as follows:

- An understanding of Transport for London's Cycle Design Standards.

- An understanding of Transport for London's Motorcycle Design handbook.
- An understanding of Transport for London's Pedestrian Design Guidance.
- An Understanding of Transport for London's Streetscape Manual,
- Training in the needs of vulnerable road users.

Road Safety Auditors should have an understanding of how best practice highway design principles may benefit road safety. It is not intended that Road Safety Auditors have extensive detailed design knowledge. However, they should have a reasonable understanding of design Standards and best practice design principles, and how the application of these can minimise collision risk.

The Auditor Verification Form must demonstrate that all formal members of the Audit Team are current Members or Fellows of the Chartered Institution of Highways and Transportation's (CIHT) Society of Road Safety Auditors (SoRSA), which will be checked. Membership of SoRSA (or equivalent) does not guarantee that Auditors will be given approval in all cases as the Auditor must demonstrate that they have experience relevant to the scheme being audited before approval will be given.

Auditors who are Members of an alternative recognised Professional Institute or Institution specific to Road Safety Audit may be accepted under some circumstances. In this circumstance the Auditor will need to apply for specific exemption which will be assessed on a case by case basis. Auditors who fall under this category should contact TfL RSA for details. Specific exemption may be given in writing by TfL Road Safety Audit Manager only if the Auditor as deemed suitable.

The TfL RSA Team reserves the right to check the validity of any information submitted as part of the verification process. This may include checking education and employment history as deemed appropriate. At the discretion of TfL, candidates may be requested to provide evidence of any document detailed upon the verification form such as Certificates, Audit Reports, Collision Studies and evidence of CPD. It is recommended that candidates retain up-to-date records of experience should this information be requested.

Audit reports completed by Auditors who have not passed this verification process in advance of the RSA being carried out will not be accepted under any circumstances.

0170.2.6. Suitability Approved?

TfL RSA Team assesses the suitability of the proposed Audit Team using the criteria identified in 0170.2.5.

If the answer is YES, please refer to step **0170.2.9**.

If the answer is NO, please refer to step **0170.2.7**.

Depending on the scope of the scheme, TfL RSA may decide to assist the Audit Team in the completion of the Audit. This is to ensure consistency across Audits completed by different suppliers, ensure Audits are completed correctly and to

provide additional information regarding the site and auditing in London generally, which may not be known to the Audit Team. If the TfL Audit Team wish to attend the RSA, this will be notified as part of the verification process.

0170.2.7. Respond to Client

TfL's Road Safety Audit Manager responds to the Client indicating why the proposed Auditor(s) have not been accepted and seeks further clarification or suggests appointing a new Audit Team.

0170.2.8. Provides Clarification or Submit Verification Form for New Audit Team

The Client provides the TfL RSA Team with clarification of the original Audit Team or may submit the Auditor Verification Form for a new Audit Team for verification.

0170.2.9. External Audit Team Approved

The TfL Road Safety Audit Manager informs the Client that the external Audit Team have been accepted to undertake the Audit.

0170.2.10. Desktop Assessment

The appointed Audit Team collects the latest collision data and carries out analysis to ascertain any underlying collision patterns. This data is to be used to determine current safety concerns which may not be discernible from the site visit alone and builds a greater appreciation of the future operation of the proposals. A desktop assessment of the drawings and information supplied is carried out prior to visiting the site.

0170.2.11. Specialist Advisor Required?

If there are any unusual or specialist measures to be audited, then the Audit Team Leader may elect to appoint an appropriate specialist to advise the RSA Team.

The Police and Specialist Advisors do not form part of the formal Audit Team and are not required to be members of SoRSA.

If the answer is YES, please refer to step **0170.2.12**.

If the answer is NO, please refer to step **0170.2.13**.

0170.2.12. Enlist Specialist

Audit Team identifies a Specialist Advisor and obtains their comments, advice and suggestions. It may be necessary to revisit the site together.

0170.2.13. Scheme Post-Construction?

The Audit Team identifies if the scheme has already been constructed and therefore requires a Police visit / comments and a night-time site visit.

If the answer is YES, please refer to step **0170.2.14**.

If the answer is NO, please refer to step **0170.2.15**.

0170.2.14. Arrange Site Visit with the Police

At Stage 3, the Team Leader shall invite representatives from the Police to accompany the Audit Team to offer their views for the Audit. Where it proves not possible to arrange a mutually convenient time, the Police will be invited to submit their views in writing.

At Stage 3 and in addition to the daylight site visit, all members of the Audit Team should visit the site of the scheme together during the hours of darkness to identify hazards particular to night-time operation. Seasonal variation will sometimes necessitate undertaking night-time site visits at a late hour. In such cases, the Team Leader may elect to defer the night time site visit, particularly if the personal safety of the Audit Team is considered to be an issue. When deferring the night-time site visit, the Audit report will be issued in draft form until such time as the night-time site visit is undertaken. Night time site visits may not be deferred for more than three months from the daytime site visit.

Audits completed by Audit Teams external to TfL must obtain the Client Organisations and TfL's Road Safety Audit Managers prior approval if it is decided the site does not require a visit during the hours of darkness. In such instances the reasons for not visiting the site at night must be stated within the Audit report. It should be noted that choosing not to visit the site at night should be adopted only in exceptional circumstances.

0170.2.15. Audit Team Visits Site

At each stage of the Audit process, all members of the Audit Team must visit the site of the scheme together during daylight hours. The Audit Team must consider the measures from the perspective of all the road users that may be anticipated to use the scheme. Where appropriate, a combination of driving, walking and cycling through the scheme may be used to assist their evaluation and ensure that they have a comprehensive understanding and appreciation of the scheme. The Audit Team should also consider the effects of different weather conditions and site conditions that may affect the operation of the scheme.

Where the Audit Team identifies an immediate safety concern, they should notify TfL via Customer Services as soon as reasonably practicable. This is particularly important for problems identified during the Stage 3 RSA process.

The Audit Team Leader liaises with the Client, Police and Specialists Advisors as necessary in order to ensure the Audit report can be appropriately completed. It may be necessary to revisit the site.

0170.2.16. Draft Audit Report

The Audit Team compiles the Audit report at pre-construction, post-construction or Stage 4 using TfL's report templates. The problems and recommendations in the

Audit Report should be set out in a logical sequence. The use of headed sections and the details of those headed sections are at the Audit Team's discretion. The Audit Team must avoid the use of superfluous headings for features or road users for which no issues have been identified.

For consistency, **all RSA reports must use TfL's specific report templates without exception**. It is intended that all suppliers provide reports following the same layout and structure to ensure consistency in delivery. It is acceptable to modify the visual appearance of the front cover to include corporate branding and internal quality assurance information as appropriate. However, the report structure must follow TfL's standard layout must remain unchanged.

RSAs must be concise and understandable by those without a background in the field. The use of complicated engineering terminology should be avoided.

Road Safety issues that are beyond the scope of the RSA but that the Audit Team believes should be brought to the attention of the Client Organisation, may be included within Section 4 of the RSA report. These issues could include areas where repair or renewal may be required, operational concerns or existing poor provision. Such issues should be clearly identified as being beyond the scope of the RSA and should not be integrated into the main Problem and Recommendation section (Section 3) of the report.

Section 4 is not intended as an opportunity to provide a record of inspection of the existing site conditions. Only significant issues should be included as a large number of superfluous issues within this Section may remove focus from the genuine issues of concern. Existing issues and problems outside the geographical extents of the scheme should not normally be included within Section 4, unless they impact directly on the operation or delivery of the scheme.

0170.2.17. Check Audit Report

The draft Audit report shall be distributed amongst other members of the Audit Team to check and provide comments. Any necessary changes to the Audit report will be made, but the Audit Team Leader shall take responsibility for the content of the Audit report.

0170.2.18. Approve Audit Report

The amended draft Audit report will be read by another person beyond the Audit Team, preferably with Road Safety Audit experience, to ensure that the Audit report is understandable by those without a background in the field. The Audit Report approver will not instruct the Audit Team to modify the technical content within Road Safety Audit reports.

The ensure the requirements of this procedure are met, TfL RSA reserves the right to request a draft copy of any Audit report to review prior to it being issued as Final. The Client will be informed as part of the verification process if a draft copy of the Audit is required.

0170.2.19. Issue Final Report

The Audit Team Leader issues the Final Audit report to the Client, and the Designer where appropriate.

A copy of all RSA reports must be sent to the TfL RSA Team at the same time it is issued to the Client in final at TfLSafetyAudit@tfl.gov.uk.

0170.2.20. Seek Response from Designer

The Client sends the Audit report to the Designers and seeks their response to the Audit.

0170.2.21. Respond to Audit Issues

The Designer responds to each problem identified in the Road Safety Audit and this is recorded in the Designer's response areas of the Audit report. The response will contain details of how the problems identified in the Audit report will be resolved. Where the Designer disagrees with the problems or recommendations identified in the Audit report, or decides that the solutions recommended are not appropriate, the response justifies the alternative action to be taken. The Audit report is then signed off by the Designer and sent to the Client for comments.

It should be noted that the Designer must demonstrate due consideration of the problems raised within the RSA report when responding to the RSA report.

0170.2.22. Provide Comments and Return to Audit Team

It is the responsibility of the Client to review the RSA report and ensure that each problem identified is given due consideration by the Designer, adding comments in the relevant sections of the RSA report as appropriate.

The RSA report incorporating the Designer's and Client Organisation's comments is signed off by the Client Organisation and a copy is forwarded to the Audit Team Leader for information.

The Audit report is not an opportunity for the Client and the Designer to document their differences. Any disagreements relating to the progression of the proposals should be discussed and agreed separately. The agreed way forward should be documented within the Designer's response section. The Client Organisation is encouraged to use the Client section to provide background information to complement the Designer's decisions that may be beneficial to those reading the Audit report.

The Client Organisation should familiarise themselves with the requirements of CDM when issuing instructions to the Designer that could constitute a design decision.

The Client Organisation commissions the Design Organisation or others if applicable, in respect of changes required to the scheme arising from the Audit response. A scheme should be submitted for Audit again if significant changes are made to it as a result of an Audit.

The response sections of the Audit report must be completed before the next stage in the scheme's development is begun.

0170.2.23. Save Completed Audit Report and Responses

It is the responsibility of the Client Organisation to retain a copy of the signed final Road Safety Audit Report incorporating the Road Safety Audit Response. Filing and retention arrangements for Road Safety Audits must pay due regard to complying with the Freedom of Information Act. It is the responsibility of any Client Organisation to ensure all Road Safety Audits are retained in accordance with their own Policy.

Outputs:

- Road Safety Audit Report with Designer's Responses and Client Comments

7 Relevant Documentation

- Auditor Verification Form
- Collision Risk in Greater London
- External Audit Brief Checklist
- External Post-Construction Audit Report
- External Pre-Construction Audit Report
- External Stage 4 Audit Report
- Glossary
- Internal Audit Brief Checklist
- Internal Post-Construction Audit Report
- Internal Pre-Construction Audit Report
- Internal Stage 4 Audit Report
- Non-Audit Note

NB: External Parties can also email TfLSafetyAudit@tfl.gov.uk to obtain any relevant documentation.

8 Document Control

Issue	Date	Change Summary	Author	Checker	Approver
Previous version 9 now archived and migrated to new SharePoint platform as version 1 on 26/02/16. Contact QMS@tfl.gov.ukto access archived versions.					
1	26/02/2016	Update onto new template. Process updated following revision.	L Pan (Highways Specialist Engineer)	B Schoenmakers (AMD QMS Support)	A Coventry (Road Safety Audit Manager)

SCOPE

APPENDIX J
Requirements for the Development and Acceptance of Proposals for Structures & Tunnels Capital Schemes

ASSET MANAGEMENT DIRECTORATE

REQUIREMENTS FOR THE DEVELOPMENT AND ACCEPTANCE OF PROPOSALS FOR STRUCTURES & TUNNELS CAPITAL SCHEMES

GUIDANCE FOR TFL

GUIDANCE NOTE - SMT/GN/02/14

Rev	Purpose of Issue	Originated	Reviewed	Authorised	Date
0	Final	Stephen Pottle	Anil Kumar	Stephen Pottle	Apr 14

CONTENT

GLOSSARY

Accepted Design	The design accepted by the Sponsor at the end of Stage 4 – Detailed Design, which will form the basis for construction.
Accepted Option	The option(s) accepted by the Sponsor at the end of Stage 2 – Feasibility, which will be developed further during Stage 3 to produce the Accepted Solution.
Accepted Solution	The solution accepted by the Sponsor, subject to further design development and technical approval.
Asset	Physical road infrastructure and other items that have a distinct value to TfL. Assets owned include, carriageway, footway, structures, tunnels, lighting, drainage, street furniture and soft estate.
Analysis Period	The period, in years, for a Whole Life Cost (WLC) analysis.
Client	The Structures & Tunnels Team.
Concept Design	The Accepted Option is developed to define the structural form and construction method sufficiently to allow the Approval in Principle document (where applicable) to be accepted and other approvals and consents obtained. It sets out the basis for the Accepted Solution and the outline Implementation Methodology. Key risks and mitigation actions are identified.
Detailed Design	During the detailed design stage all components, materials properties, specifications and construction methodologies will have been finalised for all temporary, advance and permanent works. Design checks and other technical approvals will be complete.
Implementation Methodology	The method and sequence of constructing the works.
Preferred Option	The option recommended by the Project Manager for acceptance by the Sponsor.
Proposal	A proposal is for works intended to be undertaken which directly affect, or have the potential to affect, the safety, operation or maintenance of the TLRN and its associated assets.
Risk	An event or hazard that has the potential to hinder

	the achievement of TfL objectives.
Sponsor	The Head of Structures & Tunnels or his delegate
Technical Approval (TA)	The submission of Proposals for agreement by the Technical Approval Authority and the subsequent provision and acceptance of certificates confirming that the design, assessment, specification or construction works complies with the project requirements, agreed Approval in Principle and design/assessment specification certificates as appropriate. Technical approval may need to be sought from more than one TfL department and/or third party organisation.
Technical Approval Authority (TAA)	The organisation responsible for agreeing the technical aspects of a proposal, design or assessment and subsequently accepting the relevant certificates. In this instance the Structures & Tunnels Team.
Third Party	Any person, organisation or other legal entity that is not employed directly or indirectly by TfL Surface Transport.
TLRN	Transport for London Road Network. The network of roads and associated assets that are owned and maintained by Transport for London
Value Engineering	A systematic approach for assessing and comparing the technical and economic aspects of project options using techniques such as Whole Life Costing.
Value for Money (VfM)	The balance of TfL objectives, for example, safety, functionality, financial and environmental risks before and after works assessed against cost over a defined analysis period.
Value Management	A systematic approach for identifying, assessing, prioritising and optimising a portfolio of projects, based on an agreed set of Value Criteria, which maximises contribution to the objectives for a defined budget.
Whole-Life Cost	An assessment of the projected significant and relevant costs over the assessment period, including financial costs to the organisation and costs to the economy.

1. BACKGROUND

1.1. This note provides guidance to Project Managers, LCMT, Consultants, Contractors and other parties managing and delivering Structures and Tunnels projects and forms part of the Technical Approval Process.

