E1.5 Compliance with Legislation and Environmental Obligations

There is a wide variety of legislation that is applicable to London Square activities. The following list of legislation is the main acts and regulations and directives that are applicable to London Square work. Principal examples are, (but not limited to):

- Environmental Protection (duty of care) Regulations 1991.
- Control of Pollution (amendment) Act 1974.
- Control of Substances Hazardous to Health 2002 (Amended 2004)
- The Environmental Permitting Regulations 2008
- Environmental Protection Act 1990.
- Hazardous Waste Regulations 2005
- Waste Management Regulations 1994 (As Amended)
- The Clean Air Act 1999 (As Amended).
- Health and Safety at Work etc. Act 1974.
- Water Act 2014.
- Pollution Prevention and Control Act 1999
- Air Quality Regulations 2000
- Environmental Protection (Controls on Substances that Deplete the Ozone Layer Regulations 1996 (as amended 2015)
- The Producer Responsibility Obligations (Packaging Waste) Regulations 1997 (as amended 1999)
- Directive on the establishment of a programme to encourage energy efficiency measures 880/92/EEC: Eco-labelling Regulation
- Construction Code of Practice - Code_of_Practice.pdf

A summary of London Square duties, company policy and responsibilities can be seen in the enclosed register of regulations. Through this identification of duties and responsibilities the company aims to meet the legal requirements placed upon it.

Other obligations that London Square will adhere to and support throughout the Greggs Bakery development is supporting CCS through Elite Marshal Training, Efficient Waste Management Reporting (Monthly Waste Reports, Weekly KPI's), Early Doors Agreement where necessary and also assisting with achieving BREEAM achievements through accurate Delivery Management Reporting which can be audited, reviewed and improved throughout the development with an aim to reducing air emissions. Ensuring that waste is managed efficiently through the PCL Collaboration Management App and minimised where possible through re-using and re-cycling schemes such as community wood recycling for timber, Protec's closed loop scheme for used CORREX etc. and to also set a project target of 98% recycling for all waste removed from Greggs Bakery.

E1.6 Environmental Procedures

Construction – Logistics Team;

Pure Logistics understand their duties as defined by the above legislation (Including European directives) and aim to comply with the legislation by taking appropriate steps to prevent polluting material from work areas contaminating water, soil, or air.

Wherever possible hazardous and polluting materials will be kept to a minimum, unless large quantities of a material are required urgently, otherwise materials will be supplied on demand. When materials are to be stored within the workplace they will be required to be segregated into special areas as is required by various legislation.

The appropriate manufacturers data sheet and COSHH assessment will be issued prior to use, which will detail the control measures to be put into place.

Also an overall emergency plan will be prepared to ensure appropriate procedures are in place to prevent and mitigate damage due to accidental releases, spillage's etc. and this will be briefed to the project operatives to ensure all parties are aware of the procedure.

In the event of a pollutant being released prompt action will be taken by Pure Logistics to minimise the effect in accordance with the appropriate emergency procedures. In the event of an emergency the workplace management will be notified of what actions are to be taken and if-co-operation is required to secure the release and prevent exposure to personnel/property.

All accidental releases will be investigated by Pure Logistics and the resulting report will be submitted to London Square. The incident report will propose corrective actions to be taken along with a timescale for them to be implemented.

Project Offices;

We aim to ensure that all waste materials generated from the office environment are segregated into the following categories;

- Recycle – Paper
- Reuse – Printer Cartridges
- Disposal – General Items (Kitchen waste etc.)

This will be achieved by our project office being equipped with waste bins clearly marked to identify its waste disposal route. Our policy is to also train all office staff to dispose of waste materials correctly, as to reduce our impact on the amount of landfill waste generated within our offices.

We aim to ensure that all paper used within the offices is recycled, through the specific waste stream. All purchasing of stationary materials will be supervised by management to ensure that the supplier used is environmentally competent in carrying out his legal and morale duties to reduce impacts on the environment.

We will aim to reduce the amount of energy used within the offices by ensuring that while the heating is on, no windows are left open or ajar. Office lights will be switched off when not required (natural light), to encourage the office staff to comply with these procedures signs will be posted on top of all light switches.

Environmental Emergencies and Risks;

The purpose of this procedure is to detail the actions to be taken when dealing with an environmental emergency. Three kinds of likely environmental emergency have been identified by London Square. These are: -

- Fire
- Explosion
- Spillage

In order to prevent or minimise the likelihood of environmental emergencies from spillage's the company will list all project specific materials, which have a significant environmental impact. For each of these materials assessment sheets will be compiled by a competent person, which will identify the hazards both to the environment and to employee's health and safety. These assessment sheets can be found in the COSHH register.

All materials that present a hazard through spillage will be stored in accordance with the manufacturers' guidelines.

Where necessary i.e. where large quantities of materials are stored then appropriate training will be provided to employees regarding the actions to be taken if a spillage occurs.

Any necessary equipment to be used in the event of a spillage such as water hoses, brushes, sand, absorbent granules will be readily available at specific working locations. Spill kits available at each gate.

In order to prevent or minimise the likelihood, London Square will operate a no smoking policy in areas where flammable materials are stored or there is a risk of fire or explosion. The Company will also inform employees of defined emergency procedures, which are to be taken in the event of fire and position safety signs giving instructions on what to do in the event of fire. In the event of the fire brigade having to be called, details of the chemicals and products on site will available from the safety department.

Any spillage's which enter outside drains must be reported to the local water authority without delay.

In the event of a fire or explosion the London Square emergency procedure must be followed. If the fire brigade is summoned, full information related to products and materials must be supplied.

Pure Logistics will follow any guidelines laid down in the London Square Fire Safety Plan in the event of any emergencies.

Greggs Bakery will be equipped with a spillage kit and a detailed set of spillage instructions to be adhered to. All spillages will be reported to the Environmental Manager, so he can investigate to ensure that there is no re-occurrence.

Peter Holmes will undergo SEATS training.

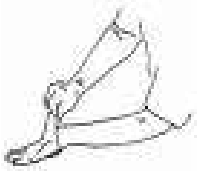
They will also be trained in spillage incident response by the Pure Logistics workforce at Greggs Bakery.

All Traffic Marshalls and Plant Operators will be spill kit trained by the Pure Logistics Manager on the below:

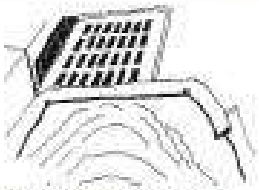
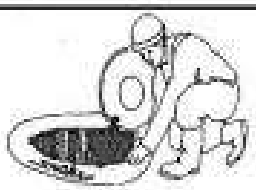
SPILL KIT INSTRUCTIONS

NOTE: Your kit may, or may not contain all of the general items discussed in these general instructions.





PROTECT YOURSELF FIRST.
Open the spill kit and place safety goggles and gloves on your eyes and hands.

ABSORBENT BOOMS OR SNAKES
If there is a drain grate nearby that the released fluid could possibly leak into, protect the grate with booms or snakes. Otherwise, place the booms/snakes at the forward edge of the spilled fluid in the direction it is moving to contain it.


ABSORBENT PADS AND PILLOWS:
Place the absorbent pads or pillows on the fluid within the boom area or anywhere else they are needed to soak up the fluid before it soaks into any surface which it was spilled.

SATURATED SORBENTS:
Saturated sorbents may be disposed of in the disposal bags provided in your spill kit. Proper storage and disposal guidelines should be followed whenever using Breg sorbent products. The handling, storage and disposal of this product may be governed by state, local and/ or federal environmental and transportation laws, rules and regulations. The buyer is solely responsible for proper storage and disposal of the product when saturated as well as compliance with such laws and regulations. Consult authorized government agencies or other qualified personnel for disposal treatment or spill saturated product.

E1.6.2 Noise at Work and Noise Limitations – Environmental Perspective;

London Square will use noise mitigation measures at this project, to ensure the minimum adverse impact on the residential dwellings, business, and leisure facilities around areas of work. These measures will include considerate positioning of plant and the use of silencers on generators where practicable.

London Square will use BPM to minimise Noise and vibration from the works including:

- Stationary plant such as temporary generators will be located as far as practicably away from the nearest sensitive receptor.
- Plant will be used in accordance with the manufacturers' recommendations.
- Plant such as mobile cranes which may be used intermittently will be shut down between work periods or throttled down to a minimum.
- Acoustic covers to engines will be kept closed when engines are in use.
- Appropriate screens or enclosures will be provided where required.
- Breaking and other noisy operations will be monitored to ensure compliance with site conditions.
- Site personnel will be instructed in environmental matters and BPM to reduce noise and vibration.
- They will be informed in the site induction into the surrounding environment.
- Pulverisers will be used when practicable (in lieu of pneumatic hammers).
- Loading of material into vehicles within designated bays only.
- Sensitive location of drop zones and loading areas.
- All deliveries to be scheduled to occur during daytime hours only and engines to be switched off when waiting. (No Vehicle Idling)
- All plant to comply with relevant national or international standards, directives and recommendations including NRMM.

London Square actively instigates and invests in the use of newest and quietest machines and plans on-site best location for static plant and equipment to minimise noise, dust, and vibration.

We aim to meet at regular intervals with the client and Local Authority Environmental Health Officers to discuss works progress and any noise or dust nuisance. Whenever it is anticipated that noise and vibration levels resulting from work activities will be excessive, notification to these parties will be made.

It has been assessed that the following monitoring arrangement shall suffice the scope of works for Greggs Bakery

- Real time continuous monitoring for noise, dust & vibration for demo phase ONLY
- Real time monitoring for dust for construction phase
- Attended portable monitoring for noise & vibrations if required
- External or internal monitoring

London Square actively communicates with neighbours in writing, in particular to households, regarding the work taking place when noise levels are expected to be significant, as it may be the case on this project from time to time. A copy of letters will be sent to the appropriate Local Authority and Environmental Health Officers and will be available for inspection.

For Noise London Square will undertake continuous monitoring with position agreed by the Environmental Protection Team during the demolition phase to ensure compliance with following limits;

Parameter	Trigger (Amber)	Action (Red)
Noise Level		
Short Term	75db(A) Leq,15 min	80db(A) Leq 15 min
8am to 6pm	70db(A) Leq,10 hr	75db(A) Leq 10 hr

A baseline monitoring for (Noise, Dust and Vibration) was carried out on the surrounding site elevation on prior to commencement of works on site. Further monitoring will commence as agreed and instructed by client /and/or the principal contractor at this project.

A pre-construction baseline noise assessment was made in the area using the fixed and mobile monitors with the combined results showing ambient noise levels averaged to 53dB(A) Leq,T over a 3 hour measurements period that was considered representative of ambient noise levels in the urban area.

Demolition and construction noise threshold levels were determined based on the baseline assessment made and with guidance from 'BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise' ABC method of determining the potential of significant effect at dwellings when the site noise level, rounded to the nearest decibel, exceeded the listed value.

Due to the site noise likely exceeding 65dB LAeq,T and lower ambient noise levels, Category A, of the ABC method, was deemed to be the appropriate value to set the initial threshold limit at. Due to the nature of the urban area a period of 5 minutes threshold exceedance was also initially suggested with a 3dB difference between an Amber and Red alerts, based

on the low ambient noise levels measured during the baseline assessment and the density and proximity to NSRs in this urban area.

Vibration threshold levels were selected with guidance from 'BS 5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration' for transient vibration guide values for cosmetic damage of an unreinforced or light framed structure / residential or light commercial building; theses being a limit (Red alert) at 15mm/s ppv and an Amber alter at 10mm/s ppv.

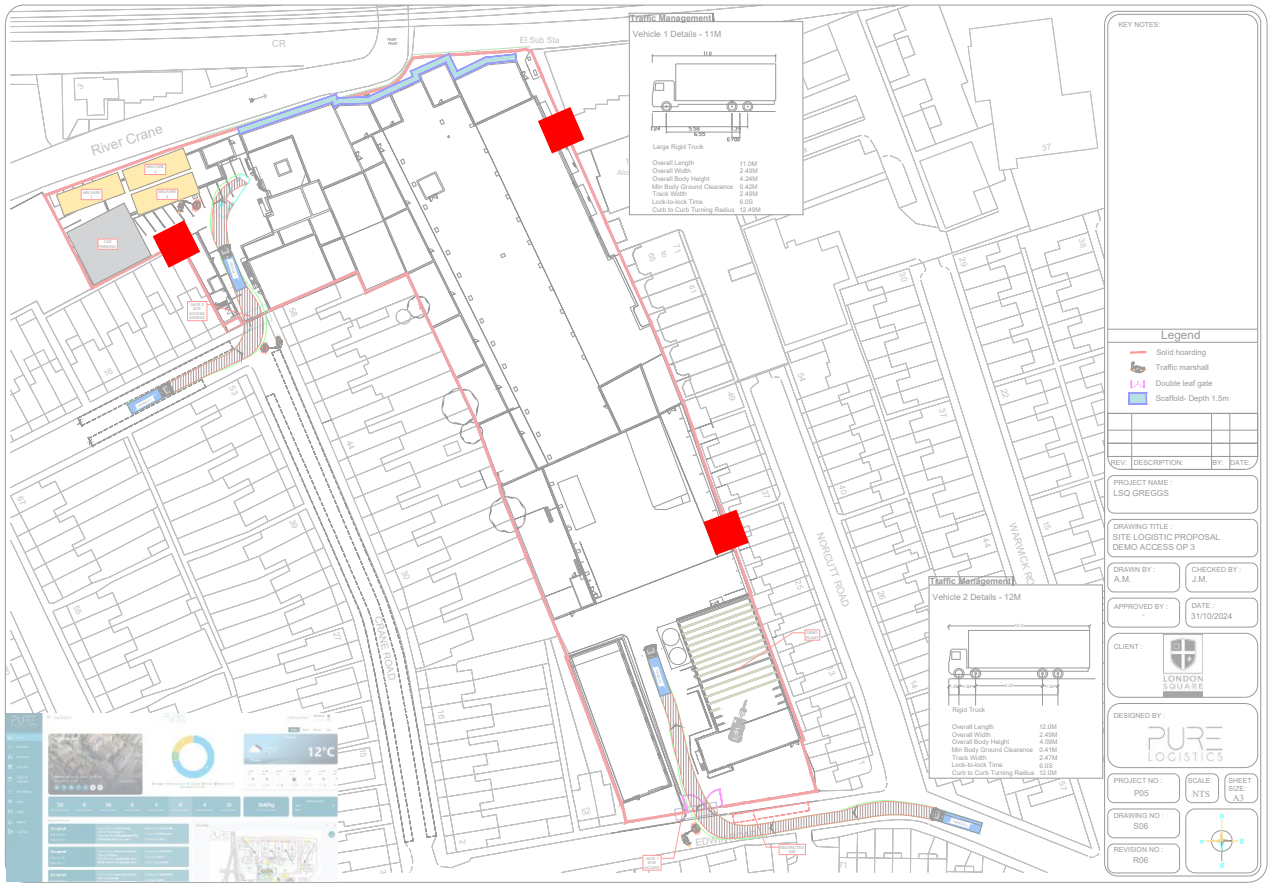
With continuous vibration monitoring required for the entirety of the demolition phase and locations for monitoring and methodology including reporting agreed by the Environmental Protection Team prior to commencement of demolition.

Although construction hours are allowed from 7am – 7pm weekdays and 7am – 1:30pm Saturdays, no noisy works will take place from 7am-8am and 6pm-7pm at any time.

This will mean a restriction on the use of power tools, heavy machinery and all other noisy works.

The limits for both noise and vibration set by the EHO noted will be adhered to at all times.

London Square has pinpointed the following monitoring receptor points.



The decision taken for the locations of the fixed monitoring equipment was made based on the proximity of demolition works to the most affected noise sensitive receptors (NSRs), those being the residents on the corner of Gould Road and Crane Road, and those closest to the site boundary on Norcutt Road. An additional monitor was recommended for mobile setup to be moved during the various stages of demolition to be located in the optimum position at the most affected NSRs in relation to the areas on-site where demolition works were to be carried out at any given time. Initially these would be the resident who's rear façade is closest to the site boundary and thus demolition works, these being the residents further down Norcutt Road around No.37.