1.2. The quality of the submissions made to the Client and the TAA for consideration vary considerably, often falling short of the required content or quality, meaning that additional information is required and that delivery of a project is delayed. Information submitted at each stage is required by the Client and the TAA to determine the suitability of proposals, that the project requirements are satisfied and that value for money is demonstrated at all stages.

1.3. The aim of this guidance is to provide clarity on the minimum information required at each stage, improve consistency and ensure that the various parties involved are aware of the requirements. As a result the amount of time taken to review and accept submissions should be greatly reduced and thus delays to scheme implementation prevented and costs reduced.

1.4. The guidance in this note is aligned with the Pathway Stages. The information requirements set out in the following sections are in addition to those required by Pathway and are considered the minimum to enable the Client to recommend the Sponsor's Decision at each Stage Gate. This does not remove the requirement for the Project Manager to produce relevant Pathway documents as defined in the PPMP and agreed with the Sponsor.

2. INTRODUCTION

2.1. The guidance in this note covers all types of Structures and Tunnels capital schemes, including, maintenance, strengthening, replacement and new build.

2.2. The review and acceptance process is outlined below. At each stage the Project Manager must satisfy the project requirements before submitting further details and progressing to the next stage. The stages of development of proposals are as follows:

a. **Stage 1** – Outcome Definition

b. **Stage 2** – Feasibility

c. **Stage 3** – Concept Design

d. **Stage 4** – Detailed design

e. **Stage 5** – Delivery

f. **Stage 6** – Project Close

2.3. During all stages the Project Manager will need to demonstrate that the items below have been considered and that the design mitigates the effects on the TLRN and other TfL assets as far as is reasonably practicable, including minimising disruption to all road users during the works. The Project Manager will need to consider the effects on TfL owned assets and assets owned by third parties in the vicinity of the proposed work. These effects will include:

a. Effects on safety of the road user
b. Effects on functionality of assets
c. Effects on the ability of the relevant authority to efficiently and effectively operate the road network, other transport networks, utility service etc.
d. Effects on the ability of the asset owner to efficiently and effectively maintain the asset
e. Effects on the environment
f. Effects on whole-life costs.

<u>Development of Proposals</u>

2.4. As stated above the proposals will go through several stages of development and acceptance prior to works commencing on site. The level of detail required will depend on the complexity of the proposal and the potential effect it has on the surrounding environment. A summary of the requirements of each stage is given below. Details of the submissions to be made to obtain acceptance are given in sections 3 to 8.

2.5. **Stage 1** – Outcome Definition; this stage is generally managed by the Client. However, depending on the scale and complexity of the proposal assistance may be sought from others in delivering the information required in order to effectively define the project, write the Business Case and produce the Project Requirement for the next stage.

2.6. **Stage 2** – Feasibility; the Project Manager shall submit a detailed feasibility report which considers options for meeting the Project Requirements and recommends a preferred option for development during the concept design stage. This stage is generally managed by the Client with support and assistance from other departments. This stage is complete once the requirements set out in section 3 are completed to the satisfaction of the Sponsor. Towards the end of this stage the business case will be updated.

2.7. **Stage 3** – Concept Design; usually commences once the preferred option has been agreed by the Sponsor. Concept design is the development of the preferred option to the point where the design principles are agreed and the accepted solution is agreed. The concept design stage is complete once the requirements set out in section 4 have been completed to the satisfaction of the Sponsor.

2.8. **Stage 4** – Detailed Design; is the development of the accepted solution to produce information for construction and satisfy the requirements set out in Section 5. Detailed design usually commences once the requirements of Stage 3 have been satisfied. However, in practice there is generally some overlap, with some details needing to be developed earlier, depending on the type and complexity of the proposal, to quantify and reduce risks.

2.9. **Stage 5** – Delivery; the works may only commence on site once the Sponsor is satisfied that all the requirements have been met in the preceding stages. Any changes to the accepted design that are required during the works that vary from the accepted design or implementation methodology will need to be resubmitted to the Client for review and acceptance prior to the affected item of work proceeding. Failure to gain further acceptance to changes as the works proceed may result in the Client not accepting parts or all of the final construction and therefore may cause delay and additional cost to the project.

On completion of the works the Project Manager will need to handover the asset to the Client to enter into normal operation and use. The Project Manager shall submit a Certificate of Compliance to the TAA for acceptance, confirming that the works have been completed in accordance with the accepted design. For large or complex projects, completion may be phased with several Certificates of Compliance being submitted. Failure to provide evidence that the works have been completed in accordance with the accepted design may result in the Client not accepting the asset into operation or additional works being required. The requirements for this stage are set out in Section 6.

2.10. **Stage 6** – Project Close; the requirements for this stage are set out in Section 7.

2.11. The Project Manager should agree in advance with the Client, as far as is reasonably practicable, the list and type of documents and evidence expected at each stage of the project. Early involvement is encouraged, preferably before Stage 1 commences to ensure that the project

requirements are properly conveyed to avoid abortive costs and unnecessary delays.

Timescales

2.12. The Project Manager should allow a minimum of 28 working days in his programme for the formal review and acceptance of each submission at each stage. In practice the Project Manager should avoid submitting large volumes of information until the end of the stage, but should involve technical approvers and the Client throughout the development of each stage. This will help to ensure that final acceptance is undertaken as quickly as possible.

2.13. The ability of the Client to meet the stipulated timescales will depend on many factors including:

a. The size and complexity of the project
b. The quality of submissions received
c. The number of TfL departments that need to be involved with the review and acceptance process
d. The availability of Client resources
e. The number of departures from standards, relaxations, use of non-standard or unusual practices, materials etc.

3. STAGE 2 - FEASIBILITY

3.1. The submission of proposals and consideration of feasibility and options is part of the technical approval process (see TfL guidance note SMT-GN03 for more details).

3.2. The Project Manager will need to demonstrate that his proposals are feasible and that options have been considered which demonstrate that the effects of the proposal on the TLRN and associated assets as set out in 2.3 above have been minimised as far as reasonably practicable.

3.3. Early consultation with relevant Client and Technical Approvers is recommended prior to the commencement of the feasibility and options appraisal. This will ensure that all parties are able to properly convey their requirements and that timescales are understood along with the need for any third party approvals e.g. planning consent.

3.4. Proposals cover both permanent and temporary works required that directly affect or have the potential to affect the operation of the TLRN, existing TfL assets or the safety of those using the TLRN. The proposals will also need to consider the effects on assets and infrastructure which is not owned or operated by TfL.

3.5. The feasibility and options appraisal shall, as a minimum, consider aspects relating to the items below:

a. Safety

b. Sustainability

c. Environment

d. Aesthetics (of the asset and the surrounding environment)

e. Buildability (the extent to which the design facilitates the ease and safety of construction, taking into account the need to minimise disruption to the operation of the TLRN and minimise the effects on other assets in the vicinity of the proposed works)

f. Structural robustness (the proposal shall consider the ability of the structure not to be damaged disproportionately in the event of an accident, misuse or deterioration)

g. Structural resilience (the proposal shall consider the ability of the structure to resist deliberate damage which may arise from the action of vandals, thieves and terrorists)

h. Durability (of the TLRN or associated assets)

i. Maintenance and operational impact to TfL and other transport operators. Consideration shall be given to design options and materials etc. that minimise whole life costs.

j. Provision of safe access for routine inspections and maintenance

k. Consideration of the potential need to procure specialist services, components materials etc., including timescales for procurement and sourcing.

3.6. The aim of the feasibility and options appraisal is to review all available options and where possible agree a single accepted option with the Client and TAA, which can be taken forward for further development during the concept design stage. In some instances it may be desirable to develop more than one option.

3.7. Depending on the scale and complexity of a particular proposal the Client may require an independent reviewer to be appointed at this stage to challenge the proposals and the assumptions made to verify that the options considered are the most appropriate.

3.8. It is likely that in most instances the most appropriate way of presenting the options considered and the preferred option is in the form of a report. Guidance on the content which the Client expects to see included in the report is given in Appendix A. Early engagement to agree the structure and content is encouraged.

3.9. Guidance on the level of detail expected to support the proposals is set out below. This guidance supersedes the requirements set out in Pathway.

a. Front Cover – this should include

- Name of the organisation employed to draft the report
- Proposal name (for large or complex proposals more than one report may be required for discrete elements of the proposal. In this instance the front cover should identify which part of the proposal the report deals with)
- A unique reference for the report that can be used to reference any queries or comments.

b. Signature Sheet – should provide the name, signature, position, job title and qualifications for the following:

- The person and organisation who has produced the report
- The person and organisation reviewing or checking the report
- The approver of the report
- The Project Manager
- Endorsement by the Client

c. Executive Summary – should provide a summary of the key issues, options considered, conclusions and recommendations. It should enable the reader to obtain a clear understanding of what action is being proposed, estimated costs, timescales and key risks.

d. Location Plan – should be to a minimum scale of 1:10,000. It should enable the reader to clearly identify where the asset is and how to get there. Key road names/numbers, stations and other key features should be shown. The TfL assets under consideration should be clearly identified and the names/asset identification

number given. Assets owned by other organisations that are affected by the proposal should also be identified.

e. Introduction – should provide the following details:

- Aims of the study
- Background to the report being commissioned
- Where more than one organisation has contributed to the report, each organisation shall be identified along with their contribution
- Description of the asset(s) affected. This should include a description of assets owned by TfL and where applicable those owned by other organisations
- Scope of report including exclusions
- Photographs may be required to assist in setting the context of the assets and areas under consideration which are affected by the proposal
- Detailed description of the elements of any TfL assets being considered in the report.
- Constraints imposed by TfL or other consultees.

f. Existing Information – existing information may come from a variety of sources, including, TfL, statutory consultees, surveys procured by other departments etc.

The Client may provide existing information pertaining to the TLRN or associated assets to assist in the development of the proposals. This information is provided in good faith, but the accuracy or completeness is not guaranteed. It is the responsibility of the Project Manager to review any information provided and validate its suitability for use in developing their proposals.

The Project Manager shall provide the following information relating to any existing information used to develop their proposals:

- Details of existing TfL assets (e.g. inspection and assessment reports; record drawings, H&S files etc.)
- Information about statutory undertakers equipment on or in the vicinity of the proposal
- Inspections, testing and investigations (e.g. ground investigations, trial holes, materials testing etc.)
- Environmental reports
- Traffic models and modelling reports
- Previous consultations undertaken
- The source of any information should be provided along with comment about its completeness and validity

Where existing information is not available or incomplete, details of any assumptions should be given. Details of any additional works, investigations etc. which are proposed in order to fill any gaps in knowledge or validate existing information should also be provided.

g. Inspections, Investigations and Defects – details of current inspections or investigations undertaken by the Project Manager to aid development of his proposals should be provided. Where investigations are extensive, a summary may be provided with reference made to the full report(s) which must also be submitted.

   Where previous inspection, investigations and testing have been undertaken, details should be summarised in this section. Where inspections etc. have been repeated over a period of time, a comparison of the results should be made to detect if there are any patterns or trends that support any assumptions made and also to help ascertain any rate of change.

   Where existing defects to TfL assets are evident, factual details should be provided along with an interpretation to the cause. If there are any contributing factors to the cause of a specific defect these should be stated, along with any evidence supporting their inclusion. The Project Manager will need to submit details to the Client for acceptance of how he intends to rectify or monitor the defect as part of the proposal.

h. Summary of Assessment Results – if a structural load assessment to determine the load carrying capacity of an existing TfL, or third party, asset was required to aid development of the proposal, a summary shall be included in the report. The full structural assessment report shall also be provided.

   If existing structural assessment are provided by TfL for information and used by the Project Manager to aid development of the proposals, the Project Manager shall justify their use and detail any assumptions made. The Project Manager shall also detail how he intends to verify these assumptions and at what stage of the project.

i. Options – all possible options should be considered at this stage. There may be many options or just a few, but all permutations should be considered separately and in detail.

   A baseline option against which all others are compared should be given. In most instances this is likely to be the “do minimum” option and will be to maintain the TLRN and its associated assets in their existing state in perpetuity. If the “do minimum” option is not the preferred option, the Project Manager shall provide justification for this conclusion.

   For each option the following information should be provided:

   - Description of the option
   - Drawings and/or sketches – these should generally be provided to illustrate each option and enhance the readers understanding of what is being proposed/discussed. Each drawing or sketch shall be given a unique title and reference.
   - Any assumptions made and justification

- Details of measures that have been considered to minimise the effects on the TLRN and its associated assets: during the works and on completion, during operation and maintenance.
- Details of measures which have been considered to minimise the effects on traffic during, construction, maintenance and operation phases.
- Discussion on any proposed departures from standards, relaxations etc.
- Health and safety consideration, hazards and risks
- Environmental consideration, hazards and risks
- Key risks and measures required to mitigate
- Advantages and disadvantages of each option
- Outline timescale for delivery
- VfM appraisal in accordance with the requirements of documents SQA-0510 – SQA-0513
- Whole life costs (the return period should be agreed with the Client prior to commencing the WLC analysis).

j. Environment, Health & Safety – records of early hazard identification and risk assessments should be provided. Issues relating to ecology, aesthetics and heritage may be featured. Consultation with groups such as the Environment Agency may be required.

k. Traffic Modelling – details of any traffic models used to develop the proposals shall be provided along with any validation undertaken and whether the output has been accepted by TfL.

l. Crime and Disorder Act – details should be provided of any issues that arise as a result of his proposal that may affect TfL's ability to comply with the requirements of the Crime and Disorder Act. There may be a number of solutions to mitigate these issues and the merits of each will need to be discussed.

m. Disability and Discrimination Act – the report should outline how the options will maintain or enhance provision for those that are less able. Wherever possible the project should seek to make improvements.

n. Discussion – there may be several combinations of options which are viable and the merits of each will need to be discussed in detail. The discussion should focus on how the proposals minimise the impact on TfL assets and the operation and maintenance of the TLRN. Reference should be made to requirements and constraints set by TfL and other consultees and evidence provided of how the options satisfy them.

o. Conclusions and Recommendations – should be succinct and unambiguous.

p. Value Management – at least one value management exercise shall be undertaken during this stage of the project. Participants shall be agreed with the Client. The outcome of the VM exercise

shall be summarised in the options report and support the selection of the preferred option.

4. STAGE 3 – CONCEPT DESIGN

4.1. The concept design stage (also often referred to as the preliminary design stage) will further develop the accepted option, identified and agreed with the Sponsor as the outcome from Stage 2. The accepted option shall be optimised to:

- Reduce disruption to the TLRN
- Ensure that whole life costs to TfL do not increase as a result of the proposal.
- Eliminate as far as reasonably practicable any effects on existing TfL assets on completion of the works. Where the effects cannot be eliminated they shall be minimised to the satisfaction of the Client. Where the effects result in additional ongoing maintenance costs to provision should be made within the project budget to cover this. The Operations Team may need to agree in principle before the concept design is accepted.

4.2. The concept design package shall provide sufficient information and evidence to demonstrate compliance with the project requirements and to justify their viability. Potential risks and hazards during the whole life of the affected asset(s) such as execution, operation, maintenance and demolition must be identified, assessed and considered with a view to eliminating or minimising them to the satisfaction of the Client.

4.3. The concept design shall consider aspects relating to the items set out in 3.5 above, in respect of the TLRN or TfL asset affected by the proposed works.

4.4. The Project Manager must provide sufficient information to enable the Client to carry out the following aspects where appropriate:

a. Appraise the proposed design or assessment criteria, principles and methods

b. Agree the required working life for the TfL asset and its main components

c. Ensure consideration has been given to any special studies concerning safety and risk assessment and management that have a bearing on the final design or assessment or the construction process

d. Be satisfied that adequate consideration has been given to safety, sustainability, buildability, traffic management, environmental impact, aesthetics, structure robustness, durability, maintainability, access and inspection, upgradeability, whole life costs, demolition and compliance with the project requirements

e. Agree applicable standards, good practice guidance, departures from standards and relaxations to standards

f. Appraise geotechnical conditions and other relevant investigations

g. Appraise the adequacy of existing records and investigation data and the need for further investigations or studies that have a

significant bearing on the concept or detailed design, assessment, execution, operation, maintenance or demolition processes

h. Review the adequacy of consultation with other stakeholders and incorporation of agreed requirements

i. Agree any checking or verification procedures

j. Demonstrate value for money.

4.5. The concept design package may comprise the following documents:

a. Approval in Principle (see TfL guidance note SMT/GN/03)
b. Details of Statutory Undertakers apparatus
c. Reports justifying approach taken or assumptions made
d. Findings of surveys, investigations, trials, testing and the like
e. Drawings
f. Preliminary specifications
g. Design hazard identification and risk assessments
h. Designers environmental risk assessments
i. Programme for the detailed design stage
j. Pathway documentation

4.6. Where an Approval in Principle document is required, concept design shall be deemed completed once the AIP has been agreed and endorsed by the Technical Approval Authority.

4.7. At least one value engineering exercise shall be completed during this phase of the project. Participants to be agreed with the Client. The outcome of the VE exercise shall be used to support the selection of the preferred solution.

4.8. The concept design package forms part of the products required to provide assurance that the design is sufficiently developed and that the project is fit to proceed to the next stage. Other documents and information may be required including those defined in the Pathway process.

5. STAGE 4 – DETAILED DESIGN

5.1. The Client will not consider detailed design information until the concept design stage has been completed to their satisfaction.

5.2. Details of the design shall be submitted to the Client and TAA for review and acceptance. The design package must have sufficient detail to allow the Client to:

a. Assess compliance with the project requirements

b. Be confident that stakeholders have been consulted and that their requirements have been taken into account

c. Be confident that any temporary works do not have a detrimental effect on the TLRN or any associated assets

5.3. The detailed design package may comprise:

a. Design/assessment and check certificates
b. Design/assessment and check calculations
c. Temporary works design and check certificates
d. Traffic management details
e. Drawings
f. Specifications
g. Design hazard identification
h. Proposed construction phasing and methodology
i. Construction phase programme
j. Updated EFC
k. Pre-construction information
l. Third party consents and approvals
m. Pathway documentation

5.4. Where applicable detailed design shall be deemed completed once the design and check certificates have been fully endorsed.

5.5. At least one value engineering exercise shall be completed during this phase of the project; however, depending on the size and complexity of the project more than one may be necessary. The Project Manager shall agree with the Client at the beginning of the stage how many VE exercises are required, the participants and timings. The outcome of the VE exercise shall be used to support the specification of the accepted design.

5.6. The detailed design package forms part of the products required to provide assurance that the design is sufficiently developed and that the project is fit to proceed to the next stage. Other documents and information may be required including those defined in the Pathway process.

6. STAGE 5 – DELIVERY

6.1. Prior to the commencement of works the Project Manager shall submit to the Client the following information:

a. Temporary works drawings and design and check certification
b. Fabrication drawings
c. Inspection and testing plans
d. Method statements
e. Programme
f. Construction phase plan
g. Commissioning and handover plan

6.2. Unless agreed otherwise construction works shall not commence until the accepted design and the documents above have been fully endorsed by the Client.

6.3. Changes to the design made during the delivery stage shall be submitted to the TAA for review and acceptance. In general changes which have an adverse effect on the following may not be accepted:

a. Durability
b. Safety
c. Quality
d. Functionality
e. Outcome/benefits
f. WLC
g. Maintenance and operation

7. STAGE 6 – PROJECT CLOSE

7.1. Within one month of completion of the works the Project Manager shall submit the following:

a. Record information in accordance with TfL document SMT/GN???

b. Construction compliance certificates

c. Health & Safety File (sections relevant only to the TLRN and associated assets)

7.2. Details of the requirements of the H&S file are given in TfL Guidance Note SMT/GN ??

7.3. Where the works affect and existing TfL asset or relate to a new asset to be adopted by TfL, the Project Manager shall arrange for a joint handover inspection. As a minimum the following shall attend:

a. The Project Manager's representative

b. The Contractor

c. The Designer

d. TfL technical approval staff

e. TfL maintenance and operations staff

7.4. Requirements for the handover and acceptance inspection are given in Appendix B.

7.5. Where the handover and acceptance inspection identifies items which are not to the satisfaction of the Client, the Developer shall submit details of how they intend to rectify them.

8. QUALITY ASSURANCE

8.1. All information and documents submitted to the Client and TAA for consideration and record purposes shall be complete and evidence shall be provided that they are compliant with relevant quality assurance procedures i.e. it should be clear who has produced the documents and that they have been checked/reviewed and approved by competent authorised people within the relevant organisation. Where a document has been produced with contributions by more than organisation, the lead organisation shall endorse the document as if it were their own. Evidence shall be provided that the Project Manager has reviewed the documents to be submitted and that they are fit for submission to the Client.

8.2. Information and documents supplied which do not comply with the above may be rejected.

APPENDIX A

FEASIBILITY AND OPTIONS REPORT CONTENT

A1 A suggested list of content is given below. The actual content will vary depending on the type and complexity of the project and should be agreed in advance with TfL

- Front cover
- Signature sheet
- Executive summary
- Location plan
- Contents
- Introduction
- Existing information
- Summary of inspections, investigations and defects
- Summary of assessment results
- Summary of traffic modelling undertaken to support the preferred option
- Options
- Economic analysis
- Programme
- Health and safety considerations
- Environmental considerations
- Compliance with Section 17a of the Crime and Disorder Act
- Compliance with the Disability and Discrimination Act
- Discussion
- Conclusions
- Recommendations
- Appendices

A. Photographs
B. Results of any investigations, testing etc. e.g. trial hole sketches
C. Drawings
D. Utility plans
E. Outline programme(s)
F. Cost estimates for each option
G. Health and safety risk assessments
H. Environmental risk assessments
I. Whole life cost analysis
J. Bibliography

A2 Further guidance on the content of Appendices:

APPENDIX TITLE	**CONTENT**
Photographs	i. Each photograph should be given a unique reference number ii. A description of the detail each photograph is shall be given

APPENDIX TITLE	CONTENT
Results of investigations, testing etc	i. Where investigations, testing, trials holes and other special inspections are undertaken as part of the options appraisal the details and purpose of the tests should be given. ii. Where the results of the special inspection are extensive it may be more appropriate to make reference to a separate report and simply provide key figures and other information which helps the reader's understanding of the issues concerned.
Drawings/sketches	i. Drawings/sketches should be given a unique reference. ii. In general drawings/sketches should be to an appropriate scale
Utility plans	i. Drawings showing the line, level, number, size etc. combining all utilities shall be provided. TfL is particularly interested in the interaction with existing TfL assets. ii. The location of proposed new utility apparatus shall be shown. iii. Details of the statutory undertakers consulted should be provided. iv. Copies of the plans provided by each statutory undertaker should be included. v. The plans should be in colour.
Stakeholder consultation	i. Details shall be provided of any stakeholders consulted and the outcome of each consultation.
Outline programme	ii. The outline programme should be of sufficient detail to demonstrate that the key work activities required and the constraints imposed by TfL or other approving bodies have been taken into account. Appropriate allowances for review and approval periods shall be included.

APPENDIX TITLE	CONTENT
Cost estimates (where required) including WLC	i. The cost estimates for each option should be broken down into their constituent parts to demonstrate how the final cost has been built up. The year on which estimates are based should be stated. ii. The basis for the rates and process used to build up the cost estimate shall be stated iii. In general the breakdown of costs should not be less than the items given on the outline programme. iv. Any assumptions should be clarified and clearly stated. v. Any costs not included should also be clearly stated along with the reason for their omission vi. A detailed breakdown of the WLC analysis shall be given..
Health and Safety Risk Assessments	i. The health and safety risk assessments should be built up by the designer and author of the report as the work progresses. The key risks should be identified along with the measures proposed to mitigate them.
Environmental risk assessments	i. The environmental risk assessments should be developed in a similar manner to the health and safety risk assessments outlined above.

APPENDIX B

REQUIREMENTS FOR HANDOVER AND ACCEPTANCE INSPECTIONS

Introduction

B1 In general, the purpose of a handover and acceptance inspection is to provide a formal mechanism for exchange of information and documentation and agreeing the current status of, and any outstanding work on a TfL asset prior to the Client accepting that the works have been completed to their satisfaction.

B2 The format, content and timing of a handover and acceptance inspection depends on its specific purpose and shall be agreed with the Client in advance.

B3 A handover and acceptance inspection must be undertaken for new structures and reconstructions or major modifications to existing TfL assets. For other projects, the requirement for an acceptance inspection should be agreed prior to commencement of the delivery stage.

B4 An acceptance inspection shall be organised by the Project Manager and shall be undertaken jointly between the Project Manager's representative and the Client, with the Client leading the inspection.

B5 The nature, extent and timing of the inspection shall be agreed in advance with the Client and TAA. In general, the inspection shall be undertaken within touching distance. The Project Manager shall provide suitable access, traffic management etc to facilitate this.

B6 Wherever possible the opportunity should be taken to make use of existing traffic management and access arrangements or to combine the inspection with inspections/ checks already scheduled to minimise disruption as much as possible.

B7 The inspection shall record any defects or work outstanding and any works that must be undertaken to satisfy the requirements of the Client.

B8 On completion of the inspection a report shall be produced detailing all defects/works outstanding identified during the inspection.

B9 The Client will notify the Project Manager of all defects/works outstanding and determine those which need to be completed prior to acceptance of the works. In some instances traffic management may not be removed until the defect has been rectified.

B10 In some instances TfL will have agreed a defects liability period with the Contractor during which the Contractor will be responsible for defects in their work. The defects liability period usually commences once the Client is satisfied that the works are complete.

B11 The Contractor is liable for all defects resulting from the work he has undertaken and includes for making good any latent defects or developing problems that appear.

B12 A further acceptance inspection may be required at the end of the defects liability period.

Handover of Assets

B13 Where existing TfL assets have been altered or affected by the works, the inspection should enable a comparison of the current condition and performance of the asset, against the starting condition or performance prior to the commencement of the works. In general the asset shall be handed over to TfL on completion of the works in the same or better condition than before the works commenced.

Records

B14 Inspection records shall be agreed with the Client prior to the inspection taking place and shall be commensurate with the circumstances and scope of the inspection. As a minimum the records shall comprise:

a. Date and time of the inspection

b. Details of those involved from each organisation involved in the inspection

c. Identification of any defects to be rectified. This should include, as appropriate, the identification of developing problems and work outstanding and securing agreement on any works to be completed before acceptance by the Client.

d. Any permanent access provisions and features affecting general safety and security of the asset. These shall be discussed in detail and agreement reached prior to acceptance by the Client.

e. Any outstanding responsibilities the Project Manager retains after completion of the works.

f. Any special inspection requirements.

g. An acceptance inspection must also facilitate the identification and handover of all the necessary records (electronic and/or hard copies), which have an impact on the current and future management of the asset. Details of appropriate records are given in TfL guidance note SMT/GN/??.

APPENDIX C

REFERENCES & ADDITIONAL GUIDANCE

TfL Guidance Notes and Standards

SMT/GN/03 – Technical Approval

Cyclists at Roadworks

SQA-0510 – Value Management of the Capital Renewals Programme - Part 1: Overview

SQA-0511– Value Management of the Capital Renewals Programme - Part 2: Carriageways

SQA-0512 – Value Management of the Capital Renewals Programme - Part 3: Footways

SQA-0513 – Value Management of the Capital Renewals Programme - Part 4: Structures

TfL Pathway

Streetscape Guidance for the TLRN

London Cycling Design Standards

Highways Agency Guidance

The Design Manual for Road and Bridges

Other Guidance

The Management of Highway Structures – A Code of Practice

Whole Life Cost Analysis – LoBEG Good Practice Guide

SCOPE

APPENDIX K1
Information Model Requirements

TfL Pathway

Part of the TfL Management System

Information Model Requirements

Project * Programme *	Name of Project or Programme

Reference	Recognised reference code (e.g. profit centre, UIP, etc.)

Stage	Pathway Stage

Responsible	Project Engineer	Name
	Signature	Date

Accountable	Project Manager	Name
	Signature	Date

Product History	**Version**	**Date**	**Summary of changes**
	0.1	dd/mm/yy	First draft

This document must be filed in accordance with the **document filing structure**

* Delete as appropriate (the Accountable person should always be at least one management level higher than the Responsible person).

TRANSPORT FOR LONDON

Information Model Requirements

These Information Model Requirements are based on the Construction Industry Council Building Information Modelling Protocol (CIC/BIM Pro first edition 2013), the copyright of which belongs to the Construction Industry Council.

1. DEFINITIONS

1.1 In these Information Model Requirements unless the context otherwise requires, the following words and phrases shall have the following meanings:

1.1.1 **Building information Modelling (BIM)**: As defined in section 1.2 of the Exchange Information Requirements (EIR)

1.1.2 **Common Data Environment** agreed source of information for any given project or asset for collecting, managing and disseminating each information container through a managed process.

1.1.3 **Data Authoring** : Creation of Production Information and Handover Information

1.1.4 **Data Capture**: Collecting, from various sources structured information relating to asset(s).

1.1.5 **Data Coordination**: Use of structured data about the asset(s), to virtually assure and evidence coordination across all task teams, existing infrastructure and adjacent works.

1.1.6 **Data File**: A computer file containing digitized geometrical, numerical, text, audio or video information which can be used by a computer application or system.

1.1.7 **Data Simulation**: Use of structured information to virtually test the design, construction, operation and maintenance of the asset(s).

1.1.8 **Data Validation**: Rule based tools used to validate and check all Production Information and Handover Information against the EIR and Standards.

1.1.9 **Data Visualization**: Visually representing structured information to support decision making.

1.1.10 **Document Rendition**: A data file in an immutable format, derived from a Document Definition.

1.1.11 **Federated Model** means a Model consisting of connected but distinct individual Models.

1.1.12 **Information container**: named persistent set of information retrievable from within a file, system or application storage hierarchy

1.1.13 **Information Execution Plan**: plan that explains how the information management aspects of the service/task will be carried out by the delivery team

1.1.14 **Information model** is a set of structured and unstructured information containers

1.1.15 **Information Management Role** means a role in connection with the Service/Task which includes, inter alia, the establishment and management of the processes, protocols and procedures set out in the Information Requirements.