E1.6.3 Storage of Fuels, Oils and Chemicals.

London Square will act on any requirements placed on it by the changes in legislation/best practice. London Square will ensure all arrangements are in place for the handling, storage and usage of fuel, oil, and chemicals in advance of the material being brought onto site.

Where feasible, London Square will attempt to keep the minimum quantities of fuels, oils, and chemicals on site, and these will be removed when no longer required or disposed of in accordance with the relevant legislation.

All fuel tanks to be used on site for the storage of fuel/oil should be manufactured to a recognised standard complying with BS799 for steel tanks and OFST100 for Polyethylene tanks.

All fuels, and oil stored will be in a bowser which will be properly maintained and when not in use stored within a temporary bund sufficient to hold 110% of the volume of the largest tank (If not double skinned). All bunds should be lined with an impermeable material capable of retaining the oil stored within.

Facilities should be provided so that rainwater can be removed from the bund at any time, precautions should be taken if rainwater is contaminated with oil.

The contents of the tank at capacity should be clearly identified by a label attached to the bowser.

Filling and re-fuelling will be strictly controlled and where possible confined to a location remote from any watercourses or drains. During re-fuelling a drip tray will be used to collect any spillages.

It should be ensured that a suitable fire extinguisher is provided with the bowser at all times.

All waste oils, fuels etc. will be removed from site via a licensed waste contractor for disposal in the proper manner, as required under the Hazardous Waste Regulations 2005.

Bowsers will be fitted with a lockable valve between the tank and the dispensing hose, the dispensing hose will comply with the relevant British Standard and will be properly maintained. A lockable nozzle will be fitted to the end of the hose.

When the contents are not being dispensed from the bowser the valve and dispensing nozzle will be locked shut. All bowsers will be clearly marked to show the contents and the associated hazards along with the London Square name.

If drain plugs or drain valves are fitted to bowsers they will be properly maintained and firmly secured or locked at all times.

Where chemicals require storing then this will be done in accordance with the guidelines for their storage (MSDS). These will be stored in sealed tins until required and measures put into place in case of spill or leak. These will be stored in a secure container (metal locker) or compound.

Flammable liquids shall be kept stored in metal lockers, which are appropriately marked. Note should be made of measures to be taken in the event of spillage and suitable materials should be available to soak up the spillage and to ventilate the arrantly sufficient material should be kept on site for the tasks in hand. Any material that is not required should be returned to the stores or disposed of in the correct manner.
Site storage should be located away from drains and watercourses so that if accidental release occurs then action can be taken to prevent entry.

E1.6.4 Dust Management and Air Quality;

London Square will take all practicable steps to minimise the risk of air pollution. These steps include:

Erecting Hoarding, Scaffolding and Monarflex sheeting to confine the dust arisen during works. Fine water spray techniques will keep the dust to a minimum. The wheels of vehicles leaving site will be cleaned using a high-pressure jet wash.

The following mitigation measures will be considered to minimise dust and other emissions from site activities and disruption or nuisance to neighbouring occupiers:

- Maintaining solid 2.4m high hoardings.
- Use of existing buildings as screens as far as possible.
- Sheeted scaffolds to sections to be demolished.
- Spraying water at work faces, loading operations and site access roads.
- Dampening of exposed soil and stockpiles if necessary.
- The location of stockpiles of brick, concrete, soil, and other materials away from dusts sensitive properties, taking into account prevailing wind, if necessary.
- Erecting windbreak netting around material stockpiles and vehicle loading/unloading areas.
- Regular inspection and cleaning of local highways and site boundaries for dust deposits.
- Loading of material into lorries within designated bays/areas.
- Sheeting of lorries leaving site carrying loose deconstruction material.
- No burning of any materials on site; and
- All site personnel trained in best practice for dust control by regular Environmental Toolbox talks.
- Low sulphur diesel lorries.
- London Square only use plant and vehicles that are in good repair and conform to the manufacturer or legislative/British Standard emission standards. Plant

- maintenance and defect reports shall be held on site in designated file. Wherever possible, plant shall not be left running for long periods when not directly in use. Where appropriate electrically powered machinery and plant shall be used instead of petrol or diesel powered.
- Monitoring site perimeter.
- No engine idling of road vehicles, small plant, or generators.
- Plant and equipment are serviced regularly to ensure good working order, all plant to comply with NRMM regulations – Stage IV emission standard. DPF filters are fitted where applicable.
- Delivery of materials and other equipment kept to a minimum.
- Road vehicle exhaust emissions are the main source of air pollution in the UK, and the main pollutants are nitrogen dioxide (NO2) and small particles known as PM10. Of primary relevance to construction and demolition activities is PM10, of which constructive-derived dust can contribute significantly to a worsening of local air quality conditions.
- Monitoring, recording, and reporting Monthly CO2 emission generated by site activities, waste removal and associated works by use of the PURE Delivery System.
- Dust nuisance occurs more readily during prolonged dry weather and especially in strong winds. The site management will ensure that during such weather conditions vigilance is maintained and plans are in place for dealing with these situations.

The environmental monitoring to be implemented for dust at this project has been assessed so that the following monitoring arrangement shall suffice the scope of works for Greggs Bakery.

- Real time continuous monitoring for Dust
- Attended portable monitoring for dust where applicable.

  Parameter
  - 150ug/m3 Trigger (Amber)
  - 190ug/m3 Action (Red)

London Square will take all practicable steps to minimise the risk of air pollution.

E1.7 Disposal of Waste

Section 34 of the Environmental Protection Act 1990 introduces a "Duty of Care" for anyone who produces, imports, carries, keeps, treats or disposes of controlled waste. Controlled waste includes domestic waste, scrap materials, excavated materials etc.

Every person who is subject to a duty of care must ensure that not only do they not commit an offence, but also take steps to prevent any other person involved in handling waste from committing an offence.

Pure Logistics will submit details to the client of proposals for handling storage, carriage, and disposal of waste. Currently we are using GBN to dispose of waste. Monthly waste reports are being generated by GBN of all waste disposal and breakdown and these will be sent across to London Square each month.

The current handling of waste is carried out using a bin compaction system, with on-site segregation taking place where possible and the carrier also performing an off-site segregation to ensure waste recycling is maximised.

Any hazardous waste that is created during construction work will be dealt with accordingly. e.g. Paint tins will be disposed of via a licensed waste contractor in accordance with the Hazardous Waste Regulations 2005.

Discharge of effluent chemical waste of any kind into any river, waterway or drainage system will not be allowed. The burning of rubbish is not permitted on site.

Pure Logistics has advised London Square of any waste disposal companies it proposes to use and will provide details of licenses etc. if not already supplied.

The company will also verify where required landfill sites or points of disposal it proposes to use. The following documentation will be collected from the waste contractor prior to any disposal;

- Waste Carriers Licence
- Waste Management Licence
- Consignment notes for hazardous waste

The company environmental manager will check the records of any waste consignments and licences (Premises Code) during his monitoring of operations. Disposal of waste will comply with statutory requirements at all times and waste transfer notes/consignment notes will be retained for the designated periods as follows:

- Waste Transfer Notes – 2 Years (Good practice now)
- Waste Consignment Notes – 3 Years

Waste will be packed and stored in the appropriate containers, which will prevent spillages, or contamination. Waste will not be mixed with other waste that may contaminate it and change its properties.

Waste will be kept to a minimum on site and be stored in separate areas with divisions between hazardous and non-hazardous waste.

Electrical and electronic equipment

With effect from 15 August 2018 the WEEE Directive moves to open scope. At present whether a particular product falls within the scope of the WEEE Directive has depended on whether it falls within a particular category of equipment set out in the WEEE Directive itself. Going forward all electrical and electronic equipment will be in scope unless it can benefit from one of a limited number of exemptions. The timing of this change varies from state to state, so those with businesses across the EU will need to check the exact date for each jurisdiction. For example, the UK is not moving to open scope until 1 January 2019.

Equally those making or importing any electrical equipment who have to date considered themselves out of scope should review their position.

Those companies relying on ROHS exemptions should review them as some exemptions do expire during 2018.

E1.8 Construction Plant

The use of Construction plant, (specifically materials handling plant), on site is essential to London Squares activities and to ensure that these do not have a significant impact on the environment London Square will undertake the following steps:

1. Only use vehicles and plant that meet a recognised standard. All vehicles on site will meet the relevant standards for emissions as required by the Department of Transport i.e. MOT emission tests, NRMM requirements. Plant will be regularly monitored and maintained so that they run efficiently therefore burning less fuel and producing fewer emissions
2. Regularly maintain and clean plant to ensure the best performance from the machinery as possible
3. Plant and vehicles are to be used in accordance with site requirements
4. Where possible or necessary electrical plant may be used as an alternative
5. Re-Fuelling procedure to be followed for all vehicles and plant
6. If there are any problems with plant or vehicles then plant maintenance must be notified immediately
7. Operators are expected to carry out examination of their plant on a regular basis. Plant should not be left on if not in use
8. Excessively noisy plant may be restricted to certain hours of work if required
9. All plant will have current certification to say it is in good working order

E1.9 Environmental Reviews/Inspections Reviews;

We as a company have annual environmental reviews (June/July) to address the following issues;

- Assessment, control, and reduction of the impact of the activity concerned on the various sectors of the environment.
- Energy management, savings, choice, and transportation; water management and savings
- Waste avoidance, recycling, re-use, transportation and disposal
- Evaluation, control and reduction of noise within and outside the site
- Selection of new production processes and changes to production processes
- Product planning (design, packaging, transportation, use and disposal)
- Environmental performance and practice of contractors, sub-contractors and suppliers
- Prevention and limitation of environmental accidents
- Contingency procedures in cases of environmental accidents
- Staff information and training on environmental issues
- External information on environmental issues

This review will identify the issues which require attention, and the environmental programme (Management Review/Action) should be designed and implemented to properly address these issues.

Inspections;

The Environmental Manager will aim to carry out regular environmental inspections at all our workplaces to monitor the effectiveness of the Environmental Procedures and ensure compliance. During the annual environmental review, the Environmental Manager can address possible improvement within the procedures and also action possible trends or accident/incident findings.

APPENDIX 1 –

PROCEDURES FOR CARRYING OUT ENVIRONMENTAL IMPACT ASSESSMENTS

Impact assessments are to be carried out under the control of the project management team e.g. Site Manager/Office Manager;

Impact assessment stages;

1. Classify Work: -	What is the activity, what stage in production does it occur, where does it take place, define tasks associated with work e.g. painting, storage of waste etc.
2. Identify Hazards: -	Is there a hazard? what could be affected, how can this cause harm, what is the source of hazard e.g. chemical, noise, waste
3. Determine Risks: -	Try to determine the type of harm that could be done by the hazard. Is it slightly harmful, harmful, or extremely harmful?
4. Decide if risk is tolerable: -	Is the harm decided upon tolerable, if it is not then action will be needed to reduce this risk
5. Prepare risk control plan: -	This should decide if action is needed, what action is required and the timescale for this action
6. Review the plan: -	Will the actions reduce the risks to a tolerable level, are any new hazards created, has the most cost effective solution been chosen, how effective have the changes been, how often should the plan be reviewed

Definitions;

1. Slightly Harmful: - e.g. minor spillage's in controlled areas, poor housekeeping and control of waste, increases in noise for short periods of time

2. Harmful: - e.g. Small fires involving small amounts of hazardous material, releases to atmosphere, spillage's in uncontrolled areas

3. Extremely Harmful: - e.g. major spillage of chemicals, major fire or explosion, incorrect disposal of hazardous waste

Likelihood of harm depends upon: -

1. Number of people or nature of environment exposed to hazard

2. Frequency and duration of exposure to the hazard

3. Failure of services e.g. electricity and water

4. Failure of plant and machinery components and safety devices

5. Exposure to the elements

6. Protection afforded by precautions taken

7. Unsafe acts (unintended errors or intentional violations of procedures) by persons, who:

a) May not know what the hazards are

b) May not have the knowledge, physical capacity or skill to do the work

c) Underestimate risks to which they are exposed

d) Underestimate the practicality and utility of safe working methods

Likely = More than once a month

Unlikely = Less than once a month but more than once a year

Highly Unlikely = Less than once a year

These subjective impact assessments should normally take into account all the people and environment exposed to a hazard. Thus any given hazard is more serious if it affects a greater number of people or wider environment. But some of the larger risks may be associated with an occasional task such as the use of substance for a one off purpose.

London Square
Environmental Risk Assessment Report

Sheet 1 of 2

Location; Ref;

Assessor(s); Date;

Task / Activity;

Hazards/Impacts Identified;

Associated Risks/Impacts:

Severity					
Slightly Harmful		Harmful		Extremely Harmful	
Likelihood of Harm					
Highly Unlikely		Unlikely		Likely	

Risk Level Estimator:

	Slightly harmful	Harmful	Extremely harmful
Highly unlikely	TRIVIAL RISK	TOLERABLE RISK	MODERATE RISK
Unlikely	TOLERABLE RISK	MODERATE RISK	SUBSTANTIAL RISK
Likely	MODERATE RISK	SUBSTANTIAL RISK	INTOLERABLE RISK

Risk Control Plan:

RISK LEVEL	ACTION AND TIME SCALE
TRIVIAL	No action is required and no documentary records need to be kept.
TOLERABLE	No additional controls are required. Consideration may be given to a more cost - effective solution or improvement that imposes no additional cost burden. Monitoring is required to ensure that the controls are maintained.
MODERATE	Efforts should be made to reduce risk, but the costs of prevention should be carefully measured and limited. Risk reduction measures should be implemented within a defined time period. Where the moderate risk is associated with extremely harmful consequences, further assessment may be necessary to establish more precisely the likelihood of harm as a basis for determining the need for improved control measures.
SUBSTANTIAL	Work should not be started until the risk has been reduced. Considerable resources may have to be allocated to reduce the risk. Where the risk involves work in progress, urgent action should be taken.

INTOLERABLE	Work should not be *started or continued* until the risk has been reduced. If it is not possible to reduce even with unlimited resources, work has to remain prohibited.

NOTE: Tolerable here means that risk has been reduced to the lowest level that is reasonably practicable.

RISK/IMPACT ASSESSMENT REPORT

ACTIONS REQUIRED	ACTION/ IMPLEMENTATIONS BY

ACTION REVIEW REQUIRED:

SIGNED: _____DATE: _____APPROVED:_____

APPENDIX 3

Prevention of Pollution of Watercourses Due to Unauthorised Discharge into Site Drains

The Water Act 2014(WA)

This is the principle legislation relating to the control and protection of the water environment. It identifies as an offence the causing or knowingly permitting poisonous, noxious or polluting matter to enter controlled water.

Controlled waters are:

- Inland waters (rivers, streams, underground streams, canals, lakes and reservoirs).
- Groundwater (water in underground strata, wells and boreholes).
- Coastal waters.
- Relevant territorial waters.

The offence of" causing" is one of strict liability; that is to say that it does not require knowledge of the event.

Authorised discharges can be made only after application to the Environment Agency and then only on receipt of written authorisation.

Trade Effluents

The relevant part of the WA is that dealing of "trade effluents" discharging into public sewers.

Trade effluent means any liquid, either with or without suspended particles, which is wholly or partly produced in the course of any trade or industry carried on a trade premises. This includes construction sites but not domestic premises.

As previously identified, it is an offence to discharge any trade effluent into a public sewer without authorisation from the EA. The principal contractor on identification of the requirement will normally submit applications for discharge.

Company Policy

It is company policy that under no circumstances are substances to be discharged down drains on any site we support unless specific written authority has been granted by the EA. Verbal instruction from the principal contractor or one of his officers is not sufficient to meet the requirements as identified at the beginning of this section.

Practical Measures

The following key points are given to concentrate minds on issues, which commonly cause water pollution problems. Points to look for on sites:

- If water run-off from the site could find its way into ditches, streams, rivers, ponds etc., ensure effective precautions are in place to prevent this e.g. bunds, lagoons etc.
- Washout from concrete or mortar mixing plant and from wheel wash facilities must be controlled by lagoons or other effective means.
- Silty water from de-watering operations etc. must not be allowed to discharge without being treated. Methods include settlement lagoons or pumping onto grassed land.
- Written consents must be obtained before discharging into water courses.