1.1.16 **Information Manager** means the person appointed, initially by the Client and subsequently by the Contractor, to perform the Information Management Role.

1.1.17 **Information Providers Models** means any Models which Other Information Providers produce and deliver as specified in the Model Production and Delivery Table[7] and any Federated Models (or any part there of) produced and delivered by Other Information Providers.

1.1.18 **Information Requirements** means the Information Requirements (Appendix 1) in relation to a Service/Task. The information requirements are the specification for what, when, how and for whom information is to be produced. .

1.1.19 **Level of Information need** means the framework which defines the extent and granularity of information

1.1.20 **Master Information Delivery Plan (MIDP)** is the plan incorporating all the relevant Task Information Delivery Plans.

1.1.21 **Model** means a digital representation of part of the physical and/or functional characteristics of the Service/Task

1.1.22 **Model File**: Computer Aided Design (CAD) file(s) containing shape(s) with defined origin, orientation and dimensions, communicating the physical characteristic of the assets. A Model File may also include Non-Graphical Data, associate to the CAD file(s) and / or shape(s), identifying the functional characteristics of the asset(s).

1.1.23 **Native File**: Original graphical data and / or non-graphical data file in its default format, as created in the authoring tool.

1.1.24 **Project Data Environment**: A system which forms part of the Common Data Environment and is accessible to the Client, the Contractor, or any employee, Subcontractors or supplier of the Contractor, the Service Manager, the Supervisor and Others (as applicable). It is used to manage and exchange the master version of all shared Production Information and Handover Information.

1.1.25 **Production Information and Handover Information**: The Model File(s), Composite Model(s), Non-Graphical Data, Document Definition(s) and Document Rendition(s) [which have been agreed between the Parties] to be produced, updated and maintained and delivered during the project, as set out in the MIDP(s) until the Defects certificate is issued. Referred to as the Project Information Model (PIM) within BS EN ISO 19650-1-2018.

1.1.26 **Project Information Exchange (PIx) Protocol – IT Assessment form**:

A mechanism for capturing the *Client*, *Contractor's*, Subcontractors and supplier's information exchange capability and IT maturity. The forms are to be used to identify any restrictions or limitations in the production, use and management of the Production Information and Handover Information. The forms also capture the agreed information exchange file formats and versions.

1.1.27 **Other Information Providers** means any person having responsibilities in relation to the production, delivery and/or use of Models and appointed by the Client in relation to the Service/Task, excluding the Information Providers.

1.1.28 **Task Information Delivery Plan (TIDP)** is the schedule of information containers and delivery dates, for a specific task team

1.1.29 **Specified Models** means the Model or Models which the Information Providers is to produce and deliver as specified in the Model Production and Delivery Table[7].

1.1.30 **Structured information containers**: include geometrical models, schedules and data bases

1.1.31 **Unstructured information containers**: include documentation , video clips and sound recordings

2. PRIORITY OF CONTRACT DOCUMENTS

2.1 These Information Model Requirements form part of the Form of Agreement.

2.2 In the event of any conflict or inconsistency between a Model prepared and delivered in accordance with these Information Model Requirements and any document or information extracted from such Model, except where the Information Requirements states otherwise, the Model shall prevail.

3. OBLIGATIONS OF THE CLIENT

3.1 The Client shall:

3.1.1 arrange for Information Model Requirements in substantially the same terms as these Information Model Requirements and for the obligations set out herein, or obligations which substantially reflect the requirements of these Information Model Requirements, to be incorporated into all Project Form of Agreements; and

3.1.2 save to the extent that such obligations are within the scope of the Information Provider's obligations under any other part of the Form of Agreement:

a ensure that until the end of the Service/Task the Information Requirements and the Model Production and Delivery Table are reviewed and updated at each Stage[7]; and

b ensure that the appointment of the Information Manager shall be changed or renewed as necessary to ensure that there is at all times until the end of the Service/Task a person performing the Information Management Role; and

3.1.3 comply with the Information Requirements.

4. OBLIGATIONS OF THE PROJECT TEAM MEMBER

4.1 The Information Provider shall:

4.1.1 produce the Specified Models (excluding any material forming part of the same which is provided to the Project Team Member by or on behalf of the Client) to the Level of Information specified in the Model Production and Delivery Table[7] using all the reasonable skill care and diligence normally used by an appropriate and competent professional designer experienced in producing models similar to the Specified Models in connection with projects of a similar size, scope and complexity and at a similar location to the Project, provided that if the Form of Agreement imposes a higher standard of care such higher standard shall apply; [1]

4.1.2 deliver the Specified Models at the Level of Information specified in the Model Production and Delivery Table [7]at the Stage specified therein and in accordance with the Information Requirements; [1]

4.1.3 use the Information Providers Models in accordance with any procedures therefore in the Information Requirements;

4.1.4 comply with the Information Requirements; and

4.1.5 arrange for these Information Model Requirements to be incorporated into any sub-contracts that it enters into in relation to the Service/Task to the extent required to enable the Information Provider to comply with these Information Model Requirements

5. ELECTRONIC DATA EXCHANGE

5.1 Without prejudice to the Information Provider's obligations under these Information Model Requirements and the Form of Agreement, the Information Provider does not warrant, expressly or impliedly, the integrity of any electronic data during the course of its transmission via the Common Data Environment, provided that the Information Provider has transmitted and verified such electronic data in accordance with the Information Requirements.

1 Only applicable to Project Task Orders

5.2 The Information Provider shall have no liability to the Client in connection with any corruption or unintended alteration of the electronic data in a Specified Model which occurs after it has been transmitted to the common data environment and verified by the Information Provider, in each case in accordance with these Information Model Requirements Form of Agreement, save where such corruption or alteration is a result of the Information Provider's failure to comply with these Information Model Requirements , the Form of Agreement or its failure to use due skill and care in the transmission or verification of the electronic data.

6. USE OF MODELS

6.1 Clause X10.6 of the Form of Agreement shall apply.

7. TERMINATION

7.1 Clauses 1, 2, 3, 5, and 6 of these Information Model Requirements shall continue to apply following termination of the Information Provider's employment under the Form of Agreement

APPENDIX 1

Information Requirements

The document(s) referred to as [the Exchange Information Requirements] contained within the [TBC] forming part of the Form of Agreement.

This section is for the use of the TfL PMO Pathway Team only

Product Details

Name:	BIM Protocol
Document No:	PD0240
SME:	TfL BIM Manager
Owned by:	Pathway Lead
Review Date:	March 2021

Product Version History

Revision	Date	Reason for Change
A1	06/03/2018	Template updated to reflect rationalisation of Product PD0203 A1 and Template F5711 A1 into one product. Change under CR-10013. Term BIM replaces use of IM&M or IMM.

SCOPE

APPENDIX K2
Exchange Information Requirements

Exchange Information Requirements (EIR)

Project * Programme *	Name of Project or Programme

Reference	Recognised reference code (e.g. profit centre, UIP, etc.)

Stage	Pathway Stage

Responsible	Project Engineer	Name
	Signature	Date

Accountable	Service Manager	Name
	Signature	Date

Product History	**Version**	**Date**	**Summary of changes**
	0.1	dd/mm/yy	First draft

This document must be filed in accordance with the **document filing structure**

* Delete as appropriate (the Accountable person should always be at least one management level higher than the Responsible person).

Product Context

Purpose	The Exchange Information Requirements (EIR) provides details relating to the data and information about the physical and functional characteristics of the Client asset and how these shall be captured, produced and managed by the Contractor. The EIR sets out standards to be used and identifies key decisions that will need to be made during the project to ensure the engineered solution developed meets project objectives, desired outcomes and benefits.

Applicability	The Exchange Information Requirements (EIR) is required for asset development or renewal projects and programmes.

Consult	**Role**	**Detail**
	Commercial Manager	Needs to understand the requirements and know that an EIR is in place to agree / recommend progression of procurement and contract award.
	Service Manager / Task Manager	Needs to ensure the requirements are aligned to the programme and / or project and know that an EIR is in place in order to approve progression through stage gates.
	Project Engineer	Needs to ensure the requirements are aligned to the programme and / or project and know that an EIR is in place in order to agree / recommend progression through stage gates.
	Programme BIM Manager	Will work with the Project Engineer to ensure that the EIR is understood and meets the needs of the project.
	Information Manager	Needs to understand the requirements and ensure information deliverables meet the requirements.

Inform	HSE Advisor	Needs to know content and that an EIR has been signed off and is in place for the project.
	Sponsor	Needs to know content and that an EIR has been signed off and is in place for the project.
	Document Controller / Document Manager	Needs to know content and that an EIR has been signed off and is in place for the project.
	CAD Manager / CAD Designer	Needs to know content and that an EIR has been signed off and is in place for the project.

Table of Contents

BIM Visions and Objectives

1.1. Purpose

1.1.1. This Exchange Information Requirements (EIR) describes how data and information about the physical and functional characteristics of the Client assets and infrastructure are to be captured, produced, generated, utilised and managed by its suppliers.

1.1.2. This EIR prescribes which standards are to be used and identifies key decisions to be made during the project to ensure the engineered solution developed meets Service/Task objectives, desired outcomes and benefits for BIM.

1.2. BIM Objectives

1.2.1. BS EN ISO 19650 1&2 2018 defines BIM as 'the use of a shared digital representation of a built asset to facilitate design, construction, and operation processes to form a reliable basis for decisions'.

1.2.2. BIM is a process involving the collaborative production, use and management of digital representations of the physical and functional characteristics of a facility / asset. The resulting information models, when fully coordinated, provide a shared knowledge resource to support decision-making about a facility or asset throughout its lifecycle from earliest conceptual stages, through design and construction, operation and maintenance and eventually decommissioning and demolition.

1.2.3. Transport for London has a strategic approach for the consistent adoption of BIM. The strategy includes an approach to describing information requirements across all aspects of the asset lifecycle.

1.3. Client BIM Objectives

1.3.1. The Client's objectives are to drive efficiencies in the production, modification, operation and decommissioning of its engineered assets through data-driven information, improving decision making and delivering best value to its stakeholders.

1.3.2. The Client's key objective is to procure , produce, manage and maintain data and information about its engineered assets that is complete, consistent and can be trusted and re-used for operational purposes and business intelligence.

1.4. Project BIM Objectives

1.4.1. The BIM objectives for the [Service/Task] are to:

a) achieve target capital delivery cost

b) deliver best value through innovation

c) obtain digital assurance and evidence, through the use of Production Information, verifying the integrity and completeness of the design of the engineered solution at each stage of the [Service/ Task] as defined in Pathway. [I]

d) obtain digital assurance and evidence, through the use of Production Information, validating the buildability of the engineered solution[I]

e) obtain digital assurance and evidence, through the use of Production Information, verifying that (and how) the asset(s) can be efficiently constructed / installed/ maintained

f) obtain digital assurance and evidence, through the use of Production Information and Handover Information that health and safety and CDM requirements have been identified and met

g) obtain digital assurance and evidence, validating the integrity and completeness of the Handover Information

h) obtain structured data to populate its Asset Management Information Systems

i) achieve a more progressive handover and post occupancy assessment in line with a Government Soft Landings (GSL) approach.

[I] Applicable to Project Task orders only

2. Information Utilisation Planning

2.1. Primary use of data / information

2.1.1. The Client primary use of the Production Information and Handover Information, throughout the lifecycle of the asset(s), is as detailed in but not limited to Table-1-Primary Uses

Reference	Description
PU01	**Assurance** Verify that assurance requirements, as set out in the Client Assurance Standard which is defined in the Scope, are achieved and Project Information Requirements (PIR) satisfied.
PU02	**Programme Coordination** Verify coordination and integration with interfacing projects and adjacent works.
PU03	**Business Case and Whole Life Cost** Validate the business case and whole life cost forecasts, ensuring they are robust and outcomes and benefits can be / will be achieved.
PU04	**Operations and Maintenance** Validate that the models and assets meet the operational and maintenance requirements as set out in the Model Production and Delivery Table (MPDT).
PU05	**Asset Registration** Facilitate the asset registration process and populate the Asset Management Information Systems.
PU06	**Benefits Management** Verify that the identified benefits have been achieved.

Table 1 – Primary uses

2.2. Project stage gate decisions and digital assurance[1]

Production Information and / or Handover Information are to be delivered, using the Common Data Environment (CDE), at each Project Stage and as notified by the Client, in order to:

Provide the requisite level of assurances as set out in the Scope

a. Inform stage gate decisions, to enable gateway sign-off
b) Facilitate the primary uses as set out in Table 1- Primary uses
c) Deliver the required types of information as part of the Handover Information, as identified and defined in the MIDP.

[1]Applicable to Project Task orders only

2.3. Technical / Design Reviews[1]

2.3.1. The [Contractor/Consultant] identifies (and captures within the MIDP) the Production Information and / or Handover Information they will share in order to support and inform the technical / design review questions as notified by the Client.

[1]Applicable to Project Task orders only

2.4. Level of Information need [1]

2.4.1. The Client specifies, in the MPDT, details of the varying Levels of Information need to be used for all Production Information and Handover Information at each stage of the [works/project/this contract].

2.4.2. The Level of Information need of the Production Information and Handover Information must:

a) continually inform and support decision making throughout the project lifecycle

b) enable acceptance criteria and requisite levels of assurance to be achieved.

2.4.3. Level of Information need comprise the following:

[1]Applicable to Project Task orders only

a) **Granularity of geometrical information** – the detail to which the physical characteristics, of the asset(s), are represented (as geometrical data) within model files, at each stage of the project; and

b) **Granularity of alphanumerical information** – the type and amount of information (about the assets functional characteristics) which may be included as attributes within model files, at each stage of the project.

2.4.4. Table 2- Level of Information need provides an overview of the minimum Levels of Information need required.

Geometrical information	Alphanumerical information	Level Of Information need
Overall massing of construction entities; indicative of area, height, volume, location and orientation.	Project requirements (form, function, cost and schedule).	1
Discipline specific model files. Discipline task team allocated volumes. Architectural form and layout (including that reserved for MEP). Outline structural / civil spatial arrangements. Generic systems, assets or assemblies with approx. size, shape, location and orientation.	General performance criteria (based on assumed asset). System types. Forecast cost data +/- 15%. **Note:** associated to the applicable modelled elements.	2
Discipline team specific model files. Primary structural / civil elements developed and frozen. Specific systems, assets or assemblies in terms of quantity, size, shape, location and orientation.	Specific performance criteria. Forecast cost data +/- 10%. **Note:** associated to the applicable modelled elements.	3
Discipline team specific model files Graphically represented as a specific system, asset or assembly in terms of quantity, size, shape, location and orientation.	Actual performance criteria. Actual cost data. **Note:** associated to the applicable modelled elements.	4
Discipline team specific model files.		5

Graphically represented as actual built / constructed / installed system, asset or assembly in terms of quantity, size, shape, location and orientation.		

Table 2 –Level of information need

2.5. Information Execution Plan (IEP)[I]

2.5.1. In response to this EIR the Contractor creates an IEP. The IEP will capture how the Contractor intends to meet the Client requirements set out in this EIR.