- Fuel/oil/chemical storage facilities must be properly constructed:
    1. On a hard standing
    2. With secure/lockable valves, trigger guns etc., which are situated or protected to avoid accidental damage by plant and vehicles
    3. Bunded to contain 110% of the volume of the largest tank or drum
- Clear instructions/procedures must be in place to ensure careful control of tank filling operations e.g. by ensuring attendance at all times when filling is underway and by provision of clear tank level indicators to avoid over filling.
- On permanent sites such as plant yards, foul and surface water drains should be clearly identified e.g. oily and silty water from vehicle/plant, should not be allowed to enter surface water drains, water courses or soak-aways.

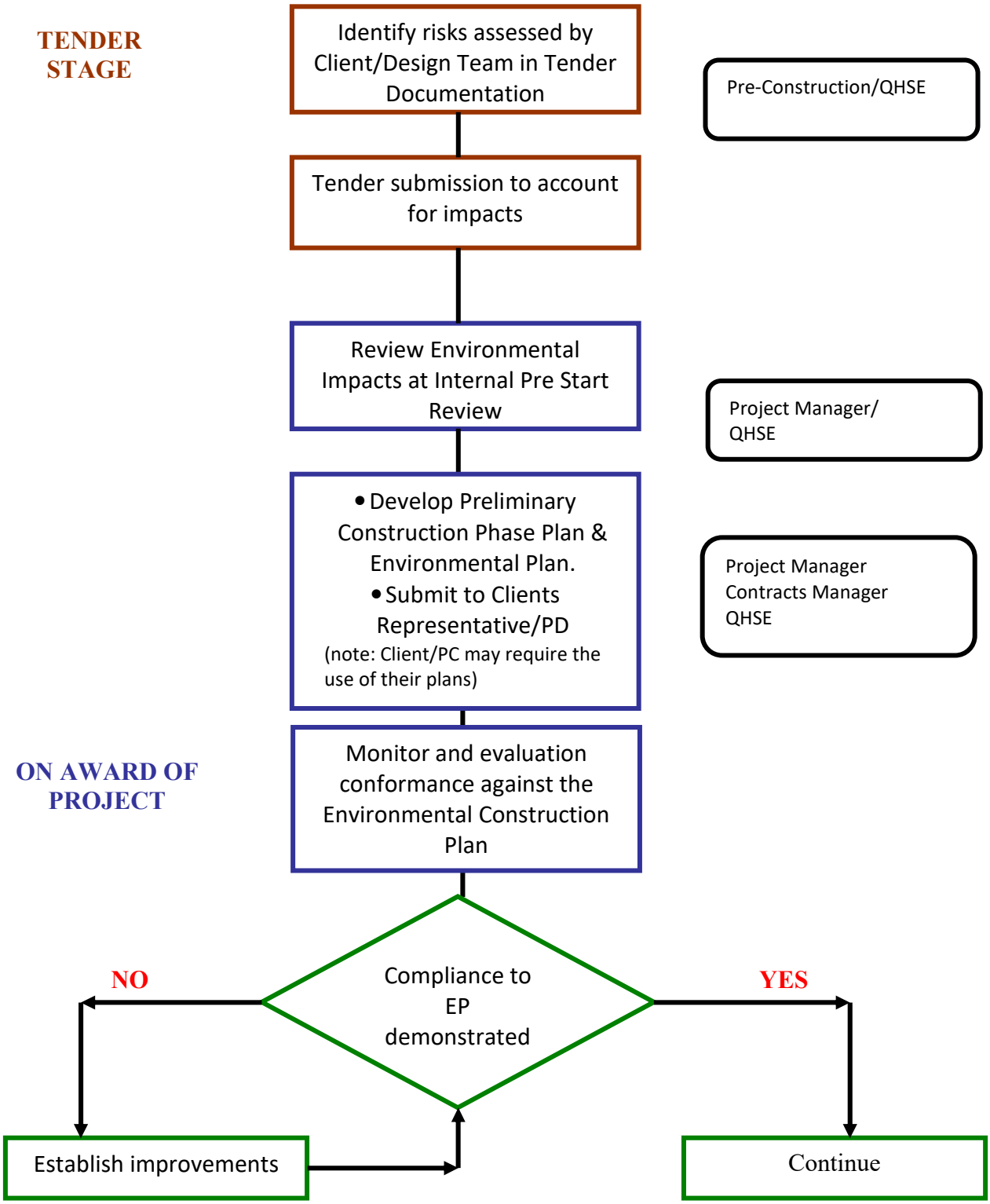
For more detailed interpretation the Environmental Manager must be consulted.

APPENDIX 4

PROCEDURAL FLOW CHARTS/REPORTS

1. Environmental Planning
2. Waste Management Procedure
3. Spillage Procedures (Emergency Procedures)
4. Emergency Spillage Record Log.
5. Water Pollution - Prevention Procedure
6. Complaints Log/Procedures
7. Environmental Inspection Report

1. Environmental Planning



2. Waste Management Procedure

GENERAL

HAZARDOUS

Waste Generated

Is waste hazardous or general?

Appoint registered/licensed contractor

Obtain the following documents from the appointed waste contractor;

- Waste Carriers Licence
- Waste Management Permit
- Transfer Notes (General)
- Consignment Notes (Hazardous)

Waste collected in skip

Site Manager to contact Contractor when skip is full

Contractor collects waste; Transfer Note is completed (good practice only)

Consignor's copy of Transfer Note is completed held for 2-year period

Approved waste contractor is contacted. Consignment Note paperwork is raised

Waste collected as planned

Collection occurs; Consignment Note is completed

Confirmation of integrity on delivery to external collection point

Non-Conformance – immediate suspension of contract

Copy is passed to centralised, identified location and held for 3-year period

Consignment notes to be provided for the H&S File at end of project

3. Spillage Procedure

Get Away;

- Turn off any ignition source, if you can. If you see or smell a hazard, Move away to a safe distance.

- This seems obvious but it is surprising how many people spot a hazard or spill and try to take a closer look. Without proper protection they could be disabled or killed.

- Remember that any spill, large or small can be dangerous. Unless you know the nature of the material involved, KEEP YOUR DISTANCE and wait for someone with more training or experience.

Identify;

- What is it?
- In many cases this will be a split-second observation. Don't go back to find out, just think for a second;
- Did you see a label?
- Was it foaming or fuming?
- Is there Fire?
- What did it smell like?
- What was it doing?
- All these questions are important and accurate information should be passed to the Emergency Response Team

Get Help;

- Call your Emergency Response Team

- You may also need to advise project security desk who will advise the emergency services by dialling 999

Seal Off & Alert Others;

- This will keep other people away and isolate the area

- Warn your fellow employees about the dangers. Use barrier tape/free standing signs

Look for Injuries;

- Stand by to assist Emergency services/Emergency response team
- If there are casualties or injuries, deal with them first
- Remember; do not put yourself at risk
- Do not try and retrieve an injured person from a spill area unless you are completely protected yourself

Identify The Hazard;

What is the chemical?

What are the dangers?

- Check the Material Safety Data Sheet. These are required for all hazardous chemicals. It details the chemical name, the hazard and what to do in an emergency
- If identification necessitates an authorised person going back into the spill area, assume the worst and be careful. Use full body protection with breathing apparatus
- DO NOT ENTER spill area alone or without back up
- If you do not have the right equipment or training to deal with the hazard, GET HELP

Plan of Action;

- Once the chemical has been identified a specific procedure will be actioned
- The Emergency Response Team Leader, or his deputy, wills co-ordinate this
- The correct protective clothing should be worn
- Be certain the right equipment is utilised for the situation you are dealing with

Contain The Spillage;

- Containment is vital in all spill situations. The faster the spill is contained the less damage there will be to people, to plant and environment. Always approach with caution and don't take risks.

- Containment really means TWO things;

    1. Firstly, stop the spill or leak. This may only mean closing a valve, or shutting off a pump to stop a flow, or applying an industrial bandage to a leaking hose

    2. Secondly, build a barrier to stop the spread of the leak, or divert the flow to a controlled area. It is extremely important that the spill does not reach a watercourse, or drain, where it can contaminate the water supply, lakes, or rivers. Containment involves the use of clean up materials such as socks, booms, pillows, sheets, drain covers etc.

- Shut off ventilation and air conditioning systems to keep gases, pours and mists from spreading to the rest of the plants.

- This is what containment is all about – The control of hazards

Clean Up;

- Be careful – do not touch the spill. Use the correct clean up materials

- Do not smoke or make sparks of any kind. Always be sensible

- By acting quickly, you can minimise environmental contamination and costly clean-up operations

- Materials used should be properly stored in a suitable container

- Remember that the absorbed materials have the same properties and hazards as the original spilled materials

Review;

- After the spill, review what happened, could it have been prevented, review your plan

All spills are dangerous and should be treated seriously, no matter how small. But if you act quickly and know what to do to minimise the hazard, then you will ready when an emergency happens

Training;

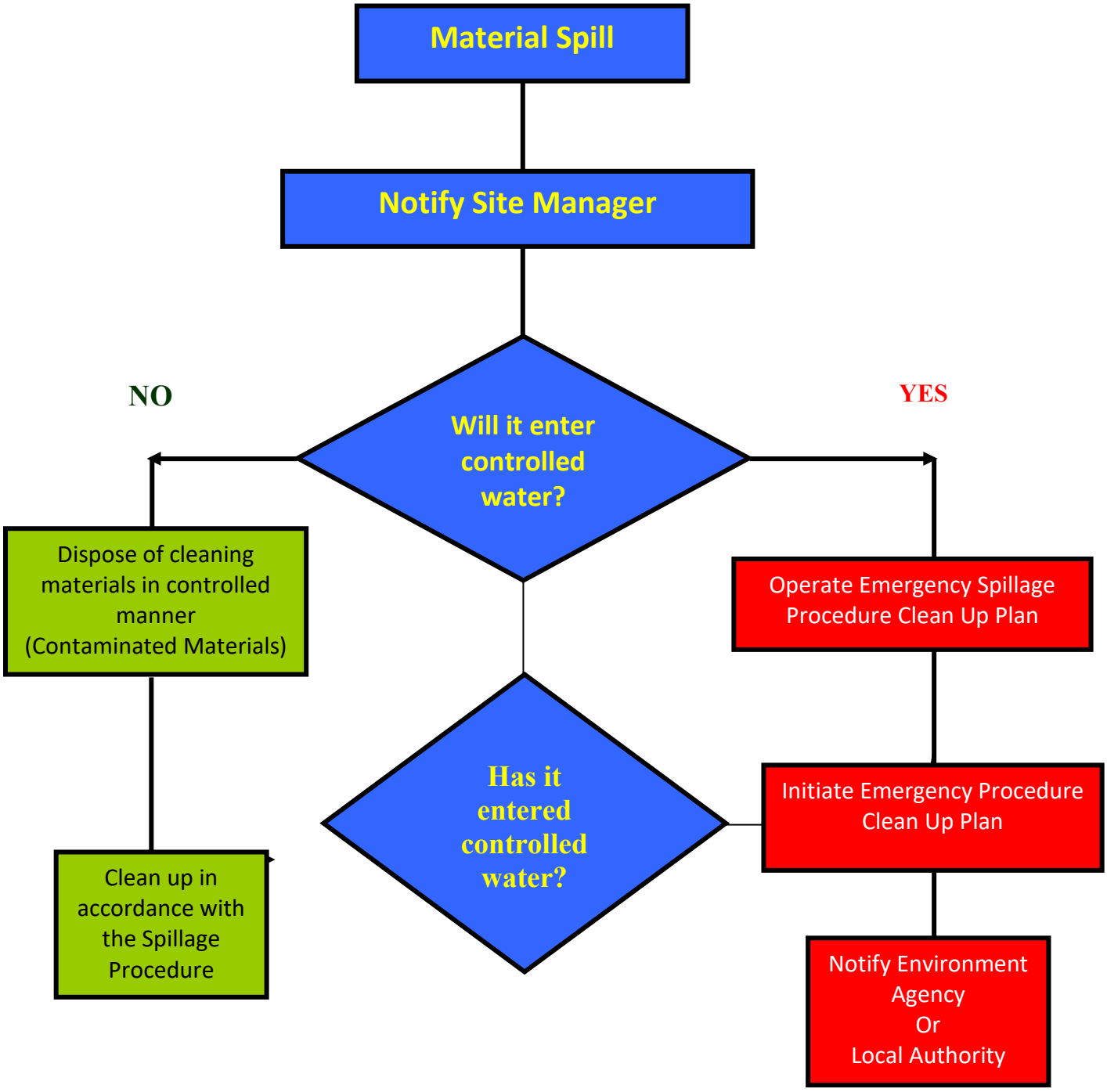
Operatives within the workplace will be trained in the emergency procedures and the use of the designated spillage kit/material.

On high risk projects, emergency procedures will be tested to review and improve awareness and training. An emergency drill log will be completed to record attendance and recommended improvements.

4. Emergency Spillage Drill Training Attendance

Operative Name	Signature	Date Of Drill	Recommendations

5. Water Pollution - Prevention Procedures



6. Complaints Log – Procedures

Date	Person Making Complaint	Nature of The Complaint	Action Taken	Response Date & Ref

All complaints must be recorded and details established to enable a response.

The following steps must be followed in relation to any complaint;

- All details of the complaint must be recorded on the above register
- A copy of the register must then be sent to the Construction Manager/Environmental Manager
- A plan of action will then be established to ensure that the complaint is dealt with
- Records of actions and any correspondences must be kept
- The Site Manager/Environmental Manager will review procedures to possibly prevent any further complaints (If Appropriate)

7. Environmental Inspection Report

Site Location:	Contract Number; Page; Date;

Site Manager;	Contracts Manager;	Date and Time of Inspection

Key: N/A = Not Applicable S = Satisfactory U = Unsatisfactory A = Immediate Action

Environmental Management Plan (SWMP)		Waste Licences/Permits	
Pre-tender H&S Plan (If Applicable)		Waste Transfer Notes/Consignment Notes	
Environmental Impact Assessments		Pollution Control / Spillage Procedures	
Complaints Log		Statutory Nuisance (Noise, Wheel Wash, Dust)	
COSHH Procedures (MSDS)		Noise Procedures/ Noise Assessments	
Training Undertaken / Requirements		LPG / Fuel Storage / Refuelling	
Spillage Training		Vehicle Drip Trays	
Emergency Response Training		CO2 Emissions/Procedures	
Premises Code In Place		Asbestos Removal	
Waste Segregation		Environmental Non-Compliances	

Spillages / Complaints /EA or LA Visits;

Details of Any Spillages	Environmental Complaints/Nuisance	Details of Visits From EA/LA

Acknowledgements

Signature of Project/Site Manager	Signature of Environmental Manager

ENVIRONMENTAL INSPECTION CONTINUATION SHEET

Observations / Recommendations and future advice made during this inspection	Action

Appendix iv

SOCOTEC Report

Our Ref: 293987

10th October 2024

Peter Holmes
Project Manager
London Square Limited
One York Road
Uxbridge
London
UB8 1RN

Email: Peter.Holmes@londonsquare.co.uk
CC: miller.perry@socotec.com

SOCOTEC UK Ltd
Environment and Safety
Unit D, 2 Wilkinson Road,
Bankside Trade Park,
Cirencester,
Gloucestershire,
GL7 1YT

Tel: 01285 700593
Web: www.socotec.co.uk

Report Number: 24_09_293987_DB_01

Dear Peter,

Noise and Vibration Baseline assessment.

Please find enclosed the report relating to the recent Noise and Vibration Baseline Assessment carried out for London Square Limited, at the old Greggs factory in Twickenham, Gould Road, Twickenham, TW2 6RT on the 24th of September 2024.

An account for this work will be forwarded to you under separate cover. The work was undertaken according to our General Conditions of Contract.

If we can be of any further assistance to you in this matter, please do not hesitate to contact me.