2.5.2. The content of the IEP consists of everything requested within this EIR and meet the information requirements set out within BS EN ISO 19650 2 2018.

2.5.3. The Contractor provides details of information exchanges within their IEP.

2.5.4. If required by the Contractor the Client's IEP Template can be provided.

2.5.5. The Contractor submits their IEP for acceptance to the Client within [***No.] weeks of Contract award.

2.5.6. The Contractor keeps their IEP up-to-date with changes managed following the agreed project change control process.

2.5.7. The Contractor resubmits their IEP to the Client for acceptance if:

a) Changes are made to the IEP.

b) Instructed by the Client.

2.5.8. While not exhaustive, potential reasons the Client would not accept the IEP include:

a) It does not meet the requirements set out in this EIR

b) It does not meet the requirements set out in the standards listed in section 3.

2.5.9. The Contractor implements the accepted IEP.

2.5.10. The Contractor ensures their IEP aligns with the accepted project schedules and plans.

[I]Applicable to Project Task orders only

HSE & CDM

2.5.11. The Contractor provides details of how the Production Information and Handover Information will be utilised to support their health and safety and CDM obligations; identifying, eliminating and reducing hazards and risks and providing better safety management.

2.5.12. Where the Contractor is contracted to carry out detailed design, they provide details of their process for integrating the construction plan with other components of the Production Information. Details include how safety measurements will be validated and how compliance with safety regulations will be checked.

2.6. Asset Information

2.6.1. Table 3 provides details of the Client corporate solutions for the management of Asset Information and the vehicle for delivery of the required information.

Asset Information		
System	**Data / Information**	**Delivery Vehicle**
Document Management System	Unstructured information containers (Documentation)	TBC at contract award
Asset Management Information System	Structured information containers(Non-Graphical Data)	TBC at contract award
Asset Management Information System	Structured information containers(Graphical Data)	TBC at contract award

Table -3 – Asset Information

2.6.2. The Contractor provides details of how the required data / information will be extracted from the Production Information and Handover Information into the appropriate delivery vehicle and provides assurance that it is complete and current.

2.6.3. Work to define Handover Information for subsequent stages of the [Service/Task] begins by the end of Stage 2. The Contractor provides the Asset Information as defined and required by the Client .

2.7. Training Arrangements

2.7.1. The Contractor is responsible for ensuring their staff (and that of their Sub-contractors of any tier) is sufficiently trained to undertake the BIM aspects of the project.

2.7.2. The Contractor provides details of how they will ensure (and manage and maintain) their staff (and those of any Sub-contractors) have the capability and competency to provide verified and coordinated Production Information and Handover Information in accordance with this EIR.

2.7.3. The Client trains a nominated champion within the Contractor organisation, in the use of (and associated processes and requirements of) the Client CDE if deployed. It is the responsibility of the nominated champion to subsequently train the Contractor and their Sub-contractors and Sub-Consultants of any tier.

3. Standard Method and Procedure

3.1. Standards

3.1.1. All Production Information and Handover Information, is produced and managed in accordance with the specified standards, and Table 4- Standards:

Standard Ref	Title	Revision
Pan TfL Standards		
S1037	Computer aided Design (CAD) Data	To be provided
SMT/GN/ 02/14	Requirements for the development and acceptance of proposals for Structures and Tunnels Capital	As Scope
S1760	SMP and CDE	To be provided
Industry Standards (include but not limited to), can be used as guidance		
BS EN ISO 19650 1 2018	Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling - Part 1: Concepts and principles	N/A
BS EN ISO 19650 2 2018	Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling - Part 2: Delivery phase of the assets	N/A
PAS 1192-3:2014	Specification for Information Management for the operational phase of assets using building information modelling	N/A
BS 1192-4:2014	Collaborative production of information – Part 4: Fulfilling Client's information exchange requirements using COBie – Code of practice	N/A
PAS 1192-5:2015	Specification for security-minded building information modelling, digital built environments and smart asset management	N/A

PAS 1192-6:2018	Specification for collaborative sharing and use of structured health and safety using BIM.	N/A
BS 8210:2012	Guide to facilities maintenance management	N/A
BS 8541-1:2012	Identification and classification –Code of practice	N/A
BS 8541-2:2011	Library objects for AEC.	N/A
BS 8541-3:2012	Shape and measurement – Code of practice	N/A
BS 8541-4:2012	Attributes for specification and assessment – Code of practice	N/A
BS 8541-5:2015	Assemblies – Code of practice	N/A
BS7000-4:2013	Design management systems. Guide to managing design in construction	N/A
BSRIA BG 6/2014	A Design Framework for Building Services	4
BS 8536-1:2015	Code of practice for facilities management (Buildings infrastructure)	N/A
BS 8536-2:2016	Code of practice for asset management (Linear and geographical infrastructure)	N/A
Project Standards		

Table 4 - Standards

3.2. Security

3.2.1. The Contractor assists the Client in defining the correct security classification for the project in alignment with PAS 1192-5:2015 and accordance with the Client's Cyber Security Schedule.

3.2.2. The Contractor assists the Client in the creation of a Built Asset Security Management Plan, a Built Asset Security Strategy, a Security Breach/Incident Management Plan and the Built Asset Security information requirements in alignment with PAS 1192-5:2015 and accordance with the Client's Cyber Security Schedule.

3.2.3. The Contractor assigns the appropriate security classification in accordance with the Client Information Security Classification Standard, to all Production Information and Handover Information within the CDE.

3.2.4. The Contractor provides details within the IEP of how compliance with the Client Information Security Classification Standard will be monitored and managed.

3.3. Roles and Responsibilities

3.3.1. The Contractor appoints the role of Information Manager in alignment with PAS 1192-2:2013.

3.3.2. The responsibilities of the role " Information Manager" may be fulfilled by more than one person.

3.3.3. The responsibilities of the Information Manager include:

3.3.4. ensuring [standard S1760 (referenced in Table 4 - *Standards*)] and IEP have been completed and / or have been agreed with the Client and are briefed to the Contractor, Sub-contractors or supplier of the Contractor, the Service Manager, the Supervisor and Others (as applicable) and are updated during the works through the project change control procedures

3.3.5. ensuring processes and collaborative behaviours are fully complied with across the project

3.3.6. providing the focal point for all Production Information and Handover Information management issues on the project

3.3.7. ensuring that all Production Information and Handover Information is compliant with the requirements of this contract and all applicable standards

3.3.8. ensuring that all Production Information and Handover Information is managed through the CDE and that all mandatory meta-data has been captured

a) ensuring the Contractor, Sub-contractors or supplier of the Contractor, the Service Manager, the Supervisor and Others (as applicable) have continued and appropriate access to the Project Data Environment

b) providing clear instructions including on the following areas:

- what Production Information and Handover Information is required, by whom and for what purpose;
- who will generate the Production Information and Handover Information and maintain it;
- how it will be sorted and distributed;
- how frequently it is shared; and
- what actions should be taken on receipt of the Production Information and Handover Information.

3.3.9. Details of the required Roles and Responsibilities relating to the production, use and management of the Production Information and Handover Information can be found

in Appendix A. They are in addition to any roles and responsibilities set out elsewhere in this contract.

3.3.10. The Contractor ensures responsibilities (as listed in Appendix A) have been allocated and maintains a list of contact information of those assigned, providing their Curriculum Vitae (CV) as notified by the Client.

3.3.11. The Contractor maintains within the IEP a list of persons assigned to the roles and responsibilities.

3.4. Naming Conventions

3.4.1. A single Unique File Identification (File ID) convention is used for all graphical and non-graphical data uploaded onto the CDE. File ID details are found in S1760 (referenced in Table 4- Standards)

3.5. Classification

3.5.1. The Contractor structures all Production Information and Handover Information; categorising the functional and physical characteristics of the assets such that they can be efficiently identified, grouped and utilised for different purposes. All Production Information and Handover Information must be assigned with the appropriate classification(s), in accordance with Table 4- Standards.

4. Information Management

4.1. System Performance and Constraints

4.1.1. Details of the limitations / restrictions (and security issues) of the Client IT systems can be found in the Client completed IT Assessment Form

4.1.2. The Contractor provides in the completed Supplier IT Assessment Form details of any limitations / restrictions of all parties IT systems; this should as a minimum determine limitations on files size and restrictions on use of versions of software.

4.1.3. The Contractor is responsible for procuring, testing and implementing any required IT infrastructure, hardware and software during the mobilisation period as notified by the Service Manager.

4.2. Federation Strategy[1]

4.2.1. The Contractor provides a Federation Strategy.

4.2.2. The Federation Strategy must explain how the information model is intended to be divided into one or more sets of information containers. Different arrangements of information containers should be defined for different purposes, including but not limited to spatial coordination geometrical interfaces and Security. The Information Containers shall be developed into Information Container structures with details how they relates to each other. Information Containers examples:

- **Simultaneous working** - define the spatial boundaries within which each task team should locate the systems, components or construction elements it is responsible for.
- **Information Security** – define the information security that separates containers or spatial sections of the asset according to the permissions for accessing information.
- **Information Transmission** - to assist with transmission of information containers within a delivery team or to and from an appointing party should consider the maximum file size that is practicable for upload and download with the specified IT infrastructure.

4.2.3. The Contractor provides details of their processes for utilising the Federation Strategy, in accordance with BS EN ISO 19650 1&2 2018, to:

- federated models

- provide assurances and evidence of coordination of [discipline / task teams] design within each information container
- provide assurances and evidence of the coordination and integration between the information containers.

[1]Applicable to Project Task orders only

Compliance Plan

4.2.4. The Contractor provides a Compliance Plan.

4.2.5. The Compliance Plan will detail how the Contractor will ensure and provide evidence that all Production Information and Handover Information, delivered through the CDE at each Pathway Stage and as notified by the Client, is:

a) verified against this EIR

b) compliant with the standards set out in Table 4- Standards

c) progressed to the agreed Level of Information need as set out in the MPDT and IEP

d) spatially coordinated in relation to the asset's physical space, operational space and maintenance space as set out in Section 4.6 of this EIR coordinated in relation to temporal planning, programming and spatial boundaries

e) useable by the software platforms identified in Table 6- Software Platforms

4.2.6. in the formats identified in Table 7- Client Data Exchange formats and as set out in any reference information provided by / available from Client's is detailed in the MIDP.

4.2.7. Reference information is provided via the Client's system pre contract award and via the Project Data Environment post contract award.

4.3. Common Data Environment (CDE)

4.3.1. All Production Information and Handover Information is produced, used and managed through the CDE Details relating to the CDE and associated processes are found in S1760 (referenced in Table 4- Standards)

4.3.2. The Client provides, manages and maintains the Project Data Environment of the CDE.

4.3.3. The Contractor and his Subcontractors generate all Production and Handover Information within their Task Team Data environment, as defined in S1760, configured managed and maintained in accordance with BS EN ISO 19650 1&2 2018.The "Work in Progress" environment will be provided by the Contractor.

4.3.4. In the event that Project Document files pass through an environment that cannot track meta-data (MS Windows, CD, email etc.) then the mandatory file meta-data is delivered with the associated Project Document files, in an editable format.

4.3.5. The following systems are used for the CDE:

Information Type	System
Structured information containers-Graphical	tbc at award
Structured information containers-Non-Graphical	tbc at award
Unstructured information containers-Documentation	tbc at award

Table 5 - CDE Systems

4.4. Collaboration Process

4.4.1. All Production Information and Handover Information is checked, approved and verified as it passes through the CDE.

4.4.2. The level and types of checks and approvals are determined by the purpose for which the Production Information and Handover Information is being shared (refer to Section 6 of standard S1760 (referenced in Table 4- Standards for further details).

4.4.3. The Contractor provides the following details:

a) processes for checking, approving and verifying Production Information and Handover Information within the CDE;

b) triggers for sharing / exchanging Production Information and Handover Information;

c) purposes of sharing / exchanging Production Information and Handover Information;

d) required exchange formats;

e) frequency and purpose for each design review / coordination workshops.

4.5. Coordination and Clash Detection

4.5.1. The Contractor undertakes coordination and clash checking processes to ensure the design is clash free and provide evidence and assurance that this has been done. This includes

- Buildability

- Physical space
- Construction Tolerances
- Operational Tolerances
- Maintenance Tolerances
- Value Engineering

4.5.2. The Contractor provides chosen method(s) by which they intend to undertake clash checking .

4.5.3. The Contractor invites the review and resolution Client representatives to all co-ordination, clash checking and clash resolution meetings.

[1]Applicable to Project Task orders only

5. Digital Engineering

5.1. Software Platforms

5.1.1. The Client will utilise, for a number of activities, the software platforms identified in Table-6

Use		Platform
Data authoring	Non-Graphical Data	Excel
	Graphical Data	AutoCAD AutoCAD Civil 3D Revit (GIS)
Data capture	Laser Surveys	Recap Pointools
Data visualisation	Documentation	Adobe PDF
	Graphical Data	Navisworks
Data coordination	Graphical Data	Navisworks
Data simulation	Graphical Data Non-Graphical Data	Navisworks

Table 6- Software Platforms

5.1.2. The Contractor provides details of software platforms they (and their Sub-contractors) will use and for what purpose.

5.2. Data Exchange Formats

5.2.1. Graphical Data, Non-Graphical Data and Documentation, to be provided by the Client, is exchanged (through the CDE) in the file format(s) as set out in Table 7- Client Data exchange formats.

[Complete 5-2. Details in blue are examples only, add / remove as required].

Data / Information	Exchange Format
NAMS, Confirm, SFM, Bridge Station, Ellipse, Maximo Asset data (Non-Graphical Data)	XLS
COBie data [only to be included if COBie is to be used]	XLS
Native models (Graphical Data)	Native File Format
Point Cloud Data	IMP PTS POD
Documentation	PDF

Table 7 - Client Data Exchange Formats

5.2.2. The Contractor delivers Production Information and Handover Information (through the CDE), with the Client on the dates contained within the accepted MIDP, in the formats identified in *Table 7- Client Data Exchange Formats*

5.2.3. The Contractor provides details of how they will address interoperability issues.

5.3. Coordinates

5.3.1. The following are exchanged, through the CDE, compliant with the OS Grid:

a) Survey information, including mapping; and

b) Production Information and Handover Information representing the fixed geographical location of an asset(s).

Appendix A – Roles & Responsibilities

Information Manager

- Ensuring the IEP is:
    - completed and agreed with the Client;
    - briefed to all Task Teams and other Parties including the Client;
    - managed through the project change control procedures.
- Ensuring collaborative behaviours are being embraced across the project;
- Providing the focal point for all Production Information and Handover Information management issues on the project;
- Ensuring that all Production Information and Handover Information are compliant with the requirements of the contract and all applicable Standards;
- Ensuring that all Production Information and Handover Information are managed through the CDE including that all mandatory meta-data has been captured;
- Ensuring the Suppliers, the Project Manager, the Supervisor and Others (as applicable) have continued and appropriate access to the Project Data Environment;
- Providing clear instructions to the Task Team including on the following areas:
    - what Production Information and Handover Information is required, by whom and for what purpose;
    - who will generate the Production Information and Handover Information and maintain it;
    - how it will be sorted and distributed;
    - how frequently it is shared;
    - what actions should be taken on receipt of the Production Information and Handover Information.