Yours sincerely

Daniel Bhatt MSc MIOA AFOH
Lead Acoustic Consultant & Occupational Hygiene Technologist
Environment and Safety
SOCOTEC UK Limited
Mobile: 07485 358900
Tel: 01285 700 593
Email: daniel.bhatt@socotec.com

If you have any comments regarding our services or reports you can leave feedback by following the link below. https://www.surveymonkey.co.uk/r/CEN_customer_feedback

London Square Limited

Noise and Vibration Baseline Assessment

Twickenham

September 2024

Carried out for:

Peter Holmes
Project Manager
London Square Limited
One York Road
Uxbridge
London
UB8 1RN

Issue date: 10th October 2024

Report No: 24_09_293987_DB_01

SOCOTEC UK
Environment and Safety
Unit D, Wilkinson Road,
Bankside Trade Park,
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Gloucestershire,
GL7 1YT

Report No: 24_10_293987_DB_01

Issue date: 10th October 2024

Authorisations

Prepared by	Daniel Bhatt MSc MIOA AFOH | Lead Acoustic Consultant & Occupational Hygiene Technologist | Cirencester	
Technically Checked by	Chris Duffill BSc MIOA AFOH | Acoustic Consultant and Occupational Hygiene Technologist | Cirencester	
Approved for Issue by	Daniel Bhatt MSc MIOA AFOH | Lead Acoustic Consultant & Occupational Hygiene Technologist | Cirencester	

CONTENTS

EXECUTIVE SUMMARY

This report presents the findings of a Noise and Vibration Baseline Assessment carried out for London Square Limited on behalf of SOCOTEC Monitoring, Uckfield. The monitoring was carried out on the morning of 24th of September 2024 remotely. The assessment was performed by Daniel Bhatt MSc MIOA AFOH Lead Acoustic Consultant & Occupational Hygiene Technologist of SOCOTEC UK Limited's Environmental and Safety Division.

The aim of this baseline assessment was to determine amber and red trigger alerts for both noise and vibration during the demolition and construction phases at the old Greggs factory in Twickenham.

The initial results determined that noise trigger values of 63dB(A) for amber and 65dB(A) for red over a 5-minute period. Vibration was determined at 10 mm/s PPV for amber and 15 mm/s PPV for red.

However, based on guidance from the Environmental Health Officer (EHO) of London Borough of Richmond upon Thames (LBRuT) new revised trigger values listed in the table below are to be applied:

Table ES1: EHO noise and vibration trigger values advised

Parameter	Trigger Amber	Trigger Red
Noise level	75dB, Leq,15min (Short-term)	80dB Leq,15min (Short-term)
	70dB, Leq,10hr (08:00 to 18:00)	75dB Leq,10hr (08:00 to 18:00)
Vibration – Occupied residential building	Non-provided	1 mm/s PPV
Vibration – Occupied commercial premises*	Non-provided	3 mm/s PPV

*Note: *premises where work is not of an especially sensitive vibration sensitive nature*

Recommendations

There are no recommendations given for the assessment undertaken. However, should the client require further recommendations for noise and vibration mitigation this can be provided by SOCOTEC UK Limited.

1 INTRODUCTION

1.1 This report presents the findings of a Noise and Vibration Baseline Assessment carried out for London Square Limited on behalf of SOCOTEC Monitoring, Uckfield. The monitoring was carried out during the morning of 24th of September 2024 remotely by the use of SOCOTEC Monitoring noise and vibration units that were previously installed on the 6th of September 2024. The assessment was performed by Daniel Bhatt MSc MIOA AFOH Lead Acoustic Consultant & Occupational Hygiene Technologist of SOCOTEC UK Limited's Environmental and Safety Division. The site is managed by Peter Holmes (Project Manager) and was commissioned through SOCOTEC Monitoring, Uckfield.

1.2 The work undertaken was the assessment of baseline noise levels in order to produce recommended trigger alert levels for Amber and Red alerts. This was undertaken through remote monitoring and guidance from '*BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*' and '*BS 5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration'*.

1.3 The monitoring equipment had been installed by SOCOTEC Monitoring on the 6th of September 2024.

1.4 This noise and vibration investigation was requested by Peter Holmes of London Square Limited through SOCOTEC Monitoring, Uckfield.

2 SCOPE AND EXCLUSIONS

2.1 The aim was to monitor noise levels from the remote monitors set up by SOCOTEC Monitoring on the 6th of September 2024 during site down-time, on the 24th of September 2024, for a period of 3 hours, 08:00 to 11:00, to determine baseline ambient noise levels when site activity was halted. The assessment was undertaken by a desktop exercise. No site attendance by the Acoustic Consultancy team was made. This was undertaken to determine trigger values for Amber and Red alerts for both Noise and Vibration. Guidance from *BS 5228-1:2009+A1:2014* part 1 and 2 was used to recommend initial trigger values.

2.2 The decision taken for the location of the fixed monitoring equipment was made based on the proximity of demolition works to the most affected noise sensitive receptors (NSRs), those being the residents on the corner of Gould Road and Crane Road, and those closest to the site boundary on Norcutt Road. An additional monitor was recommended for mobile setup, to be moved during the various stages of demolition and to be located in the optimum position at the most affected NSRs in relation to the areas on-site where demolition works were to be carried out at any given time. Initially these would be the resident whose rear façade is closest to the site boundary and thus demolition works, these being the residents further down Norcutt Road around No.37.

2.3 It was advised, and in the understanding, that the Environmental Health Officer (EHO) London Borough of Richmond upon Thames (LBRuT) would review the trigger values and monitoring locations recommended by SOCOTEC UK Limited with an aim to provide consent under Section 60 of the '*Control of Pollution Act 1974'* or amend any of the initial recommendations as they saw fit.

3 PROCESS AND OBSERVATIONS

3.1 No site observations were made due to site attendance not being carried out by the Acoustic Consultancy team.

3.2 It was reported by London Square Limited that all site activity was ceased between the hours of 08:00 and 11:00 on the 24th of September 2024, and based on this report SOCOTEC UK Limited assumes this to be the case.

3.3 All noise in the residential area is therefore assumed to be ambient levels in absence of any site related noise and is therefore considered representative of the general noise climate.

3.4 The noise and vibration monitors, installed by SOCOTEC Monitoring, Uckfield, are placed on the site boundary with one fixed meter placed on the corner of Gould and Crane Road, one fixed meter at the top of Norcutt Road near number 67 and the mobile units located near number 37 Norcutt Road.

4 NOISE AND VIBRATION CONTROLS

4.1 At this stage of the assessment, and when writing this report, it is unclear to the Acoustic Consultancy Team if any forms of noise and vibration controls are on site. Mitigation measures can be reviewed at a later stage should there be the requirement.

5 MONITORING METHODS

6.1 See Appendix A – Methods for the test method and equipment used.

6.2 Remote monitoring was undertaken with the use of SOCOTEC Monitoring's remote devices.

6.3 The sound level meters (SLM) microphone was equipped with windshields at all times, set with representative 15-minute measurement logger parameters, at a distance greater than 3.5m from any reflective surface excluding the ground.

Time weighting:	Fast
Frequency weighting:	A and Z
Logging Intervals:	15 minutes
Parameters:	L_{eq} L_{90}

6.4 The SLM was field calibrated to 94dB with an electronic calibrator prior to the readings being taken, and regularly checked remotely.

6.5 SOCOTEC UK Ltd Acoustic Consultancy Team were not in attendance throughout the baseline monitoring.

6 RESULTS AND DISCUSSION

6.1 Raw noise results

6.1.1 The following tables show the noise levels measured between the hours of 08:00 to 11:00 on the 24th of September 2024.

Table 1: Noise results from SND 01

Time	L_{Aeq}	L_{A90}
08:00	47.3	44.3
08:15	47.5	44.6
08:30	44.1	44.6
08:45	43.8	44
09:00	55.2	44.5
09:15	49.6	44.5
09:30	48.2	44.3
09:45	46.4	44.9
10:00	45	43.5
10:15	47.6	44.3
10:30	49.6	45.4
10:45	49.5	46.1
11:00	66.4	47.1

Table 2: Noise results from SND 02

Time	L_{Aeq}	L_{A90}
08:00	50.3	40
08:15	50.7	40.4
08:30	50.9	41
08:45	49.5	40.4
09:00	50.2	40.2
09:15	49.4	40.9
09:30	49.4	40.5
09:45	51.7	40.6
10:00	51.3	40
10:15	49.6	40.5
10:30	51.3	41.2
10:45	51.9	41.3
11:00	49.5	41.8

Table 3: Noise results from SND 03

Time	L_{Aeq}	L_{A90}
08:00	39.5	37.9
08:15	46.1	38.4
08:30	38.8	38.8
08:45	39.4	38.1
09:00	42.2	37.9
09:15	47.7	38.3
09:30	43	38.9
09:45	41.1	38.2
10:00	42	37.6
10:15	40.1	37.5
10:30	40.6	39.1
10:45	41.1	38.7

11:00	44.7	40.1

6.2 Assessment of environmental noise data

6.2.1 A pre-construction baseline nose assessment was made in the area using the fixed and mobile monitors, with the combined results showing ambient noise levels averaged over a 3-hour measurement period, which was considered representative of ambient noise levels in the urban area.

6.2.2 The collected L_{Aeq} noise level data from each of the 3 devices were averaged using log averaging calculations to a single value number. Then the log average of each single number was calculated to determine the ambient noise level in the area into a single value. This value was 53dB(A) L_{eq}. The arithmetical average of the L_{A90} was also determined for reference only, and is not used to determine trigger values.

Table 4: Average noise calculations from all 3 monitors.

	SND - 001	SND - 002	SND - 003	Average
L_{Aeq}	56	51	43	53
L_{A90}	45	41	38	41

6.3 Assessment of environmental noise data

6.3.1 Demolition and construction noise threshold levels were determined based on the baseline assessment made and with guidance from ‘BS 5228-1:2009+A1:2014 ‘Code of practice for noise and vibration control on construction and open sites – Part 1: Noise’ ABC method of determining the potential of significant effect at dwellings when the site noise level, rounded to the nearest decibel, exceeded the listed value.

6.3.2 Due to the site noise being likely to exceed 65dB $L_{Aeq,T}$ and lower ambient noise levels, Category A of the ABC method was deemed to be the appropriate value to set the initial threshold limit at. Due to the nature of the urban area a period of 5 minutes threshold exceedance was also initially suggested with a 3dB difference between an Amber and Red alert, which is also based on the low ambient noise levels measured during the baseline assessment and the density and proximity to NSRs in this urban area.

6.3.3 Weather data was unavailable during the remote monitoring. However, based on historic weather data collected from:
(https://www.timeanddate.com/weather/@6947336/historic?month=9&year=2024)
The weather was clear, dry, 15°C with north-westerly winds less than 5 m/s.

6.4 Transient vibration trigger levels

6.4.1 Vibration results were not available at the time of writing this report, therefore the threshold levels were selected with guidance from ‘BS 5228-2:2009+A1:2014 ‘Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration’ for transient vibration guide values for cosmetic damage of an unreinforced or light framed structure / residential or light commercial building; these being a limit (Red alert) at 15mm/s ppv and an Amber alter at 10mm/s ppv.

6.5 EHO revised noise and vibration trigger levels

6.5.1 Based in light from an email response from the EHO of LBRuT (see Appendix F) it is, therefore, proposed to proceed with the current monitor location setup programme, as outlined in this report, and the revised threshold values for noise and vibration as listed in Table 5 below:

Table 5: Revised noise and vibration trigger values based on EHO recommendations.

Parameter	Trigger Amber	Trigger Red
Noise level	75dB, Leq,15min (Short-term)	80dB Leq,15min (Short-term)
	70dB, Leq,10hr (08:00 to 18:00)	75dB Leq,10hr (08:00 to 18:00)
Vibration – Occupied residential building	Non-provided	1 mm/s PPV
Vibration – Occupied commercial premises*	Non-provided	3 mm/s PPV

*Note: *premises where work is not of an especially sensitive vibration sensitive nature*

7 CONCLUSIONS

7.1 In light of the recommendations given by the EHO of LBRuT the current monitoring programme, as outlined in this report, should continue with the revised trigger values given in Table 5 above.

8 RECOMMENDATIONS

8.1 There are no recommendations given for the assessment undertaken. However, should the client require further recommendations for noise and vibration mitigation this can be provided by SOCOTEC UK Limited.

9 REFERENCES

1. British Standards Institution BS EN 5228-2:2009+A1:2014 Noise and vibration on construction and open sites. London, BSI.

2. British Standards Institution BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings – Vibration sources other than blasting.

3. British Standards Institution BS 7385-2:1993 Evaluation and measurement for vibration in buildings. London, BSI. Part 2: Guide to damage levels from ground-borne vibration.

Environment Agency; Horizontal Guidance Note IPPC H3, Part 2 – Noise Assessment and Control

4. British Standards Institution BS EN 61672-1:2013 Electroacoustics. Sound level meters. Specifications. London, BSI.

5. British Standards Institution BS EN IEC 60942:2018. Electroacoustics. Sound calibrators. London, BSI.

APPENDIX A – METHODS

Process	**Environmental Noise Measurements**
Reference Documentation	British Standard BS 7445, ISO 1996-1:2016, ISO-1996-2:2017, BS EN 5228-1:2009+A1:2014, BS EN 61672-1:2013, BS EN IEC 60942:2018 SOCOTEC in house procedure – Noise Surveys - SCI/ENV/04-7 See Appendix F for LBRuT noise threshold level guidance
Monitoring equipment / Serial Number / Calibration status	**Available on request**
Analysis/Reporting Laboratory	SOCOTEC UK Cirencester and Monitoring
Accreditation Status	Not Accredited

Process	**Ground Borne Vibration Monitoring**
Reference Documentation	SOCOTEC in house procedure – Building and Environmental Vibration Surveys – ENV/032-02 See Appendix F for LBRuT vibration threshold level guidance
Monitoring equipment / Serial Number / Calibration status	**Available on request**
Accreditation	Not accredited
Laboratory	SOCOTEC UK Cirencester and Monitoring

APPENDIX B – VIBRATION TERM GLOSSARY

$a_{w(x,y,z)}$: Root mean square (rms) single axis acceleration value of the frequency weighted vibration, in metres per second squared.

a_w: The frequency weighted acceleration of the highest orthogonal axis of vibration. When vibration in two or more axes is comparable the vibration total value (vector sum) may be used; it is the root-sum-of-squares of the three measured axes of vibration. Units are metres per second squared. (ms^{-2})

A(8): Daily vibration exposure (8-hour energy equivalent vibration total value) in metres per second squared. (ms^{-2})

VDV: Vibration Dose Value, a method of averaging the measured acceleration that uses the fourth-root-mean-quad. It is a better measure of the impulsive or shock vibration. Units are metres per second to the power 1.75. A guide figure of 17 $ms^{-1.75}$ is considered high.

Root-mean-square: Method of averaging fluctuating vibration levels.

Frequency weighted acceleration: Acceleration amplified at the certain frequencies to represent the response of the human body to vibration in the different planes.

Frequency (Hz): Number of cycles per second

PPV: Peak Particle Velocity is the greatest instantaneous particle velocity during a given time interval measured in millimetres per second (mm/s).

Lmin: Minimum level value measured.

Lmax: Maximum level value measured.

APPENDIX D – NOISE TERM GLOSSARY

Decibel (dB)	The unit of measure for sound pressure level, defined as the logarithm of the ratio between the actual sound pressure and a reference sound pressure (20μPa). Thus a wide set of values can be compressed into a small set of numbers.
L_{Aeq}	The equivalent continuous A-weighted noise level averaged over the measurement period.
'A' Weighting	The 'A' weighted acoustic energy scale corresponds closely with the response of the human ear.
L_{A90}	The noise level exceeded for 90% of the time.
Max L	The maximum root mean square level of weighted sound pressure level over the reference period.
Max P	The maximum level of un-weighted sound pressure level measured over the reference period.
$L_{EP,d}$	The daily personal noise exposure defined as total exposure to noise throughout the day, taking into account noise levels in work areas and time spent in them.
SEL (LEq)	The constant level which if maintained for a period of 1 second would have the same acoustic energy as the measured noise event.
Background Noise Level	The noise level exceeded for 90% of the time, which corresponds to the quieter periods. BS 4142:2014+A1:2019 defines a measure of background noise in terms of L_{A90} and a 1 hour day time reference period.
Rating Level	The specific noise level plus any adjustments for characteristic features of the noise.
Specific Noise Level	The equivalent continuous 'A' weighted sound pressure level at the assessment position produced by the specific noise source over a given reference time interval.
Residual Noise	The equivalent continuous 'A' weighted sound pressure level at the assessment position, without the specific noise source present, over a given reference time interval.

APPENDIX E – ENVIRONMENTAL NOISE LEGISLATION

Legal duties and liabilities

Legal implications of environmental noise fall into three categories:

- Common law
- Criminal liabilities.
- Rights to compensation or sound insulation.

In addition, the European Union has much legislation fixing maximum sound power levels for vehicles, machines and aircraft – although this is created to aid development of the single market rather than as a specifically environmental measure.

Common Law Duties

A duty not to interfere with use or enjoyment of land and rights in connection with it, expanded by statute law to provide clearer remedies for complainants and local authorities. The noise standards applied to common law and statutory nuisances are entirely within the remit of the courts, but environmental health offices are employed by local authorities to deal with noise (and other public health) complaints from the public. This category of nuisance applies to all owners or occupiers of property, including vehicles in the street.

Reference should be made to:

- Noise and statutory nuisance Act 1993 – (England & Wales).
- Circular on the 'Noise and statutory nuisance Act 1993, DoE Circular 9/97– (England & Wales).
- Law of statutory nuisance – part 1 premises– (England & Wales).

Principles of Noise Nuisance

Some important points have to be satisfied before any noise nuisance action (or defence) can be successful. The principles apply whichever type of proceedings are taken:

- The nuisance must cause definite and substantial interference with personal comfort or enjoyment of property.
- The noise need not be injurious to health.
- There is no fixed standard of comfort, indicating that local conditions (such as background noise) will be taken into account.
- Complainants who newly occupy property already subject to noise have as many rights to redress as occupiers newly affected by noise ('coming to the nuisance').
- Temporary noise sources will not generally be accepted as nuisances. **Note** that 'temporary' is not the same as 'intermittent'.
- Buildings operations managed in a reasonable manner are unlikely to be successfully interfered with by the courts.
- Malice by a complainant or defendant will be taken into account.

- In civil proceedings it is not sufficient to show that all reasonable steps have been taken to prevent the noise occurring. By contrast in statutory proceedings, businesses have a defence that they used the best practicable means to deal with noise when legal action is taken by EHO's under the 'Environmental Protection Act 1990'.
- Noise resulting from an activity granted planning consent, and which causes a change in the character of a neighbourhood may not be a nuisance.
- Complainants have to show the defendant knew, or ought to have known of the nuisance.

APPENDIX F – RESPONSE FROM LBRUT EHO

Afternoon both,

We have just received the following comments from the case officer in regard to the above. Copied in full below:

"Our EHO has now reviewed Condition U0179001 (CMS/Logistics Plan) of DD09.

To remind you, point j) of this condition states: Details of measures that will be applied to control the emission of noise, vibration and dust including working hours. This should follow Best Practice detailed within BS5288:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites;

In terms of the submitted detail we note within the submitted Construction Method Statement under the heading Noise/Vibration Management the following:

'It has been assessed that the following monitoring arrangement shall suffice the scope of works for Greggs Bakery ➢ Real time monitoring for noise, dust & vibration for demo phase ONLY ➢ Real time monitoring for dust for construction phase ➢ Attended portable monitoring for noise & vibrations if required ➢ External or internal monitoring resources'

However, no detail has been provided has been provided as to how the above was level of monitoring was determined, the location and duration of monitoring or the limits to be imposed.

To overcome this, our EHO has recommended the CMS is revised to undertake continuous monitoring with position agreed by the Environmental Protection Team during the demolition phase to ensure compliance with following limits;

Parameter	*Trigger (Amber)*	*Action (Red)*
Noise level	*75db (A)Leq,15min(short term)*	*80dB(A)Leq,15min(short term)*
	70dB(A)Leq,10hr (08:00 to 18:00)	*75dB(A)Leq,10hr (08:00to18:00)*

In the event the amber trigger limit is met, an investigation will need to be initiated to determine the sources of significant noise and reduce these as far as possible, with all demolition work ceasing upon reaching the red trigger level. Where plant and/or equipment is used continuously and cannot meet the noise limits even with Best Practicable Means employed, then the developer must employ a staggered approach to works i.e. 2 hours on, 2 hrs off. For example for a week day the on hours would be 08:00 to 10:00, 12:00 to 14:00 and 16:00 to 18:00.

With Best Practicable Means for noise control defined in Section 72 of the Control of Pollution Act 1974 as follows;

"Best practicable means".

(1) This section shall apply for the construction of references in this Part of this Act to best practicable means.
(2) In that expression "practicable" means reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications.
(3) The means to be employed include the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and acoustic structures.
(4) The test of best practicable means is to apply only so far as compatible with any duty imposed by law, and in particular is to apply to statutory undertakers only so far as compatible with the duties imposed on them in their capacity of statutory undertakers.
(5) The said test is to apply only so far as compatible with safety and safe working conditions, and with the exigencies of any emergency or unforeseeable circumstances.
(6) Subject to the preceding provisions of this section, regard shall be had, in construing references to "best practicable means", to any relevant provision of a code of practice approved under the preceding section

In respect of vibration again no limits have been provided, and given the close proximity of sensitive receptors, the EHO has recommended the following limits to be imposed:

- *1mm/s PPV at occupied residential buildings*
- *3mm/s PPV at occupied commercial premises where work is not of an especially sensitive vibration sensitive nature*

With continuous vibration monitoring required for the entirety of the demolition phase and locations for monitoring and methodology including reporting agreed by the Environmental Protection Team prior to commencement of demolition (ASAP).

The submitted CMS goes on to state:

'A baseline monitoring for (Noise, Dust and Vibration) will be carried out on the surrounding site elevation on prior to commencement of works on site. Further monitoring will commence as agreed and instructed by client /and/or the principal contractor at this project.'

No detail has been provided of the baseline monitoring. Further, in respect of the above reference to monitoring needs to be included such that it will also be undertaken upon written instruction of the Environmental Protection Team with above limits applicable should the need occur.

Finally, Condition U0179070 does allow construction hours from 7am to 7pm on weekdays and 7am to 1.30pm on Saturdays. We would like to see a restriction on the type of works occurring during the first and last hours of the day (i.e. 7 to 8am and 6 to 7pm) where only quieter works will be able to take place. This would mean restricting the use of power tools or other potentially noisy works during these times. We would like to see this set out as part of the amendments to the CMS.

The transport element of this condition will be dealt with separately as part of discussions with Will Marshall".

Appendix v

(Outline) Construction Logistics Plan

FORMER GREGGS FACTORY, TWICKENHAM
RESIDENTIAL SCHEME
OUTLINE CONSTRUCTION LOGISTICS PLAN

PROJECT NO. 3760/1180 DOC NO. D005

DATE: OCTOBER 2024

VERSION: 1.4

CLIENT: LONDON SQUARE DEVELOPMENTS LTD

Velocity Transport Planning Ltd

www.velocity-tp.com

VELOCITY
Transport Planning

DOCUMENT CONTROL SHEET

Document Reference

Project Title	Former Greggs Factory, Twickenham Residential Scheme
Document Title	Outline Construction Logistics Plan
Project Number	3760/1180
Document Number	D005
Revision No.	1.4
Document Date	OCTOBER 2024

Document Review

	Name	Date completed
Prepared By	SB	Mar 2022
Reviewed By	MP	July 2022
Authorised By	SF	July 2022

Notes

The document reference number, revision number and date are given on the footer of each page

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1 INTRODUCTION

1.1 INTRODUCTION

1.1.1 This Outline Construction Logistics Plan (CLP) has been prepared by Velocity Transport Planning on behalf of London Square Developments Ltd to accompany a detailed planning application for the redevelopment of the former Greggs Bakery Site and No.2 Gould Road, Twickenham, TW2 6RT.

1.1.2 This CLP has been prepared in accordance with Transport for London's best practice guidance.

1.2 CLP OBJECTIVES

1.2.1 The overall objectives of this Outline CLP are to reduce:

- Environmental impact: Lower vehicle emissions and noise levels;
- Road risk: Improve vehicle and road user safety;
- Congestion: Reduce trips overall and re-time where possible, especially in peak periods; and
- Cost: Efficient working practices and reduce deliveries.

1.2.2 To support the realisation of these objectives, several sub-objectives have been set out and include:

- Encouraging construction workers to travel to the site by non-car modes;
- Promoting smarter operations that reduce the need for construction travel or that reduce or eliminate trips in peak periods;
- Encouraging greater use of sustainable freight modes;
- Encouraging the use of greener vehicles;
- Managing the ongoing development and delivery of the CLP with construction contractors;
- Communicating site delivery and servicing facilities to workers and suppliers; and
- Encouraging the most efficient use of construction freight vehicles.

1.3 SITE CONTEXT

1.3.1 **Figure 1-1** illustrates the location of the site. The existing site comprises the former Greggs Bakery Site in Twickenham and no.2 Gould Road, within the London Borough of Richmond Upon Thames. The Site is L shaped and is bound by the River Crane to the north and the railway line beyond, residential properties on Norcutt Road to the east, Edwin Road to the south, residential properties on Crane Road to the west and further residential properties on Crane Road/ Gould Road and at Crane Mews to the north-west.

Figure 1-1: Site Location

1.3.2 The surrounding area is predominantly residential in character comprising rows of terraced streets. Crane Mews to the west comprises a mixed-use building of small commercial units and residential. To the south of the site, there is a small workshop for light industrial use.

1.3.3 Lockcorp House on Norcutt Road to the east of the site comprises an office building which has been the subject of various applications and has resulted in planning permission being granted for residential use. The most recently received approval for 15 affordable flats (mix of one, two and three bedroom units). Norcutt Road comprises mews-type properties with small rear gardens that adjoin the site. Craneford Way Depot to the north of the site beyond the River Crane and railway line comprises a large, underdeveloped waste Site.

1.3.4 The north of the site is adjacent to the River Crane. The river and land beyond to the north of the site are designated as Metropolitan Open Land (MOL). The Hamilton Road Conservation Area is located to the east of the site, with the boundary running between the back gardens of the properties on the east side of Norcutt Road.

1.3.5 Twickenham Railway Station, operated by Southwestern Railway, provides a number of services to and from London Waterloo and destinations in the southwest. In addition, several bus services are accessible within a 550m walk of the site along Heath Road.

1.3.6 The site has a PTAL of 2, indicating a poor level of public transport accessibility. As a result of the site being situated within an Outer London area with lower-than-average accessibility to public transport services, higher maximum car parking standards apply, as set out in the London Plan (March 2021).

1.3.7 The site and its surrounding road network are situated within the Controlled Parking Zone (CPZ) WT (West Twickenham), which restricts parking from Monday to Saturday between 08:30 to 18:30.

1.4 EXISTING SITE USE

1.4.1 The existing site comprises the former Greggs Bakery Site in Twickenham and no.2 Gould Road, within the London Borough of Richmond Upon Thames. The Site is L shaped and is bound by the River Crane to the north and the railway line beyond, residential properties on Norcutt Road to the east, Edwin Road to the south, residential properties on Crane Road to the west and further residential properties on Crane Road/ Gould Road and at Crane Mews to the north-west.

1.4.2 There is a range of buildings covering the majority of the site, which comprises an area of 1.1ha. The majority of the Greggs Bakery Site is covered by a single-storey industrial shed alongside large extract equipment. There are also a number of associated two and three-storey commercial buildings across the remainder of the site, which have developed in a piecemeal way over time. The existing buildings have reached the end of their life cycle. The application site also includes no. 2 Gould Road, a two-storey end of terrace house.

1.4.3 Due to the current plot coverage, the total floorspace across the site is 9,051 sqm existing Greggs industrial GIA and 75 sqm existing residential house GIA. The existing structures are built up to the boundaries of the gardens of the properties at Norcutt Road and Crane Road.

1.4.4 The site is highly constrained and is accessed via Edwin Road to the south and Gould Road to the north of the site. There is a small yard to the south of the site accessed from Edwin Road, which is where HGVs access the site. A limited amount of car parking associated with the existing bakery is located within the site accessed off Gould Road to the north of the site. Staff from Greggs Bakery were previously able to park on the surrounding streets prior to parking restrictions associated with the introduction of the 'West Twickenham CPZ', which came into force in May 2018.

1.4.5 The existing use of the site is for Use Class E(g)(iii) (industrial) purposes and includes ancillary office floor space associated with the bakery operations that previously operated from the site. The bakery operation is now redundant, and Greggs ceased the bakery use on the site in 2018. Greggs has been unable to sell the facility despite a marketing exercise which commenced in February 2018.

1.4.6 Greggs has operated on the site since its acquisition in 1994. Agents for Greggs have advised that throughout this period, it has proven problematic from an operational and asset management perspective. The buildings gave rise to unsustainable maintenance costs resulting in the business beginning a search for alternative premises in the late 1990s as the site was considered unfit for purpose. The business operated from the site unsatisfactorily and inefficiently, maintaining a difficult relationship with neighbouring residents. Alternative premises were identified in Enfield, and the Bakery production and distribution has now relocated outside of the Borough to a purpose-built facility which is more operationally efficient than the Bakery premises at Gould Road.

1.5 DEVELOPMENT PROPOSALS

1.5.1 The description of the proposed development is as follows:

> *'Demolition of existing buildings (with retention of a single dwelling) and redevelopment of the site to provide up to 116 residential units and 175 sqm commercial floorspace (Use Class E) with associated hard and soft landscaping, car parking and highways works and other associated works.'*

SUMMARY OF WORKS

1.5.2 Works consist of:

- Enabling, demolition and foundation work (pre-superstructure);
- Super-structure work, including fit-out; and
- External works.

1.6 CLP STRUCTURE

1.6.1 The remainder of this CLP is structured as follows:

- **Section 2** – describes the current situation on and around the site;
- **Section 3** – provides a description of the vehicle routing and access;
- **Section 4** – outlines the construction programme and methodology;
- **Section 5** – describes measures that can be implemented to ensure the CLP is effective in achieving the aims of reducing environmental impact, road risk, congestion and cost;
- **Section 6** – sets out the estimated vehicle movements; and
- **Section 7** – describes the implementation, monitoring and updating of the CLP.

2 CONTEXT, CONSIDERATIONS AND CHALLENGES

2.1 PLANS

2.1.1 The following maps show the area around the development site. The plans are included in full in **APPENDIX A**.

2.1.2 **Figure 2-1** shows a regional plan with the location of the site in the context of the highway network.

2.1.3 **Figure 2-2** shows the location of the site in relation to the surrounding local area.

2.1.4 **Figure 2-3** shows the site boundary in relation to the local highway network.