Asset Information Manager

- Ensuring this standard is available to and being followed by all Task Teams and other Parties;
- Providing assurance to the Client regarding adherence to BIM processes and information exchanges;
- Ensuring collaborative behaviours are being embraced.
- accepting information into the shared area of the CDE and for authorizing it for the published area

SCOPE

APPENDIX L
CDM Management

CDM Management Software

All CDM Health and Safety Files and related data will be stored in / retrieved from the Clients AMIS.

SCOPE

APPENDIX M
[NOT USED]

SCOPE

APPENDIX N1
Asset Management Information System

V11.05

04 June 2020

The Asset Management Information System (AMIS)

Contents

1. Introduction

TfL operate an Asset Management Information System (AMIS) designed to support the management of highway and related assets for which TfL is responsible.

The data held within AMIS is used to assess asset condition and inform the allocation of funds for asset renewal and maintenance activities. TfL also use the data to settle electrical energy accounts, to analyse trends in the condition of the asset base, to measure the performance of assets and contractors, as well as to defend against any allegation of failure to maintain.

This document specifies the requirements for the *Contractor* to use the TfL AMIS to record the delivery of works and/or services. TfL's primary AMIS will be IBM Maximo.

1.1. Glossary

The following terms are used throughout this document with the following meanings:

AMIS	The *Client*'s Asset Management Information Solution which may consist of multiple systems.
AMIS Champion	The Contractor's named individual responsible for the activities at 2.3b)
Asset Inventory	A list of the *Client*'s infrastructure assets including structured information about their attributes.
Asset Record	The set of information about an individual asset, including attributes that are specific to that asset type.
Attribute	A specific data item for example related to a specific characteristic of an asset.
Cyclic Asset Updates by Service Document	The document provided at Appendix N4
Enquiry	A communication relating to the condition of, or conditions affecting the *Client's* property, or a request for a service that requires action or warrants further investigation.
Global Position	The spatial position relative to the surface of Earth rather than to a particular projection.
Highway Authority Boundary	The geographical limit of the *Client*'s responsibility as a highway authority.
Inspection File	Data file, mastered in AMIS, containing the results of visual inspections that are loaded into AMIS.
Interface	A managed service which enables the exchange of data between two or more defined systems
Interface Specification	A documented specification set by TfL to enable a remote system to interact with the AMIS system.
Inventory Data Manager	The Contractor's named individual who will be responsible for the management of inventory data in AMIS.
Network Section	A defined length of the TfL Road Network
Network Change	A change to the physical extents of the TfL Road Network or Highway Authority Boundary.

Ordnance Survey MasterMap	Ordnance Survey mapping containing a variety of geographic features with different layers (Imagery Layer, Highways Network Layer and Topography layer.)
Survey and Data Rules	The document provided at Appendix N3 describing general processes for maintaining AMIS together with asset specific data collection and maintenance details.
TfL Road Network	A logical representation of the lengths of road, used to reference data and manage maintenance activity.
Work Order	An electronic file, mastered in AMIS, containing details of work required and the associated budget. For the purposes of the AMIS, a Work Order may relate to a Core Service, part of a Core Service, a Task Order work order, a Call-Off Contract or other instruction.
Work Order Line	A Work Order may comprise a number of Work Order Lines each corresponding to a particular activity.
Works Completion File	An electronic file, mastered in AMIS, submitted by the *Contractor* containing details of the date and completed status of each Work Order or Call-Off Contract.
Works Invoice File	An electronic file, mastered in AMIS, submitted by the *Contractor* to the *Client* requesting interim or final payment for a Work Order or Call-Off Contract.

1.2. TfL's Asset Management Information System

a) AMIS supports the recommendations of the UKRLG Code of Practice – Well Managed Highway Infrastructure, through the following functionality:

i) Inventory of assets and register of the highway network

ii) Recording of inspections

iii) Recording and management of hazards and defects

iv) Traffic Management Act duties including noticing and permitting

v) Enquiry management

vi) Reporting / Auditing

vii) Recording of work status

and where appropriate

viii) Raising Work Orders

ix) Managing payments

x) Recording of data for performance management purposes

2. General System Requirements

2.1. General Use of AMIS

a) Both the *Client* and the *Contractor* shall use AMIS as the primary source of asset information, the assessment of asset condition, defending of claims and recovering costs and unless otherwise required by the Scope, the processing of Work Orders and their related payments as applicable.

b) The *Contractor* shall use AMIS in accordance with the latest version of the AMIS Survey and Data Rules and other guidance issued by the Client.

c) The *Contractor* shall use the latest versions of any applicable forms and templates provided by the *Client*.

2.2. System and Interface Requirements

a) The *Contractor* shall comply with any system requirements as may be issued by the Client from time to time.

b) Subject to the *Client*'s approval, the *Contractor* shall use one of the following methods, but not both, to access the AMIS.

i. TfL's preferred option is to provide contractors with controlled levels of direct access to AMIS (via desktop or mobile devices).

ii. An alternative is integration between the *Contractor*'s own system and AMIS which shall provide two-way exchange of specified data between the systems. The high-level interface methodology is described at Appendix N5. If this option is used an Interface specification to include lower level details on how the two systems will connect will be provided following contract award. It will be the *Contractor*'s responsibility to ensure AMIS data remains synchronised.

c) In order to support the *Client*'s business processes, AMIS has been designed to allow multiple Percentage Adjustments to be applied to Price List items.

d) Where appropriate, the *Contractor* shall ensure that its own systems are capable of supporting multiple Percentage Adjustments.

2.3. Mobilisation and Ongoing Operational Requirements

Named Users

a) The *Contractor* shall provide the *Client* with the names of individuals who will be AMIS users and their role.

b) The *Contractor* shall provide details of suitable named individuals who will act as AMIS Champion for the *Contractor*, and their deputy prior to the Framework Agreement Service Commencement Date, Framework Agreement Commencement Date or *starting date* (whichever is the earlier date) as applicable. The responsibilities of the AMIS Champion, and deputy, shall include but not be limited to:

i) Ensuring that within their organisation AMIS is used in accordance with the relevant guidance issued by the Client;

ii) Promoting best practice in the use of AMIS within their organisation;

iii) Act as a single point of contact between their organisation and the *Client* or the *Client*'s AMIS service provider;

iv) Representing their colleagues at monthly AMIS user group meetings including raising any issues;

v) Providing internal communication to colleagues on the effective use of AMIS and on any planned changes; and

vi) Resolve issues and provide ongoing training to colleagues in the use of AMIS.

c) Any changes to the roles of AMIS Champion, or deputy, will be agreed in advance with the *Client* who will not unreasonably withhold agreement.

d) The *Contractor* shall provide details of a suitable named individual who will act as the AMIS Inventory Data Manager, and a deputy, prior to the Framework Agreement Service Commencement Date, Framework Agreement Commencement Date or *starting date* (whichever is the earlier date) as applicable, who will be responsible for the management of inventory data in AMIS.

e) The Inventory Data Manager and the deputy shall be suitably experienced in data collection and management.

f) The Inventory Data Manager, or deputy, will attend meetings with the *Client* to review and discuss the results of data audits.

g) Any changes to the roles of AMIS Inventory Data Manager, or deputy, will be agreed in advance with the *Client* who will not unreasonably withhold agreement.

2.4. System and Data Management Training

a) The *Client* will provide training in the use of AMIS. The *Contractor* shall ensure that nominated staff completes this training.

b) Training in data collection and management tailored to the requirements of the Scope will be provided as part of the mobilisation process. Where appropriate the *Client* will provide the *Contractor* with live exercises to demonstrate competency. The *Client* will audit the results and the *Contractor* shall ensure that any necessary improvements to their processes or procedures highlighted in the audit are fully implemented prior to the commencement of the works and/or services.

c) It is the intention of the *Client* to provide additional training in the use of AMIS to all AMIS Champions, AMIS Inventory Data Managers, and their respective deputies, in the form of an annual training event. The *Contractor* shall ensure that all nominated AMIS users complete this training.

d) Where training is provided on TfL premises, the *Contractor* shall ensure that nominated staff are able to attend this training.

e) The *Contractor* shall be responsible for the ongoing delivery of any additional AMIS-related training to their organisation necessary for the delivery of the works and/or services.

2.5. IT Support

a) The *Contractor* shall establish connectivity between AMIS users and the AMIS application, and shall demonstrate to the *Client* that all necessary interfaces are fully operational at least six-weeks prior to the Framework Agreement Service Commencement Date, Framework Agreement Commencement Date or *starting date* (whichever is the earlier date) as applicable.

b) The *Contractor* shall provide appropriate IT support to support the successful implementation of AMIS including a named single point of contact throughout the mobilisation process.

2.6. Data Management Processes

The *Contractor* shall provide detailed information about their data management processes to the *Client* for review and approval no later than eight-weeks prior to the Framework Agreement Service Commencement Date, Framework Agreement Commencement Date or *starting date* (whichever is the earlier date) as applicable.

3. Business Processes Supported by AMIS

3.1. Maintaining Highway Network Records

General Requirements

a) All asset data is stored in AMIS, referenced against the TfL Road Network or other appropriate reference network.

b) The TfL Road Network will be recorded and when appropriate updated in AMIS by the *Client*. Changes to the network may arise from, but not limited to, resolution of ambiguities, corrections of errors, the creation or adoption of new Network Sections or their removal. In addition, the *Client* will use AMIS to store its Highway Authority (HA) Boundary.

c) The *Contractor* shall use a Network Change request form, as managed outside of the AMIS system, to alert the *Client* of the potential need for any changes to the record of either the TfL Road Network or the HA Boundary within 7 calendar days of becoming aware of the potential need.

d) Once any changes have been made to either the TfL Road Network or the Highway Authority Boundary, the *Client* will inform the *Contractor* via email of the changes that have been made and any impacts on the asset inventory as a result. The *Contractor* will update the asset inventory within 14 calendar days to reflect these changes. using the TfL AMIS / Geographic Information System (GIS), irrespective of the means the *Contractor* chooses for accessing AMIS for other functionality as described in section 2.2 b).

3.2. Maintaining Asset Inventory Records

3.2.1. General Requirements

a) AMIS is the *Client*'s primary source of information about asset inventory. Where there is change to any asset owned and/or maintained by the *Client* as well as any asset already recorded in the AMIS inventory, the *Contractor* shall update the AMIS inventory with the latest information in accordance with the Scope.

b) Inventory updates shall follow activities including the repair of defects, the completion of Work Orders, Core Service activities or Call-Off Contracts. There are three types of update that can be made to the asset inventory:

i) Additions – e.g. new assets created as a result of works

ii) End-Dates – e.g. if an asset is removed from the network as a result of works

iii) Modifications – e.g. changes to existing assets as a result of works or correcting errors or omissions in the data

c) The *Contractor* shall update the inventory whenever they carry out works or services that affect assets or their attributes.

d) The *Contractor* shall review and / or update the inventory in accordance with the AMIS Survey and Data Rules after works or services have been undertaken.

e) The *Contractor* shall ensure that any changes made to the inventory are recorded accurately within the system. The *Client* will carry out routine audits of the quality of asset inventory within AMIS to ensure that it meets TfL's performance requirements with respect to completeness, timeliness and accuracy.

3.2.2. Data Requirements

The scope of the data provided by the *Contractor,* in relation to asset inventory records, will include the following as a minimum:

Asset Record	a) Unique asset ID b) Item code c) Asset type d) Global Position e) Network Section f) Borough g) Installation date h) Project ID (under which the asset was installed, modified or removed) i) Work Order ID (under which the asset was installed, modified or removed), if applicable j) Update Type (reason for change – Project, maintenance or data cleanse) k) Asset specific attributes l) Spatial representation

3.2.3. Business Requirements

a) All assets shall be referenced to the TfL Road Network or other appropriate reference network.

b) Assets shall be positioned such that they are within ±1m of their true position and shape when overlaid on an Ordnance Survey MasterMap data set unless the work will generate a subsequent change to the Ordnance Survey MasterMap data, in which case the asset shall be referenced to ±1m from its Global Position.

c) The AMIS Survey and Data Rules shall be adhered to when updating the asset inventory.

d) The *Contractor* shall provide Asset Inventory data using the interface specification provided by TfL to enable it to be loaded directly into AMIS if the *Contractor* is not using the AMIS system directly.

e) The *Contractor* shall correct any errors in the asset inventory within 7 calendar days of identifying errors or of receiving notification of the errors from the *Client*.

f) The *Contractor* shall update Asset Record(s) in AMIS within 14 calendar days of undertaking any works or services that result in a change to the inventory data.

g) The *Contractor* shall update Asset Record(s) for CMS controlled lighting within 2 calendar days of installation (regardless of the state of completion of any works which it forms a part)

3.3. Traffic Management Act (TMA) Notifications

3.3.1. General Requirements

a) AMIS shall be used to process the *Contractor*'s and *Client*'s noticing obligations imposed by the New Roads and Street Works Act (NRSWA) 1991, as amended by the TMA 2004.

b) The following process details the procedure for issuing Notices for works carried out on the Transport for London Road Network (TLRN). The *Client* has an obligation under the NRSWA, as amended by the TMA, to raise Notices and /or apply for Permits for works carried out on the TLRN.

c) The *Contractor* shall use AMIS to raise Notices and/or apply for Permits for all works and/or services as required.

d) If there are conflicts, interested parties will respond back to the *Contractor* via AMIS so that works can be rescheduled, and the Notice updated by the *Contractor* in AMIS before being reissued.

3.3.2. Data Requirements

The data provided by the *Contractor* will include the following as a minimum:

TMA Notice	The TMA Notice includes, but is not limited to, the following information: a) USRN b) Network Section c) Global Position (if appropriate) d) Date and time of notice e) Date and time of proposed work f) Description of work g) Works reference h) Works category (e.g. major, minor) i) Works promoter j) Status of Notice k) Comment (reason for rejection, etc.)

3.4. Third Party Claims

3.4.1. General Requirements

a) From time to time, the *Client* may receive claims for damages related to the condition of the *Client*'s assets.

b) The *Client* will manage these claims in AMIS.

c) The *Contractor* shall ensure that inspections, defects, Work Orders or Call-Off Contracts associated with the relevant claim in AMIS are updated as the claim progresses.

3.5. Quality and Service Audits

3.5.1. General Requirements

a) From time to time, the *Client* will carry out audits to monitor the *Contractor's* compliance with this Appendix. The *Client* will provide reports of audits to the *Contractor* and advise of the improvements required.

b) The *Contractor* shall respond with a plan to remedy deficiencies or non-compliance, which shall be fully implemented within 28 calendar days of an issue being identified.

3.6. Core Services

3.6.1. General Requirements

Where required by the Scope

a) The *Contractor* shall provide the Accepted Plan, either as per the TfL interface specification or create and maintain it directly in AMIS.

b) Once Core Service activities have been undertaken, the *Contractor* shall update AMIS with the results of the activities and any associated data, including photographs, reports, condition scores and electrical test certificates.

c) Whilst undertaking the Core Service, the *Contractor* shall check and, if appropriate, update or correct the asset inventory data in accordance with the AMIS Survey and Data Rules.