Figure 2-1: Regional Plan

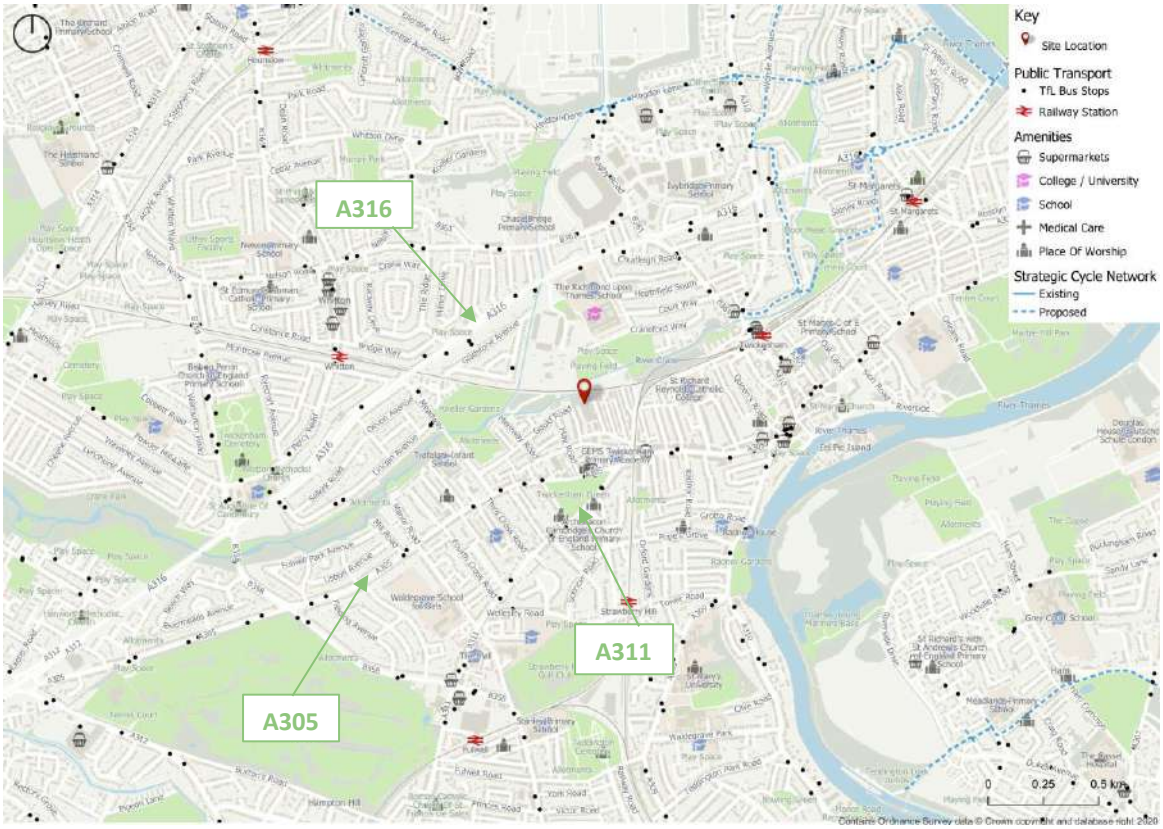


Figure 2-2: Local Context Plan

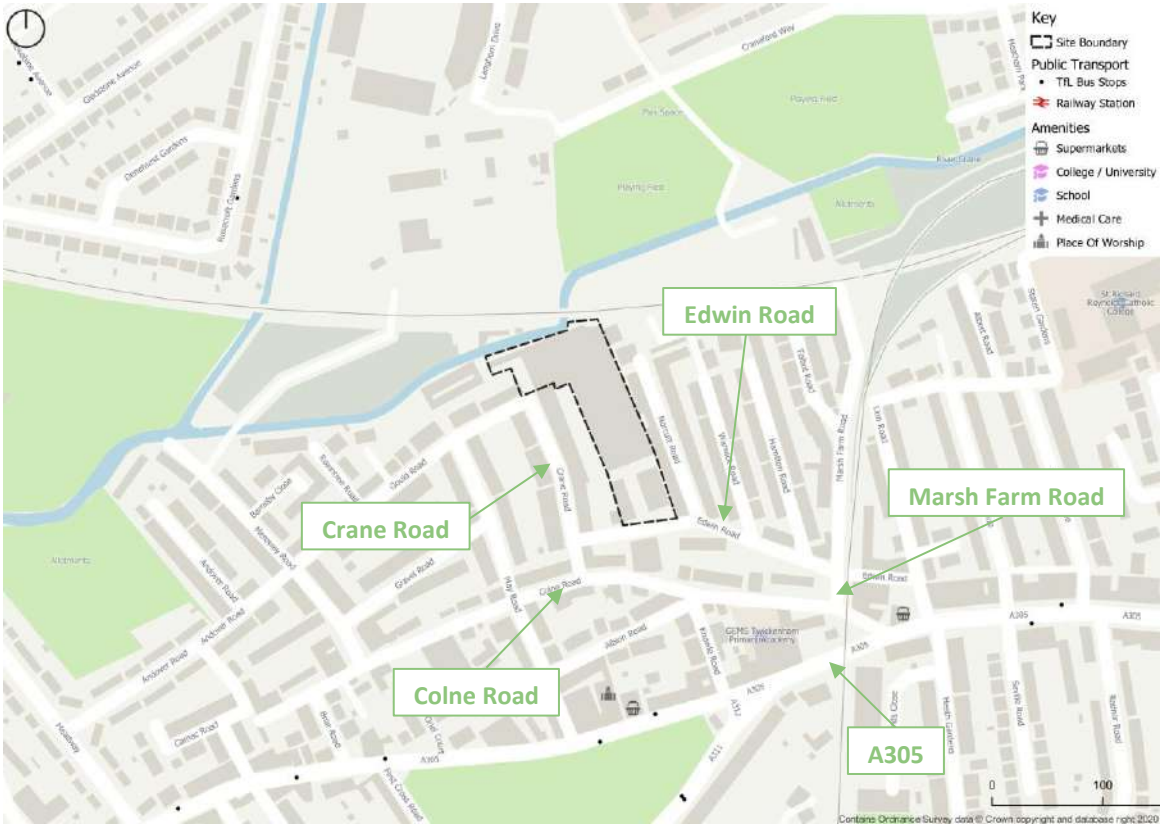


Figure 2-3: Site Boundary Plan

2.2 LOCAL ACCESS

HIGHWAY LAYOUT

2.2.1 There are currently two vehicular access points to the site: one from Edwin Road to the south and one to the north from the corner of Gould Road and Crane Road. The former was primarily used to accommodate larger operational HGVs associated with the site's former industrial use, with the latter generally used for employee and visitor parking.

2.2.2 Both Edwin Road and Gould Road are well connected to the wider road network. To the south of the site, Edwin Road connects through Marsh Farm Road or Colne Road to The Green/Heath Road (A305), carrying traffic between the centres of Richmond and Twickenham from Chertsey Road (A316) to the west, which in turn connects to the M3 to the west or Hampton Hill Road towards Heathrow. To the west of the site, traffic can access and egress Chertsey Road (A316) from Meadway, which in turn provides access towards Gould Road and the adjoining residential areas.

PUBLIC TRANSPORT

2.2.3 Public Transport Accessibility Level (PTAL) is a theoretical measure of the accessibility of a location based on the distance from frequent public transport services. The site has a PTAL of 2, which is deemed to be 'poor'; however, this only accounts for two local bus stops (providing access to seven routes) and not the nearby railway stations, i.e., Strawberry Hill Station and Twickenham Station. The stations are situated just outside the 12-minute PTAL walking catchment but are still within reasonable walking distance.

2.2.4 The site benefits from a number of bus routes in the area, with the closest bus routes situated along with Twickenham Green (stops GC, GL, GT and GM), all of which are situated within a six-minute walk to the south of the site. There are additional stops on Heath Road Grove Avenue (Stop GS) (an eight-minute walk) to the southeast of the site providing services towards Hounslow, Fulwell, Tolworth and Heathrow Airport.

2.2.5 The closest railway station to the site is Strawberry Hill, situated a 13-minute walk (1.1km) to the south of the site. Twickenham Railway Station, located approximately 1.6km to the east of the site along Station Road, provides more train services to destinations including London Waterloo, Reading, Clapham Junction, Chiswick and Wimbledon.

CYCLE NETWORK

2.2.6 There is no dedicated cycling infrastructure (i.e., cycleways and cycle lanes) in the vicinity of the site, and cyclists share the site's surrounding road network with vehicles. Cycle parking stands are provided along Heath Road (A305), and a further 30 cycle racks are provided at Twickenham Railway Station.

2.3 COMMUNITY CONSIDERATIONS

SCHOOLS

2.3.1 Twickenham Primary Academy is located to the southeast, with pedestrian access provided from both Colne Road and Heath Road. The access on Colne Road is located approximately 300m (3-minutes' walk) southeast of the site.

2.3.2 Trafalgar Infant School and Bright Horizons Nursery are located on Meadway, approximately 500m (6-minute walk) to the west of the site.

2.3.3 St Richard Reynolds Catholic College is located on Clifden Road, approximately 550m (7-minutes' walk) east of the site.

2.3.4 Archdeacon Cambridge's Church of England Primary School is located on The Green (A311), approximately 550m, or a 7-minute, walk south of the site.

2.3.5 Twickenham Primary Academy and Trafalgar Infant School/Bright Horizons Nursery are located on the proposed construction vehicle route, so local children may be walking alongside and across the construction access routes in order to travel from their homes to the school.

COLNE ROAD – SCHOOL STREET

2.3.6 In September 2021, The School Street scheme was approved and made permanent for Twickenham Primary Academy for part of Colne Road between the junction of March Farm Road and Albion Road.

2.3.7 School Streets do not operate during school holidays or at weekends, and the signs will be closed when not operational for holidays and half-term breaks.

2.3.8 The operating hours for Colne Road are Monday to Friday, 08:20 to 09:00 and 15:30 to 16:15.

2.3.9 People walking, scooting, using wheelchairs, mobility scooters, and cycles (including adapted cycles) are not restricted. All other motor vehicles are restricted during the operating times displayed on the signs, subject to exemptions.

2.3.10 The following motorised vehicles are automatically exempt:

- Emergency vehicles
- Council waste trucks serving properties within the School Street zone
- Postal service vehicles serving post boxes within the School Street zone
- Statutory undertakers (such as water and gas companies) attending emergency works within the School Street zone
- School buses serving the school or properties within the School Street zone
- Public transport and taxis (Hackney Carriage) serving properties within the School Street zone

2.3.11 The following vehicles are also exempt, but they must apply for exemption using the LBRuTs online exemption form or contact LBRuT:

- Residents and businesses within the School Street zone
- Blue badge holders (when their destination is within the School Street zone)
- Carers and healthcare workers serving properties within the School Street zone
- Private hire taxis serving properties within the School Street zone
- Tradespeople/service providers serving properties within the School Street
- Delivery vehicles serving properties within the School Street

SHOPS AND SERVICES

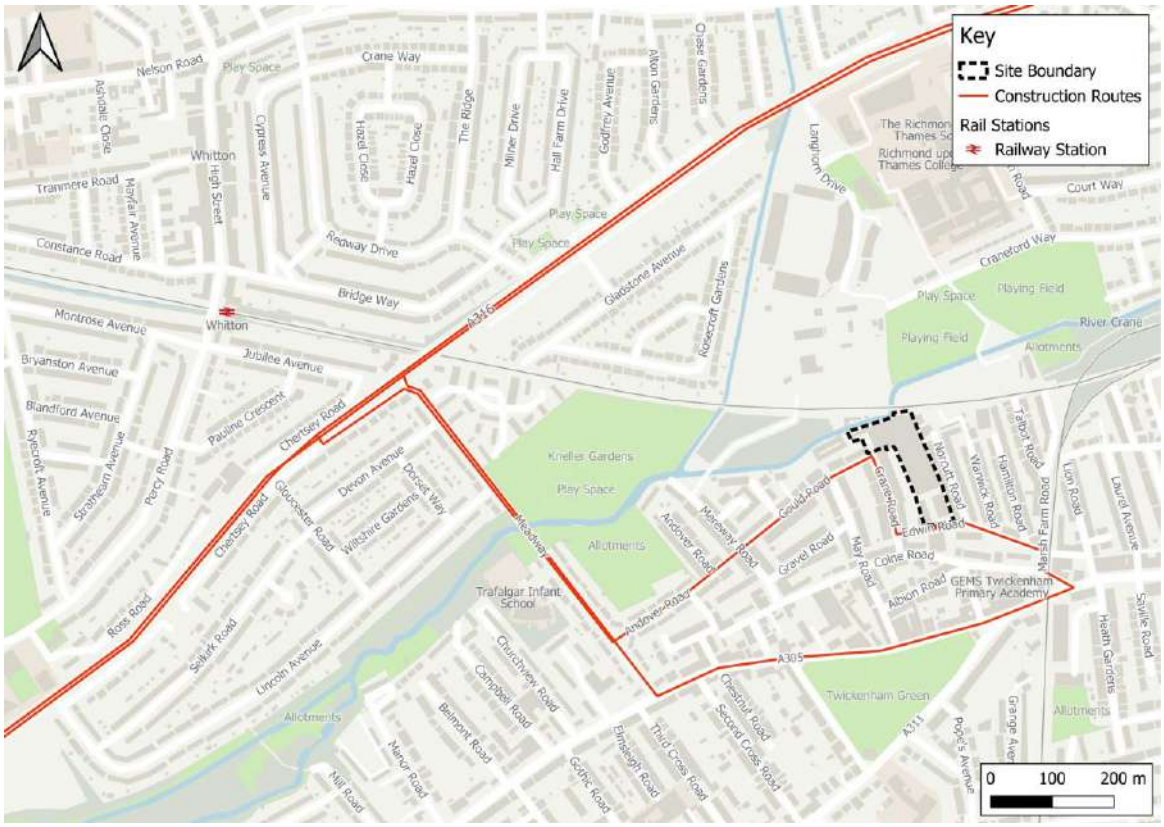
2.3.12 The Green Surgery is located on The Green (A311), approximately 350m (4-minutes' walk) south of the site. By its nature, the surgery will be visited by ill, infirm and vulnerable road users with reduced mobility. Many of these patients will need to cross Heath Road and The Green (A311) to access the surgery.

2.3.13 A number of local shops and other commercial premises are available on The Green (A305) to the south of the site, including Sainsbury's Local, Tesco Express and a pharmacy. As such, local residents may be walking alongside and across the construction access routes in order to reach their destination.

3 VEHICLE ROUTING AND SITE ACCESS

3.1.1 The vehicle routing plan is reproduced in **Figure 3-1** and provided in full in **APPENDIX B**.

Figure 3-1: Routing Plan



3.1.2 Deliveries will route to/from the site via the A316, whether they are coming from Central London to the east or the M25 to the west. To access the site, vehicles will route south on Meadway before continuing east on The Green (A305). Vehicles will then route north on Colne Road and Marsh Farm Road before travelling west on Edwin Road. To egress the site, vehicles will route west on Gould Road and Andover Road before turning north on Meadway and accessing the A316. Sufficient clear signage to ensure construction vehicles only use designated routes will be provided.

3.1.3 This provides the most appropriate routing for access to the site, given the location of the site in a largely residential area and avoids TfL-identified cycle routes. It is noted that Andover Road is signed as unsuitable for HGVs; however, access is not restricted, so it is deemed to be the most appropriate egress route for the site. It is also pertinent to note that a 13'6" height limit is in place on Colne Road, as shown in **Figure 3-2**. As such, abnormal loads will instead be required to access the site from the west using the egress route via Gould Road, Andover Road and Meadway.

Figure 3-2: Colne Road Height Limit

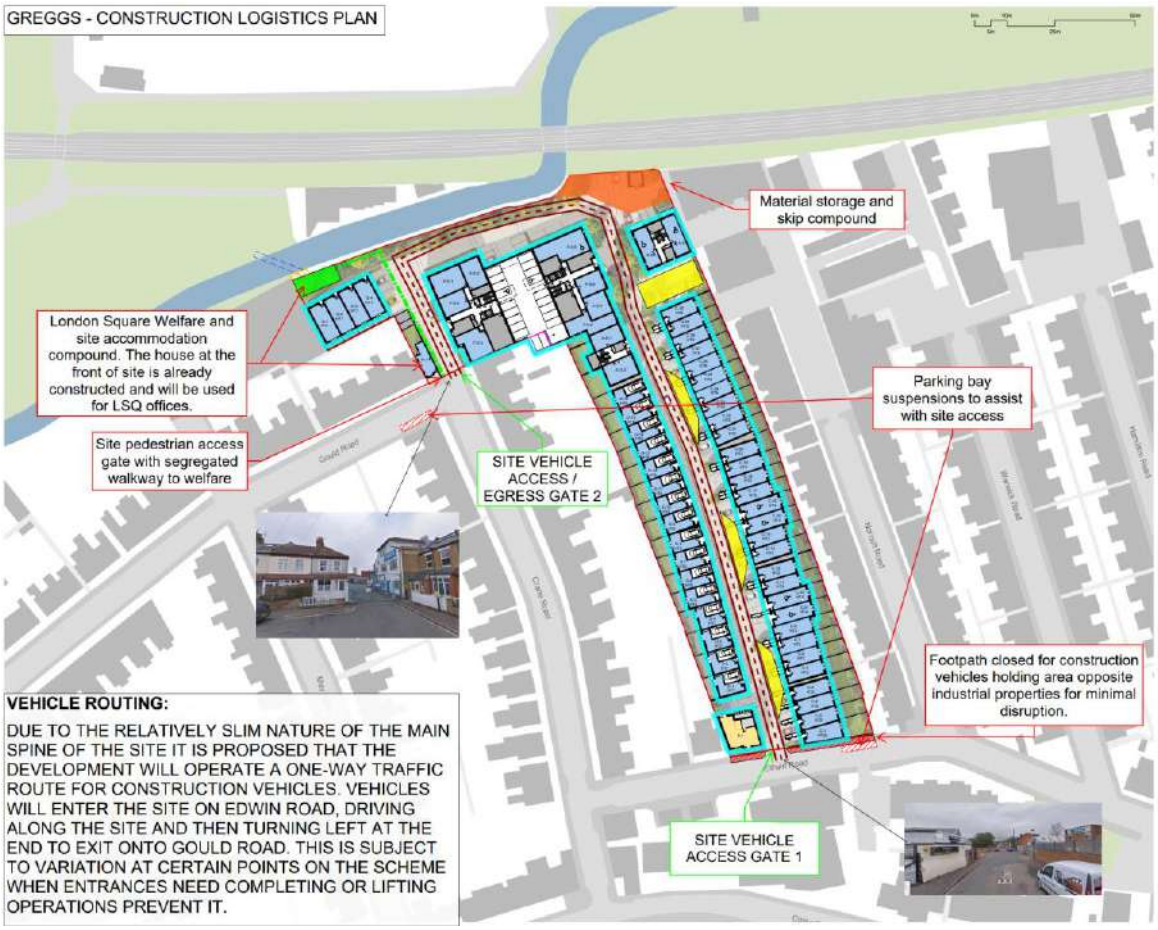
3.1.4 OpenStreetMap identifies local cycle routes on Meadway, Gould Road and Edwin Road, which form part of the vehicle access routes. Therefore, all drivers and subcontractors will be briefed that increased numbers of cyclists may be found in this location and traffic marshals will ensure the safe discharge of vehicles from the site.

3.1.5 There are no turnback routes, but a lorry holding area is proposed on Edwin Road through the temporary suspension of parking bays. There will also be a vehicle holding area within the construction site.

3.1.6 Routes that are not identified in the routing plans are off-limits to site traffic over 3.5 tonnes.

3.1.7 **Figure 3-3** sets out the site routing plan, which is included in full at **APPENDIX B**. Due to the site layout, a one-way system through the site is proposed, with vehicle access from Edwin Road and egress onto Gould Road/Crane Road.

Figure 3-3: Site Routing Plan



3.1.8 Qualified traffic marshals will be present at all times at each of the site accesses and will ensure the deliveries are unloaded safely and vehicles exit the site in a safe manner to ensure Gould Road is not blocked in any way.

3.1.9 The marshals and the drivers will be expected to know and understand the relevant safety procedures and correct signalling systems. Traffic and pedestrians will be given priority with management at all times using 'stop-works' paddles.

3.1.10 Vehicles will enter and exit the site in a forward position where possible, minimising the need for reversing. The access gate will be closed at all times other than for deliveries.

3.1.11 All delivery drivers will be required to wear full PPE when on-site and will be provided with a summary of site rules when they sign in.

3.1.12 Swept path analysis has been undertaken to ensure construction vehicles can safely access and egress the site. The drawings are included in **APPENDIX C**.

3.2 SCREENING AND HOARDING

3.2.1 Where necessary to ensure safety, individual locations within the site where hazardous activities are being carried out will be secured with the installation of herras fence panels or similar. The site perimeter will be delineated and will be provided with warning signs to inform of the dangers of construction sites and advise against unauthorised access.

3.2.2 Site hoarding will be located at the main unsecured areas of the site boundary, mainly at the entrances. Existing boundary treatments will be maintained in all other areas.

4 CONSTRUCTION PROGRAMME AND METHODOLOGY

4.1 PROGRAMME

4.1.1 Construction is expected to last for approximately 122 weeks (28 months).

- **Enabling, demolition and foundation work (pre-superstructure)** – The period to carry out these works (subject to the discharge of pre-commencement planning conditions) is 61 weeks (14 months).
- **Super-structure** – The period to carry out the super-structure works will be a period of 53 weeks (12 months).
- **External works** – The period to carry out external works, including cladding, fit-out, testing and commissioning, is 91 weeks (21 months).

4.1.2 Once planning has been granted and the pre-commencement planning conditions have been discharged, the development works would commence on-site.

4.1.3 For the purpose of the indicative construction programme, the works are assumed to commence in January 2024 and be completed around May 2026. **Table 4-1** and **Figure 4-1** outline the main activities to be undertaken and the approximate duration of the works. Some activities will occur concurrently.

Table 4-1: Indicative Sequence of Works and Estimated Duration

ACTIVITY	PROGRAMME	
	START DATE	END DATE
Site setup and demolition	January 2024	August 2024
Sub-structure	July 2024	March 2025
Super-structure	August 2024	August 2025
Cladding	August 2024	October 2025
Fit-out, testing and commissioning	October 2024	May 2026

Figure 4-1: Construction Programme

Activity	2024											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Site Setup and Demolition												
Sub-Structure												
Super-Structure												
Cladding												
Fit-Out, Testing and Commissioning												

Activity	2025											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Site Setup and Demolition												
Sub-Structure												
Super-Structure												
Cladding												
Fit-Out, Testing and Commissioning												

Activity	2026				
	Jan	Feb	Mar	Apr	May
Site Setup and Demolition					
Sub-Structure					
Super-Structure					
Cladding					
Fit-Out, Testing and Commissioning					

4.2 CONSTRUCTION METHODOLOGY

4.2.1 Prior to the commencement of any site works, all occupiers surrounding the site will be notified in writing of the nature and duration of works to be undertaken. The name and contact details of the person responsible for the site works will be included in the introductory letter, and this will be used for all enquiries and complaints about the entire duration of the works updates of work will be provided regularly, and any complaints will be properly addressed as quickly as possible as part of the Contractor's commitment to the Considerate Contractors Scheme.

4.2.2 The safety of the public and protection of pedestrians will be ensured at all times by having the construction area, materials storage areas and waste storage areas either hoarded or fenced with lockable access. Relevant signage will be erected to ensure adequate warning/information regarding the health and safety of the public.

SITE SETUP AND DEMOLITION

4.2.3 The enabling works will comprise:

- Establishment of secure site hoarding and access/egress gates.
- Establishment of temporary site offices and welfare facilities.
- Disconnection/diversion of services.

4.2.4 The demolition works will comprise:

- Asbestos removal.
- Demolition of the south of the site.
- Breaking up hardstanding and reducing level dig.
- Excavate and backfill below-ground tanks.
- Ground remediation Block A.
- Diverting existing sewers.
- Demolition of the north of the site.
- Removing ground floor slabs and reduce level dig.

4.2.5 The early construction of the final roads will allow for surfaced haul roads to facilitate the construction of the development and will comprise of:

- Construction of the road between houses to the base course, including services, ducts and drainage.
- Construction of the road north of the site to the base course, including services, ducts and drainage.

SUB-STRUCTURE

4.2.6 The foundation construction methodology is still to be confirmed but is anticipated to be either mass concrete strip foundations for the terraced housing or shallow reinforced pad foundations for the apartment blocks.

4.2.7 Under-slab drainage and service ducts will then be installed prior to the construction of the ground floor slab. It is intended to form the ground floor slab in precast block and beam on the ground bearing foundations to provide for the remainder of the structural frame.

4.2.8 The foundation sequence shall reflect an entry and exit strategy for ease of access and egress. The foundations shall commence at the southern side of the site and be complete on the northern side of the site.

SUPER-STRUCTURE

4.2.9 The frames construction methodology is still to be confirmed but is anticipated to be brick & block with timber upper floors and roofs for the terraced houses.

4.2.10 The frame construction of the apartment blocks will comprise an RC precast slab solution up to 4 storeys, excluding the uppermost floor. The pitched roofs lend themselves to lightweight prefabricated steel trusses supported by steel posts to frame out the upper floor.

4.2.11 The requirement for any concrete slab or steel placement will be assisted by a Manitou 360 Telehandler or mobile site cranes.

CLADDING

4.2.12 London Square will become the principal Contractor for the development upon commencement of the façade works. The detailing of the envelope, faces and roof is still to be confirmed.

4.2.13 The installation of private oversailing balconies will complete the final stages of the façade works.

FIT-OUT, TESTING AND COMMISSIONING

4.2.14 Following the apartment block becoming watertight, works will commence to the formation of the security and acoustic apartment demise walls, with each new apartment then primarily formed. Fit-out works will also commence on the terrace houses once watertight has been achieved.

4.2.15 External works comprising hard and soft landscaping will be the final activities to commence to each block, completing before the internal fit-out of the block.

5 STRATEGIES TO REDUCE IMPACT

5.1.1 A number of strategies and measures are planned to reduce the impacts of construction and construction traffic on the local area. The planned measures can be categorised as follows:

- Committed – Measures that will be implemented as part of the CLP.
- Proposed – Measures that are feasible and likely to be implemented. Once a contractor is appointed, these measures will be studied further and confirmed within the Detailed CLP.
- Considered – Measures that are unlikely to be implemented or feasible but could be investigated or become relevant in the future.

5.1.2 **Table 5-1** summarises the planned measures for the construction of the Proposed Development, based on the checklist provided in TfL's CLP guidance.

Table 5-1: Construction Planned Measures

PLANNED MEASURES	COMMITTED	PROPOSED	CONSIDERED
MEASURES INFLUENCING CONSTRUCTION VEHICLES AND DELIVERIES			
Safety and environmental standards and programmes	✓		
Adherence to designated routes	✓		
Delivery scheduling	✓		
Re-timing for out-of-peak deliveries		✓	
Re-timing for out-of-hours deliveries			✓
Use of holding areas and vehicle call-off areas			✓
Use of logistics and consolidation centres			✓
MEASURES TO ENCOURAGE SUSTAINABLE FREIGHT			
Freight by water			✓
Freight by rail			✓
MATERIAL PROCUREMENT MEAURES			
Design for Manufacture and Assembly and off-site manufacture			✓
Re-use of material on site	✓		
Smart procurement		✓	
OTHER MEASURES			
Collaboration with other sites in the area			✓
Implement a Staff Travel Plan	✓		

5.2 CLOCS AND FORS

5.2.1 The CLOCS (Construction Logistics and Community Safety) standard will be signed up to, which will ensure that the construction contractor (as well suppliers and sub-contractors) follow safe practices in the management of their operations, vehicles, drivers and construction sites.

5.2.2 Fleet Operator Recognition Scheme (FORS) accreditation confirms that a fleet operator can demonstrate that appropriate systems and policies exist to ensure drivers are suitably fit, qualified and licenced to operate vehicles that are properly maintained, equipped and insured.

5.2.3 All construction vehicle operators will be required to detail how they will adopt the ethos of FORS and CLOCS and register for membership. FORS Silver accreditation will be required for all construction vehicles.

5.3 DELIVERY SCHEDULING

5.3.1 A delivery scheduling system is planned to allow for the control and management of the timings of deliveries. Booking availability will be determined by unloading space available as well as activities on-site, so it will be managed carefully to minimise impacts on the local transport network. A comprehensive daily logistics schedule will be maintained, and unauthorised deliveries will be turned away until the approved procedure has been followed.

5.3.2 Construction staff on-site will be prepared for the arrival of all vehicles to prevent vehicles from needing to wait on the public highway. Deliveries will be made 'just in time' to minimise the amount of space required on-site for construction materials. Hard copies of daily delivery schedules will be displayed at prominent locations, e.g., provided at the gate/offloading points, at hoists and also issued to drivers, forklift drivers and any other materials handling equipment operators, all of whom need to be in constant radio communication with one another. All radio users will be trained on correct radio procedures and protocols.

5.3.3 There will be a rota system requiring all deliveries to be pre-booked at least 24 hours in advance to avoid on-site and off-site congestion by spreading the resulting traffic over a longer period. Whenever possible, there will be no major vehicle movement during "rush hours", defined as 07:30 – 10:00 and 16:30 – 18:30 Monday to Friday.

5.3.4 Where possible, vehicles will be fully loaded, thereby minimising the number of vehicle trips made by tipper trucks and concrete mixing trucks.

5.4 INTERACTION WITH THE PUBLIC HIGHWAY

5.4.1 Contractors will be required to take all necessary measures to ensure that public roads are kept clear from construction debris. Measures include:

- Vehicles carrying loose aggregate and workings to the site will always be sheeted;
- At the point of entry and exit from the site onto the public highway, wheel washing facilities will be provided. No vehicle that is likely to deposit mud or other material on the road surface will be permitted onto the public highway. Wheel cleaning facilities will be regularly monitored and maintained to ensure they remain fit for purpose; and
- On and off-site routes will be inspected daily, with road sweepers employed as necessary.

5.4.2 The need for lorries to reverse onto public highways will not normally be allowed, but if it is required, this will be carried out under the strict control of a traffic marshal.

5.5 PROTECTION MEASURES FOR PEDESTRIANS AND CYCLISTS

5.5.1 The site access and egress will be manned by a banksman who will ensure that vehicles entering and exiting the site consider pedestrians and cyclists using the public highway.

5.6 ABNORMAL LOADS

5.6.1 Any abnormal loads will be planned in advance and agreed upon with the Highway Authority.

5.7 CONSTRUCTION PERSONNEL

5.7.1 No construction staff car parking will be provided on-site, and no construction workers are expected to travel by car. A Construction Staff Travel Plan will be prepared by the Contractor to encourage the use of sustainable modes considering the good level of public transport accessibility. Pedestrian access to the site will be provided from a turnstile/gate on Gould Road. Staff cycle parking facilities will be provided.

5.8 RE-USE OF MATERIALS ON-SITE

5.8.1 To minimise the demand for primary agreements, it is intended to recycle suitable demolition material for use on-site in the redevelopment works wherever possible. For example, the inert materials from the demolition works will be crushed on site and re-used in the permanent works to form hard surfaces for haul roads or fill material.

5.9 VEHICLE ROUTING

5.9.1 No construction vehicles will be allowed to travel off the identified inbound and outbound routes, and no waiting will be permitted on the access or egress routes. It is recognised that neighbours and residents along the routes are often best placed to advise if drivers are not complying with these requirements.

5.9.2 Residents will be able to contact the Site Manager to report any non-compliance. For a first offence, suppliers will be reminded of the site access route requirements. For a second offence, suppliers will have a 5% proportion of their load fee withheld. For a third offence, suppliers will be replaced.

5.10 LORRY HOLDING

5.10.1 A thorough review of opportunities to implement a lorry holding has demonstrated that there may be an opportunity to incorporate a holding area on Edwin Road with the use of parking bay suspensions.

5.11 COORDINATION WITH OTHER CONSTRUCTION SITES

5.11.1 Investigation of the opportunity to collaborate with other construction sites in the area will be undertaken.

5.12 SUSTAINABILITY

5.12.1 Off-site manufacture and re-use of material will be investigated and proposed if practical. Smart procurement will be maximised where practical.

5.13 RAIL AND WATER FREIGHT

5.13.1 The use of water and rail modes to transport freight is unlikely to be practical due to the lack of local facilities and relatively low amount of waste materials to be removed, and the need for supplies to arrive 'just in time.