3.6.2. Data Requirements

The data provided by the *Contractor* will include the following as a minimum:

Accepted Plan	The Accepted Plan shall provide a thirteen-period breakdown of the Core Service showing for each period: a) Network Section(s) to be maintained b) Asset(s) to be maintained c) Activity to be carried out d) Quantities planned for e) Planned dates f) Planned Task Price to Date
Maintenance Record	The Maintenance Record shall include the following information for each activity undertaken: a) Network Section(s) maintained b) Asset(s) maintained c) Activity carried out d) Quantity undertaken e) Date of works f) Comments g) Photograph(s) (if appropriate) g) Other information (if appropriate) h) Reason not done (if appropriate) i) Contractors name

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3.6.3. Business Requirements

a) The *Contractor* shall load into, or create and maintain within, AMIS the Accepted Plan for each Core Service activity.

b) The *Contractor* shall load into, or create and update within, AMIS the Accepted Plan within 7 days of its definition or update and prior to the next cycle of that particular maintenance activity starting.

c) The *Contractor* shall record maintenance activities against an asset as defined in the AMIS Survey and Data Rules and the Cyclic Asset Updates by Service document. An asset can have multiple maintenance activities associated to it.

d) The *Contractor* shall record any defects identified as part of the Core Service activity as described in the Scope.

e) The *Contractor* shall record if it has not been possible to fulfil the maintenance activity e.g. if a gulley was not accessible due to a parked car.

3.7. Inspections and Surveys

3.7.1. General Requirements

Where inspections and/or surveys are required by the Scope

a) The *Contractor* shall use AMIS to record the Accepted Plan, the dates and times that inspections were undertaken and to record the defects and hazards identified during those inspections together with the *Contractor*'s response to them.

b) The following shall be provided by the *Contractor*:

   i) Accepted Plan

   ii) Inspection Records

c) The general data requirements for inspections apply to all asset types covered by this contract.

3.7.2. Data Requirements (General)

The data provided by the *Contractor* will include the following as a minimum:

Accepted Plan	The Accepted Plan shall provide a thirteen-period breakdown of the Core Service showing for each period: a) Type of inspection due to be performed (e.g. night scout / safety inspection) b) The Network Sections or assets to be inspected c) Due date for inspection d) Date of previous inspection e) Planned Task Price to date
Inspection Record	The Inspection Record shall consist of the following information: a) Type of inspection performed b) The Network Section or asset inspected, c) Date and Time of inspection d) Name of inspector e) Weather conditions f) Defect location (Global Position) g) Defect type - selected from a list of standard types associated with the selected activity h) Defect category (1(ECO), 1, 2H, 2M, 2L) i) Non-defective (if relevant) j) Recommended treatment k) Defect responsibility (asset owner if not auto generated) l) Price List items – (the items to undertake the repair). m) Repair type (temporary, permanent, make safe) n) Comments o) Other documents (if appropriate) p) Reason for missed inspection (if appropriate)
Digital Photographs	Clear, focussed, colour digital photographs, associated to the defect and showing both the defect and its location: a) Date and time stamp b) Defect or damage before repair has been carried out c) Repaired defect d) General context and location of defect (in the case of lighting this should include its asset code)

3.7.3. Business Requirements (General)

a) AMIS shall be used to monitor compliance with the inspection frequencies prescribed within the contract. The *Contractor* shall load or create and maintain inspection schedules in AMIS. All inspection records shall be provided either as per the TfL Interface Specification or created and maintained within the AMIS system.

b) The *Contractor* shall load, create or update an inspection schedule in AMIS no less than 7 calendar days prior to the inspection.

c) The *Contractor* shall record individual defects identified as part of an inspection against an individual asset.

d) The *Contractor* shall record new defects and re-record the prevailing defect category of pre-existing defects in AMIS within 24 hours of being identified.

e) If a Category 1(ECO) defect is recorded, the *Contractor* shall log an Emergency Call Out (ECO) and ensure that it is reconciled with the appropriate defects in AMIS from within the system. Note that an ECO may have a number of defects associated with it.

f) The *Contractor* shall ensure that each defect is recorded against an asset and, where the asset is represented as a line or polygon in AMIS, the XY co-ordinate of the defects within/along that asset shall be recorded to within an accuracy of ±1m in accordance with the AMIS Survey and Data Rules.

g) If an asset is missing from the inventory, the *Contractor* shall create the asset record in line with Section 3.2.

h) The *Contractor* shall upload digital photographs illustrating the defect and its location from before and after the work has been undertaken. 'Before' photographs shall be loaded into AMIS within 12 hours of identifying the defect. 'After' photographs and other documents shall be loaded within 24 hours of the works being undertaken.

i) When a Network Section or asset has been inspected and no defects or hazards are identified the *Contractor* shall record this in AMIS.

j) The *Contractor* shall upload any additional documents produced as a result of an inspection into AMIS and associate the documents to the relevant Network Section and/or asset and/or defect and/or Work Order.

k) The *Contractor* shall enter all Inspection Records into AMIS within 12 hours of collection.

3.7.3.1. Specific Business Requirements for Lighting and Electrical

a) The *Contractor* shall define night scouting and routine maintenance schedules on a TfL Road Network section basis.

b) The *Contractor* shall ensure that defects are associated with a single asset or asset component level – for example two defective lamps on a single lighting column shall be recorded as two separate defects.

c) The *Contractor* shall enter any defects identified by night scouting into AMIS within 12 hours of being identified.

d) The *Contractor* shall upload any documents and/or certificates containing the results from electrical and structural inspections into AMIS within 72 hours following inspection.

3.7.3.2. Specific Business Requirements for Road Markings

a) The *Contractor* shall record any defects on road markings associated with traffic regulation and enforcement (e.g. Congestion Charging Zone or Low Emission Zone, or TLRN and Red Route Control Road Markings) on an individual asset basis.

b) Where multiple defects are identified on a single Network Section for non-regulatory markings (lane markings / arrows) then the *Contractor* shall record them as a single defect.

c) The *Contractor* shall upload any documents containing the results from specialist surveys, such as road markings, into AMIS and associate them with the relevant AMIS Network Section within 72 hours of provision.

3.8. Emergency Call Outs and other Enquiries

3.8.1. General Requirements

Where an emergency service is required by the Scope the *Contractor* shall record all notifications and enquiries in AMIS and shall update the status of enquiries until complete. All notifications and enquiries shall be linked to relevant defects and/or Work Orders or Call-Off Contracts, as applicable. All notifications and enquiries shall be associated with the relevant defect and or Network Section and or asset and shall have corresponding spatial co-ordinates.

3.8.2. Data Requirements

The data provided by the *Contractor* will include the following as a minimum:

Enquiry Record	An Enquiry Record includes, but is not limited to, the following information: a) Enquiry source (Client / Public / Police / Inspector) b) Enquiry media (Phone / email / correspondence etc) c) Enquirer details (inc name, address, contact phone numbers, email) d) Date/time received e) Enquiry description f) Defect location (Network Section / Global Position) g) Network Section IDs h) Associated asset IDs i) Associated defect IDs j) Associated Work Order IDs k) Response actioned

3.8.3. Business Requirements

a) The *Contractor* shall electronically record hazards or defects at the time of identification or notification and transfer that record into AMIS within 24 hours.

b) All other enquiries shall be logged in AMIS within 24 hours of receipt. Once the site has been made safe, the *Contractor* shall update the Enquiry record in AMIS within 24 hours. If further maintenance is required, the reactive works process is invoked (see Section 3.9).

3.9. Reactive Works

3.9.1. General Requirements

This section applies wherever reactive works are required by the Scope.

If an interface between AMIS and the *Contractor*'s system(s) is being used for managing works, then the Work Order files shall be dispatched to the *Contractor*'s system(s); as per the Interface Specification.

3.9.2. Data Requirements

The data provided by the *Contractor* will include the following as a minimum:

Work Order	The activity Work Order shall contain the following information: *a) Contractor* b) Date and time raised c) Work Order type d) Work Order reference e) Defect categorisation f) Duration of Work Order g) Work Order status (e.g. "draft awaiting instruction") h) Additional information (associated enquiries, defects, assets etc.) i) Work Order Line(s) Work Order Lines correspond to a particular repair activity and shall include the following information: j) Work Order Line reference k) Defect reference l) Location (Network Section, Global Position) m) Type of work (Core Service, ordered cyclic, ordered reactive) n) Price List(s) o) Percentage Adjustment(s) p) Activity type q) Defect (associated with activity) r) Estimated cost (associated with activity) s) Additional ad hoc items that are not listed in the Price List t) Due date
Works Completion File	A Works Completion File records that the work instructed on a Work Order has been completed and contains: a) Work Order reference b) Work Order Line c) Core Service Area d) Work Order status e) Date raised f) Due date g) Date complete h) Work Order status (e.g. closed) i) Dated digital photograph showing completed work
Final Measures File	A Final Measures File contains: a) Work Order reference b) Measures on the price(s) associated to each Work Order Line

3.9.3. Business Requirements

a) In addition to those identified during inspections, the *Contractor* shall create records in AMIS as a result of, for example, damage caused by third parties or faults reported by the *Contractor*'s staff, the *Client*, the Police, members of the public and other public or private bodies.

b) On receipt of a report the *Contractor* shall check if the record of a defect already exists in AMIS and shall not duplicate records.

c) The *Contractor* shall ensure that all defects identified as a result of enquiries are associated to the enquiry records in the case of multiple enquiries being raised for the same incident.

d) The *Contractor* shall electronically record hazards or defects at the time of identification or notification and transfer that record to AMIS within 24 hours

e) The *Contractor* shall create Work Orders in AMIS within 24 hours of becoming aware of the defect describing the work required to repair together with the associated cost estimate derived from the Price List. The types of Work Orders shall include but not be limited to:

<u>For reactive works</u>

i. Each repair shall be on a separate Work Order

ii. The price required for the repair shall be assigned to the Work Order

iii. Work shall be assigned to an asset if possible, otherwise to a Network Section

<u>For compensation events</u>

iv. Work Order associated with an event for which compensation is being sought

f) If the Work Order relates to a Core Service, the *Contractor* shall instruct it directly.

g) If the Work Order does not relate to a Core Service it will be reviewed by the *Client* before modification or instruction as appropriate.

h) *Contractor*s shall update the status of Work Orders within 24 hours of any status change.

i) Where an element of work does not have a Price List item to cover it, the *Contractor* builds up their price in accordance with the method and rules to the Price List.

j) The *Contractor* shall update AMIS with the Works Completion File data, and associated photographs, within 24 hours of the work being undertaken.

k) Once work has been completed and final measures have been agreed between the *Contractor* and the *Client*, the *Contractor* shall update AMIS with the Final Measures File data.

3.10. Manage Work Order Approval and Payment

3.10.1. General Requirements

Unless otherwise required by the Scope, AMIS will be used by the *Client* to assess the valuation for each period based on the Work Orders held within the system which have had either an Interim or Final Works Invoice (WI) file submitted and or approved. The Works Invoice will be submitted electronically either by manually uploading into AMIS or using the TfL Interface Specification.

3.10.2. Data Requirements

The data provided by the *Contractor* will include the following as a minimum:

Work Order	See Section 3.9.2
Works Invoice (Interim)	Interim payments for works can be requested by the *Contractor*. The Works Invoice (WI) (interim) electronic file contains an interim request for payment for part of the work ordered.
Works Invoice (Final)	The electronic file that contains the final request for any outstanding payment for the Work Order.
Works Completion File	The electronic file, mastered in AMIS, that contains details of the date and completed status of each Work Order Line.

3.10.3. Business Requirements

a) The *Contractor* shall use AMIS, either directly or via the interface, to raise all Work Orders.

b) The *Contractor* shall update all Work Orders with accurate pricing information within 24 hours of being created.

c) The *Contractor* shall self-instruct all Work Orders for Core Service reactive maintenance.

d) The *Contractor* shall ensure that sufficient evidence is in AMIS prior to the Works Invoices being submitted.

e) The *Contractor* shall update the Work Order in AMIS as work progresses by submitting Works Invoices and Works Completion File.

f) The *Contractor* shall submit into AMIS interim Works Invoices if required.

g) The *Contractor* shall use AMIS to record that the works have been completed and to submit the final Works Invoices.

SCOPE

APPENDIX N2
Asset Management Information System Asset Photos

V3.01
June 2020

THE ASSET MANAGEMENT SYSTEM ASSET PHOTOS

Status: Published
Version: 3.1
Date: June 2020

Table of Contents

1. DOCUMENT CONTROL

1.1 Author(s)

Data Quality Team

1.2 Document Summary

This document contains Asset Photos that relate to the asset types outlined in the *Asset Management System Survey & Data Rules* document.

1.3 Document Quality Assurance & History

Version	Description	Undertaken by	Date	Remarks
1	Update	Huw Harries	05/04/05	First draft
1	Quality Review	Stuart Hill	17/06/05	
1	Quality Review	Neil Hazell	17/06/05	
1	Update	Huw Harries	20/06/05	Published
1.1	Update	Huw Harries	25/08/05	Added Rules on Belisha Beacon in the LP section and lines at the carriageway edge in LL
1.2	Update	Huw Harries	19/09/05	In CT section included CT with advisory edge lines and another without edge lines; In appendix included clarification of some arrow and lane markings
1.3	Update	Huw Harries	21/03/06	Under Comms Cabinet added Traffic Counter. Under Cycle Track/Lane edited the third to last photo to read flow – none. Under Footway added Shared Use – No Under Kerb added a wide and narrow natural stone Under Safety Bollard edited the first photo to Reflectorised – Yes (as it has a white reflective strip on it) Under Sign added Cycle sign on a bollard Under Traffic Signal removed the fourth and eighth photos and added two examples of Push Button Puffin Removal of misleading Interceptor Photo
1.4	Quality Review	Huw Harries	12/07/07	
2.0	Quality Review	Huw Harries	21/10/15	
2.0			25/10/15	Review for changes to Safety fences, lighting, high mast, drainage, sign
2.1			02/02/16	Added retention socket
3.0	Quality Review	Shayna Meyers	15/05/19	Added AB, FP; removed CP, IN, HM, HS, TS, CD, PG
3.0	DQ Team Review		15/05/19	

2. INTRODUCTION

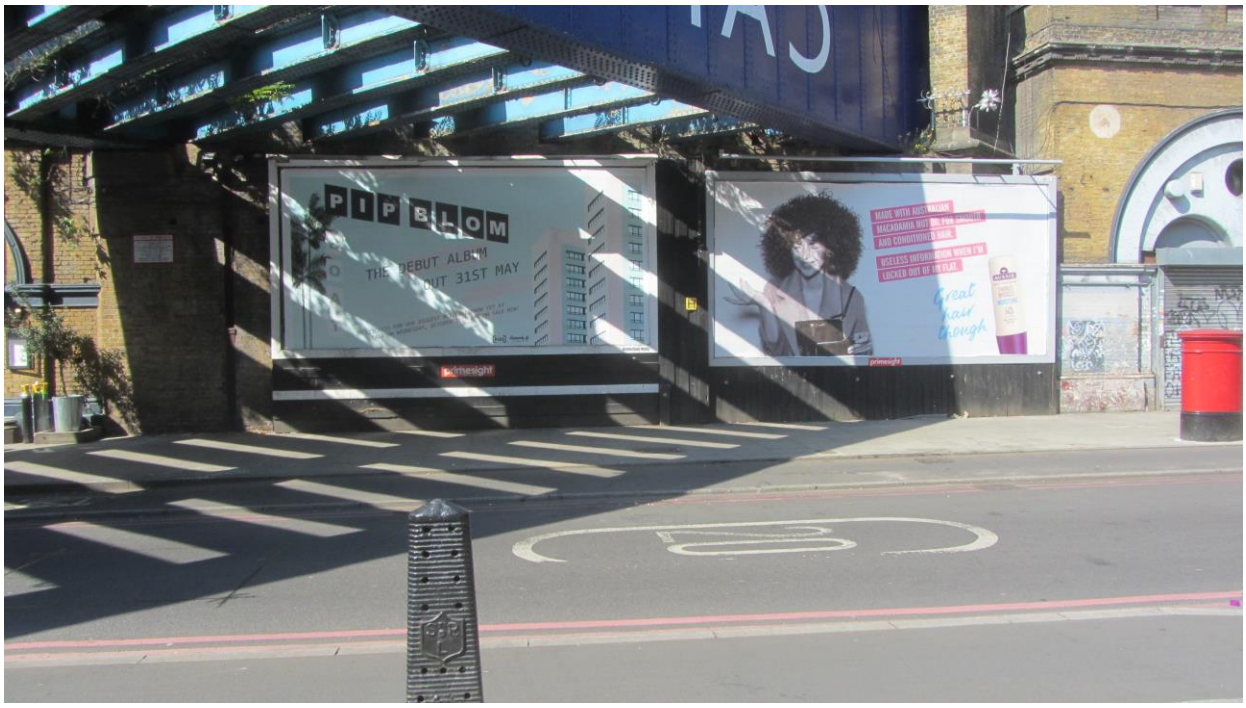
2.1 Background

This document serves as a visual aid in using and interpreting the Asset Management System Survey & Data Rules. It helps distinguish the different kinds of asset types as well as their sub attributes.

It is suggested that that you use this document for further ‘real world’ examples **after** you have read the data collection **methodology** from the Asset Management System Survey & Data Rules.

3. ADVERTISING BOARD (AB)

Type: Static



Type: Digital

4. ANCILLARY STRUCTURE (SA)

TM Shed

Tunnel Building

5. BRIDGE OVER (BO)

Type: Road

Type: Rail

Type: Canal

Type: Footbridge

Type: Gantry

Type: Tunnel

6. BUS SHELTER (BS)

Type: Adshel –Countdown Present: No

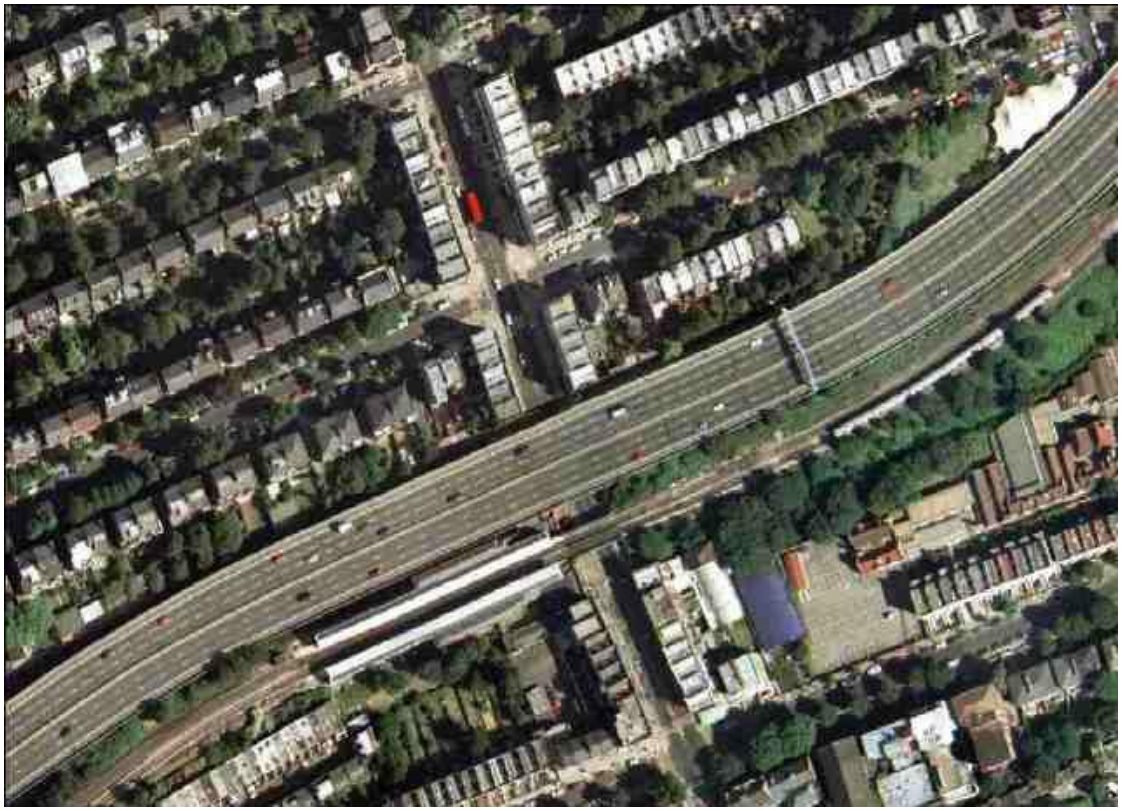
Type: J.C.Decaux – Countdown Present: No

Type: Trueform London Landmark – Countdown Present: No

Type: Trueform London Landmark – Countdown Present: Yes

7. BRIDGE UNDER (BU)

Type: Road



Type: Rail

Type: River

Type: Canal

Type: Footway

Type: Other (Road and Rail)

8. COMMUNICATIONS CABINET (CC)

Type: Other

Type: Other

Type: Other

Owner: Other – Type: Bus Beacon

Owner: Borough – Type: Air Quality Station

Owner: Telecommunications – Type: Other

Owner: Telecommunications – Type: Mobile Phone Mast

Type: Traffic Counter (Notice sealant lines in the road.
These are not always visible if road has been re-surfaced)

Owner: Water - Type: Other

Please record Solar panels as Type: Other - then fill in the Description field with the words ‘Solar panel’. (And in the example below, record a post asset as well).

Type: Router (small cell)

9. CHANNEL (CH)

Block Type: Preformed Concrete Block

Block Type: Metal Grating

Block Type: Metal Grating

Block Type: Continuous Concrete (channel at edge of road)

Block Type: Continuous Concrete (both in picture)

10. CENTRAL ISLAND (CI)

Surface: Grass

Surface: York Stone

Surface: Block Paved

Surface: Pedestrian Deterrent (can be in pyramid as well as block form)

Surface: Other (Rubber)

11. CATENARY LIGHTING (CL)

Column Type: None (On another Structure)

12. CAMERA (CM)

Type: Speed

Type: Red Light

Type: Bus Lane

Type: Highway CCTV

Type: Traffic Master

Type: Congestion Charging

13. CENTRAL RESERVE (CR)

Surface: Rolled Asphalt

Surface: Concrete

Surface: Grass

14. CYCLE TRACK/LANE (CT)

Type: Track - Class: None - Flow: Two-way - Colour: Green
NOTE: FW asset recorded beneath CT as Shared Use 'No'

Type: Track – Class: None – Flow: Two-way – Colour: None
NOTE: FW asset recorded beneath CT as Shared Use 'No'

Type: Track – Class: None – Flow: Contra Flow – Colour: None
NOTE: FW asset recorded beneath CT as Shared Use 'No'

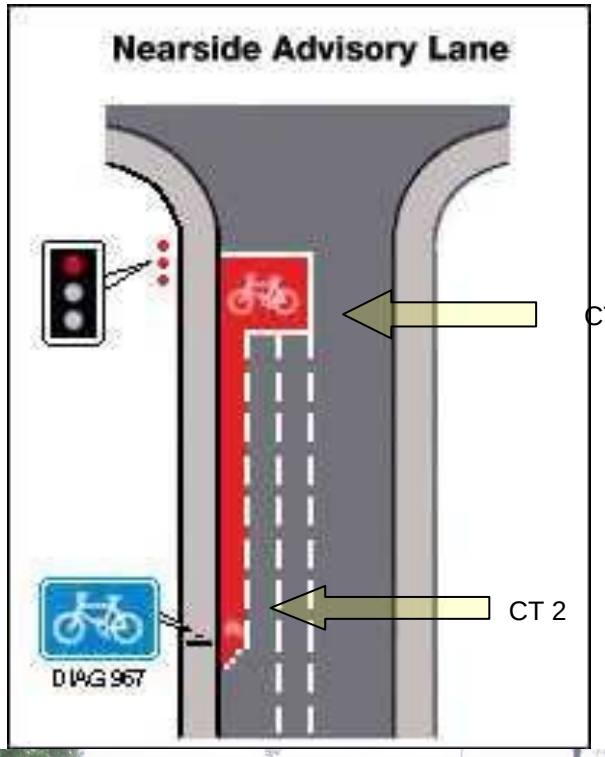
Type: Lane – Class: Advisory – Flow: Two Way (a rare exception to the rules) – Colour: Green
NOTE: CW asset recorded beneath CT

Type: Lane – Class: Mandatory – Flow: None – Colour: None

NOTE: CW asset recorded beneath CT

Type: Lane – Class: None – Flow: None – Colour: Green

CT1 Type: Advance Stop Reservoir – Class: Mandatory – Flow: None – Colour: Red
CT2 Type: Lane – Class: Advisory – Flow: None – Colour: Red
NOTE: CW Asset recorded beneath both of these CT assets



Type: Lane - Class: Advisory - Flow: None - Colour: Red

Type: Lane

Type: Track - Class: None - Flow: Two Way - Colour: None

Type: Track – Class: None; Flow: Two Way; Colour: None

(Kerb line indicated by the red arrow is not collected UNLESS it separates a cycle lane from Vehicle traffic on the Carriageway).

Type: Tactile, Class: None, Flow: None – Colour: Buff

Type: Tactile - Class: None - Flow: None – Colour: Buff

Note: Footway is not recorded beneath *either* of these tactile features

15. CULVERT (CV)

Material: Concrete

Material: Concrete

16. CARRIAGEWAY (CW)

Surface: Hot Rolled Asphalt – Colour: None

Surface: Concrete – Colour: None

Surface: High Friction – Colour: Buff

Surface: Block/Brick – Colour: Red

Surface: SMA – Colour: Red

17. CYCLE CROSSING (CX)

18. DITCH (DI)

Usually found in rural areas

19. DROPPED KERB (DK)

Type: With Tactile – Tactile: Buff

Type: With Tactile – Tactile: Red

Type: With Tactile – Tactile: Blue

Type: Without Tactile – Tactile: None

Type: Without Tactile – Tactile: None

Type: With Tactile – Tactile: Studs

Type: With Tactile – Tactile: York

Type: With Tactile - Other

20. EMBANKMENT AND CUTTINGS (EC)

Example 1

Example 2

21. FENCE AND BARRIER (FB)

Type: Boundary (Avoid privately owned)

Type: Other

22. FILTER DRAIN (FD)

23. FEEDER PILLAR (FP)

24. STREET FURNITURE (FS)

Type: Post Box

Type: Memorial Plaque

Type: Refuse Bin

Type: Bus Flag

Type: Salt Bin

Type: Seating

Type: Cycle Stand

Type: Statue

Type: Kiosk

Type: Mirror (In Subway)

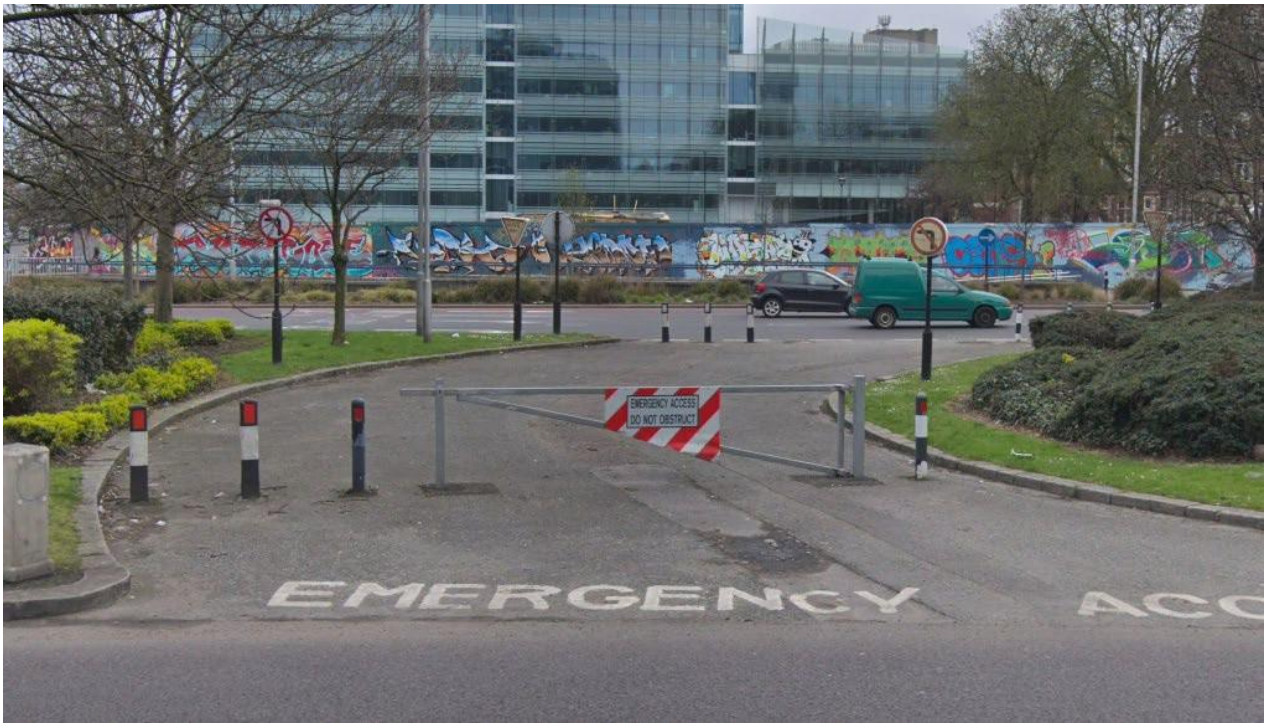
Type: Recycle Facility

Type: Phone Box

Type: Toilet

Type: Parking Ticket Machine

Type: Emergency Access Gate



Type: Other (Used for storing letters for postman to deliver)

Type: Rapid Charge Point

25. FOOTWAY (FW)

Surface: Mastic Asphalt

Surface: Bitumen Macadam

Surface: Concrete

Surface: Surface Dressed