6 ESTIMATED VEHICLE MOVEMENTS

6.1 CONSTRUCTION TRAFFIC MOVEMENTS

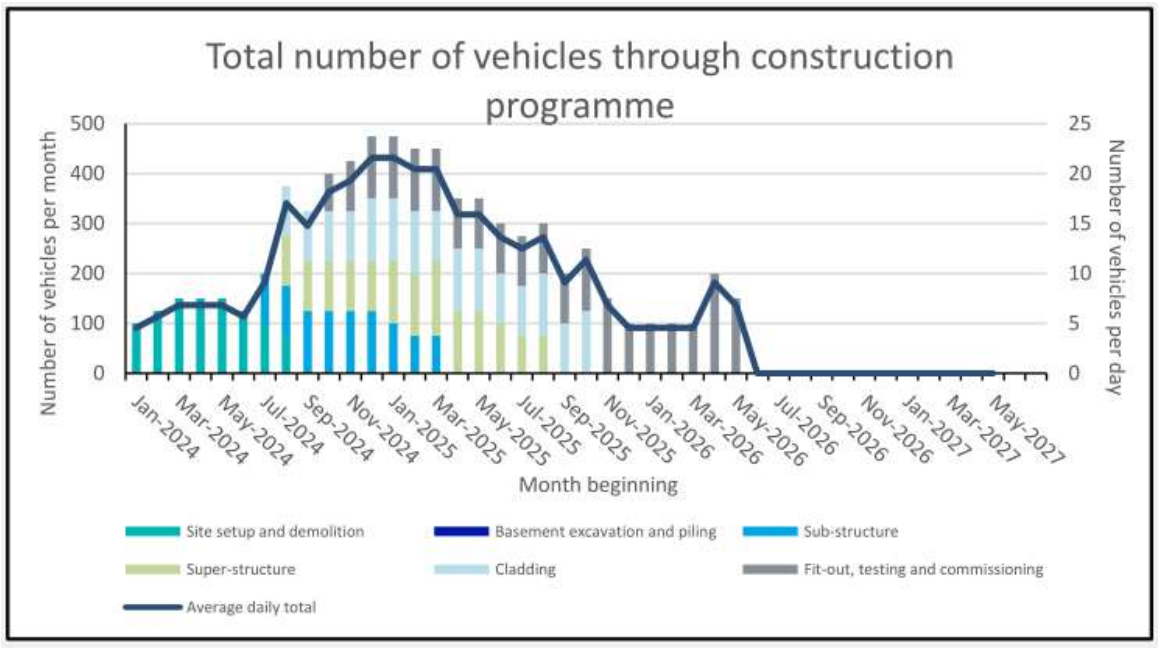
6.1.1 The number of vehicles accessing the site summarised in **Table 6-1** has been estimated based on our previous experience, proposed programme and construction methodology.

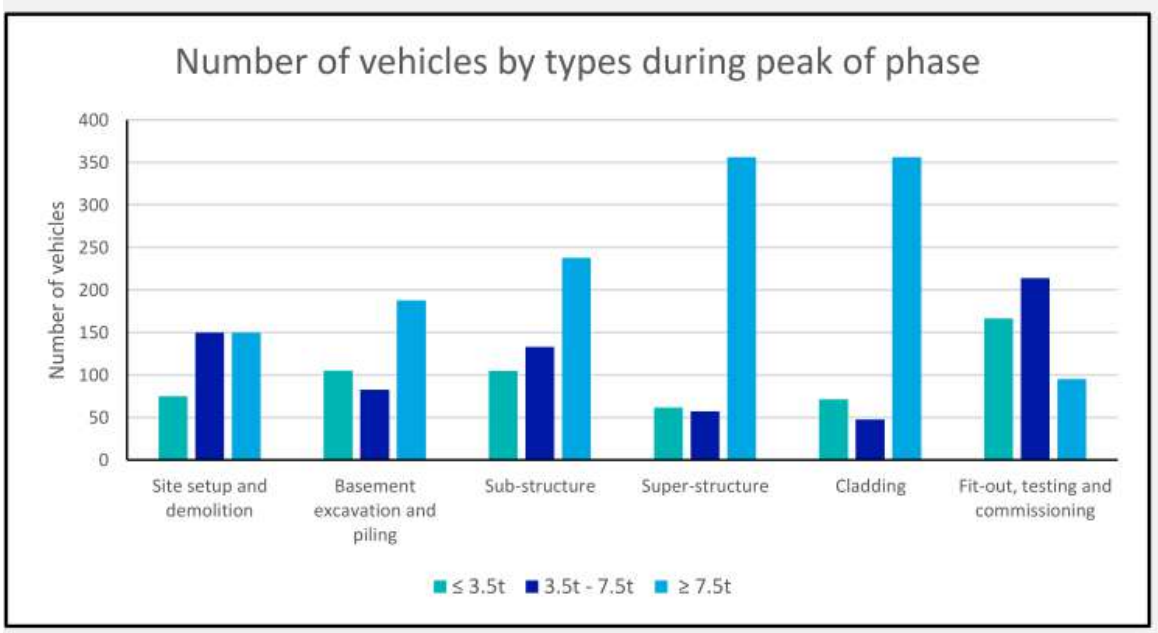
Table 6-1: Estimated Construction Vehicles

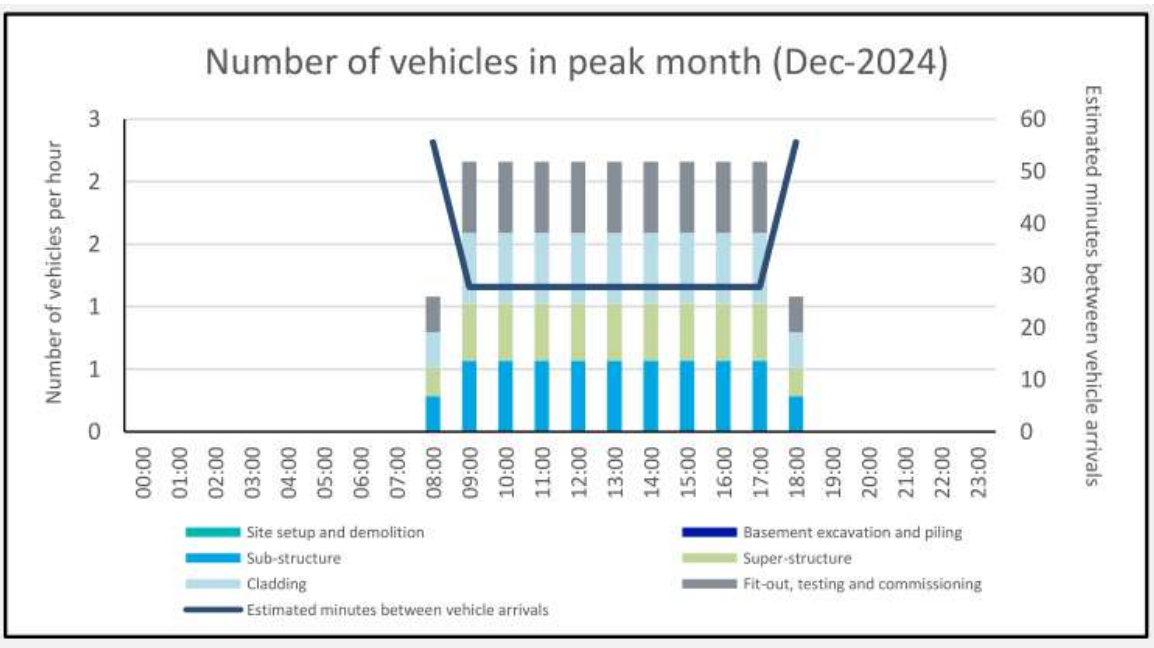
Construction phase	Period of stage	No. of trips (monthly)	Peak no. of trips (daily)
Site setup and demolition	Q1 2024 – Q3 2024	150	7
Sub-structure	Q3 2024 – Q1 2025	125	6
Super-structure	Q3 2024 – Q3 2025	150	7
Cladding	Q3 2024 – Q4 2025	125	6
Fit-out, testing and commissioning	Q4 2024 – Q2 2026	200	9

6.1.2 **Figure 6-1** illustrates the peak hourly volumes of construction vehicles anticipated during construction based on estimations of construction material volumes and the programme within **Table 4-1**.

Figure 6-1: TfL CLP Tool Graphs







6.1.3 Around seven construction vehicle arrivals and seven construction vehicle departures are expected on a typical day. The peak demands can be accommodated on the transport network with minimal impact.

7 IMPLEMENTATION, MONITORING AND UPDATING

7.1 IMPLEMENTING

7.1.1 The Contract Manager shall be responsible for implementing the delivery schedules and ensuring all deliveries are fully in compliance with the detailed procedures above.

7.1.2 The Contract Manager shall appoint qualified Traffic Marshals who will be responsible for all deliveries – from booking them in to marshalling them to the offloading bay and record keeping. The traffic marshals will undertake specific training, including operating the temporary traffic signals if required to minimise disruption to through traffic.

7.1.3 Procedures will be implemented to ensure effective liaison with the neighbouring properties, adjacent residents and local community through:

- Any circulated newsletters will be displayed outside the site entrance, along with letter drops to nearby residents when construction activities are likely to affect the local residents
- Information boards mounted at the site entrance will provide details of the following information:
  - Developer/Contractor details;
  - Local Authority details;
  - Nature and duration of the project;
  - Principal milestones of the project;
  - Site operating times; and
  - Site management names and contact details.

7.1.4 This will also enable the local community to raise any concerns about construction activity and traffic. If a concern or complaint is received, the matter will immediately be referred to the site manager, who will record the matter and raise it to the management team, who will investigate. The site management team will record the date, time and reason for the complaint and what action has been taken to investigate and respond to the complaint.

7.2 MONITORING

7.2.1 Data sharing remains a key principle for the success and continuous improvement of construction. A list of items will be agreed upon, and specific data will be disseminated. This will include:

- Compliance
  - CLOCS compliance – suppliers to provide pre-qualification evidence
  - FORS compliance – suppliers to provide pre-qualification evidence
  - Routing compliance – to be monitored through resident feedback

- No staff car parking

- Data from the delivery scheduling system and the recorded log of vehicle movements to the site, including:
  - Vehicle type and size
  - Duration on site
- Safety issues, including any injuries or near, misses recorded, in the site logbook
- Breaches and complaints
  - No construction vehicles will be allowed to travel off the identified inbound and outbound routes, and no waiting will be permitted on the access or egress routes. We recognise that the neighbours and residents along the routes are often best placed to advise if drivers are not complying with these requirements. Residents will be able to contact the Site Manager to report any non-compliance. For a first offence, suppliers will be reminded of the site access route requirements. For a second offence, suppliers will have a 5% proportion of their load fee withheld. For a third offence, suppliers will be replaced.
- Staff Travel Plan

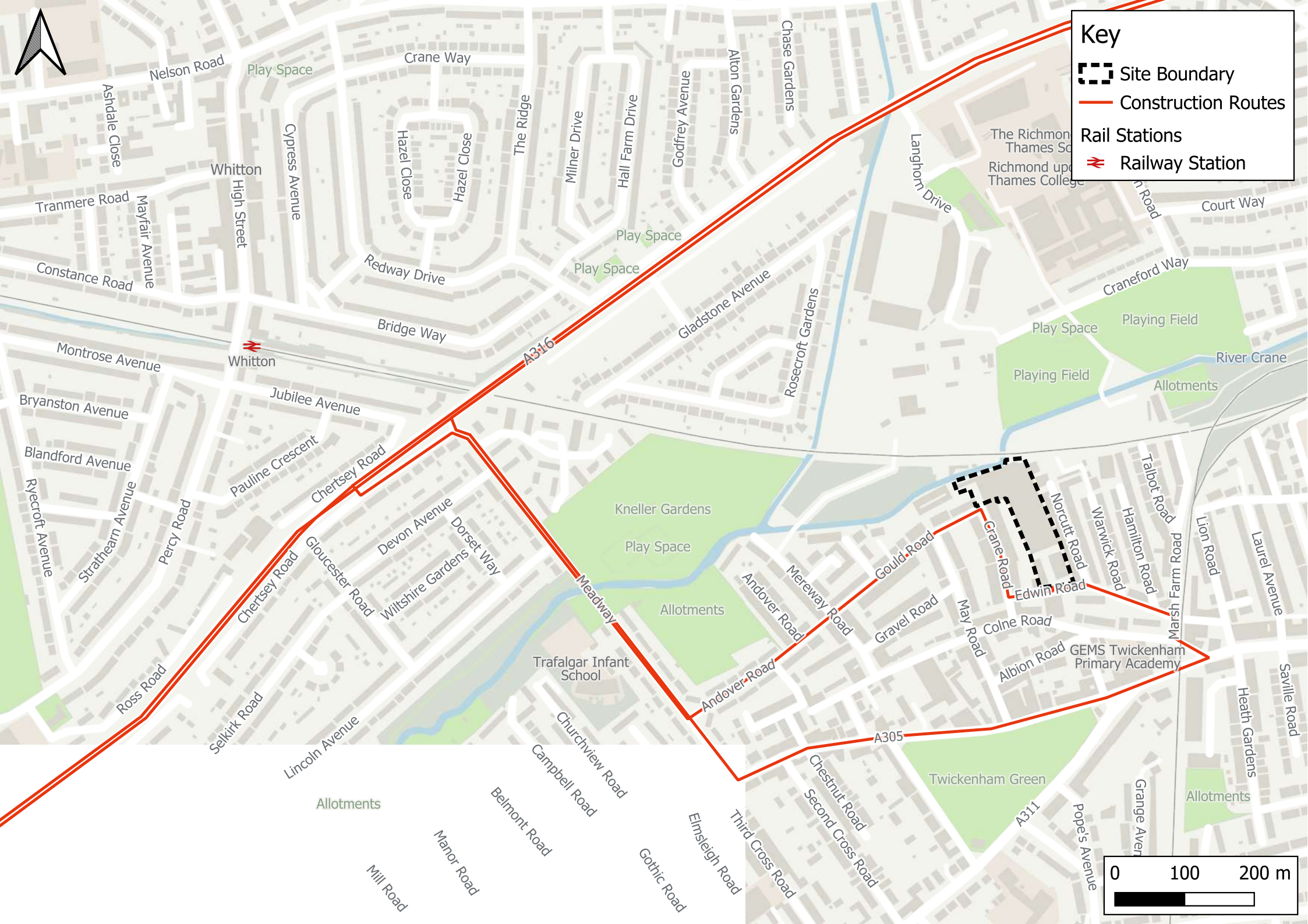
7.2.2 The traffic marshal shall keep a record of every delivery, such as:

1. Number of vehicle movements to site
   - Total
   - By vehicle type/size/age
   - Time spent on site
   - Consolidation centre utilisation (if used)
   - Delivery/collection accuracy compared to schedule
2. Breaches and complaints
   - Vehicle routing
   - Timing of delivery
   - Unacceptable queuing or parking
   - Adherence to safety and environmental standards & programmes
   - Low Emissions Zone (LEZ) compliance
3. Safety
   - Logistics-related incidents
   - Record of associated fatalities and serious injuries
   - Ways staff are travelling to the site
   - Vehicles and operators not meeting safety requirements

7.3 UPDATING

7.3.1 The procedures shall be reviewed through the different phases of the programme. If anything is not working well, or there are improvements that can be made, these shall be documented, agreed with highways (if necessary) and put into action and monitored accordingly.

7.3.2 The CLP will be kept on-site and updated by the Principal Contractor in consultation with the Highway Authority.


Key
Site Boundary
Construction Routes
Rail Stations
Railway Station
Nelson Road
Play Space
Crane Way
Ashdale Close
Cypress Avenue
Hazel Close
Hazel Close
The Ridge
Milner Drive
Hall Farm Drive
Godfrey Avenue
Alton Gardens
Chase Gardens
Langhorn Drive
Court Way
Whitton
High Street
Tranmere Road
Mayfair Avenue
Constance Road
Redway Drive
Play Space
Play Space
Gladstone Avenue
Rosecroft Gardens
Craneford Way
Playing Field
Play Space
River Crane
Playing Field
Allotments
Bridge Way
A316
Montrose Avenue
Whitton
Jubilee Avenue
Bryanston Avenue
Blandford Avenue
Pauline Crescent
Chertsey Road
Ryecroft Avenue
Strathearn Avenue
Percy Road
Devon Avenue
Dorset Way
Gloucester Road
Wiltshire Gardens
Kneller Gardens
Play Space
Meadway
Allotments
Andover Road
Mereway Road
Gould Road
Crane Road
Norcutt Road
Edwin Road
Warwick Road
Hamilton Road
Talbot Road
Lion Road
Laurel Avenue
Marsh Farm Road
Gravel Road
May Road
Colne Road
Albion Road
GEMS Twickenham Primary Academy
Trafalgar Infant School
Andover Road
Chertsey Road
Ross Road
Selkirk Road
Lincoln Avenue
Churchview Road
Campbell Road
Belmont Road
Manor Road
Mill Road
Gothic Road
Elmsleigh Road
Third Cross Road
Second Cross Road
Chestnut Road
A305
Twickenham Green
A311
Pope's Avenue
Grange Avenue
Heath Gardens
Allotments
Saville Road
Allotments
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End

PURE LOGISTICS

LONDON SQUARE