Red & Yellow
Specialist Extra Care
Melliss Avenue – Kew

Construction Management Statement
October 2018

BLUE SKY BUILDING
founded on excellence

Red & Yellow

CONTENTS

BLUE SKY BUILDING
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1.0 INTRODUCTION

Blue Sky Building has been commissioned by Melliss Ave Devco Limited to identify specific best practice standards and procedures for the Red & Yellow Specialist Extra Care, Melliss Avenue, Kew development at the Former Biothane Site, Melliss Avenue, Kew TW9 4BD. These standards and procedures will ensure that the interests of local residents, businesses and the public are given special attention by the Contractor during the works duration.

This report identifies how the critical demolition & construction activities will be undertaken, and specifically covers the environmental, public health and safety aspects of the proposed development. The baseline for our analysis is the London Borough of Richmond upon Thames (LBR) Local Validation Checklist, but we have viewed these requirements as the minimum standards to be achieved and have identified improvements in most areas under consideration. When appointed the Contractors will be required to demonstrate how the works will comply with the requirements of the LBR guidance and how they will address the measures contained within this report.

This document details:

- the specific obligations on the Contractor when undertaking the works;
- the specific measures to be used during the tank demolition, site preparation and building of the works; and
- the specific details of the control measures for each environmental issue.

Key outputs from this report are:

- **Vehicle Management**

Melliss Avenue is a private estate road connected to the Strategic Road Network (South Circular Road), via Townmead Road, which also serves the public Recycling Centre. As such, vehicle sizes including weights and timing of deliveries requires particularly

careful management and is reflected in our traffic management proposals.

At the time of submission the client is endeavouring to obtain permission with neighbouring properties for an alternative access route that would alleviate pressure on the estate and on public users of the Recycling Centre, but that remains subject to agreement (with parties outside their control). This document therefore mitigates potential clashes by limiting hours of deliveries as far as practical to avoid weekday rush hours and weekends altogether.

All delivery vehicles will be CLOCS compliant and vehicle movements managed in accordance with strict site policies and procedures to respect the safety of pedestrians, cyclists and road users.

- **Logistics & Deliveries**

Our logistics proposals include a fully hoarded site with wheel washing facilities to minimise deliveries and all vehicles being loaded inside the site boundary. No loading or skip placement will be required or permitted on public or estate roads. Deliveries will be aimed outside of peak traffic times.

- **Waste Management**

Waste will be loaded into tipper lorries or compactor lorries inside the site boundary. Concrete arising from demolition of existing tanks will be recycled on site as a piling platform and hardstanding, thereby reducing numbers of vehicle importing and exporting material.

The contractors will employ best practice to reduce site waste through design choices and methodology.

- **Noise during demolition & construction**

The objective is to control noise limits within recognised limits. The on-going quiet enjoyment of the existing neighbours is of paramount importance. This Construction Management Statement identifies the specific measures to be taken in protecting these parties from the adverse effects as a result of the construction activities in the most efficient and economical way.

The contractor will comply with BS 5228 for all works and will undertake noise assessments and monitoring with alarm triggers as required by the

LBR SPD: Development Control for Noise Generating and Noise Sensitive Development. A full noise survey with recommendations has been prepared and submitted separately. (Reference: Aecom – Noise Survey & Assessment, October 2018).

Air Quality

Prior to commencing any demolition or construction works, the contractor will prepare an Air Quality and Dust Management Plan for agreement in accordance with the Mayor of London's Supplementary Planning Guidance: The Control of Dust and Emissions during Construction and Demolition dated July 2014.

Please also refer to Aecom – Air Quality Assessment, October 2018, submitted separately.

- **Programme**

A Strategic Programme is enclosed in Section 3. The project is expected to take 20 weeks in site set up and site preparation demolition, plus 77 weeks of new construction.

- **Working hours**

Certain aspects of construction such as working hours are controlled by the Control of Pollution Act. Working hours for the Melliss Avenue Project will be:

Mon to Fri: 0800 to 1800
Saturday: 0800 to 1300

The contractor will make application to the LBR Environmental Health Department and Estate Residents' Association where additional hours may be required for special operations. (The erection of a tower crane for example).

Statutory Compliance

There is a large body of environmental and safety requirements relevant to construction projects, in the form of primary legislation (Acts of Parliament), secondary legislation (Statutory Instruments, including Regulations and Orders) and statutory guidance and Codes of Practice.

The Contractor will be responsible for identifying new legislation and regulation, and complying with all prevailing legislation at the time of construction including any requirements under the Health and Safety Act.

2.0 NATURE OF THE PROJECT/ SCOPE OF WORKS

Scope of works

The Proposed Development involves:

Demolition of existing buildings and structures and redevelopment of the site to provide a specialist extra care facility (C2 Use Class) for the elderly with existing health conditions. Comprising, 89 units, with extensive private and communal healthcare, therapy, leisure and social facilities set within a building of ground plus 3 to 5 storeys including set backs. Provision of car and cycle parking, associated landscaping and publicly accessible amenity spaces including a children's play area.

3.0 METHODOLOGY FOR DEMOLITION, NEW CONSTRUCTION, SEQUENCE AND PROGRAMME

The overall demolition & construction programme is estimated at 24 months. A summary bar chart programme is included at the end of this section.

This section of the document will identify the specific methodology which we have identified for the project.

It is currently envisaged that the scheme will be delivered in a single phase encompassing demolition and construction to completion.

The project can be broken down into a series of discrete sub projects. In summary, these consist of:

- Pre-start enabling works;
- Mechanical Strip-Out & Demolition. Redundant pumping and electrical equipment will be stripped out and removed, followed by demolition of the concrete tanks and grading of the site;
- Piling & Substructure. Foundations will be constructed for the new buildings;
- Superstructure and cladding of the new building;
- Fitting out of the new building together with mechanical & electrical services, commissioning and setting to work;
- External works and public realm.

3.1 Pre-Start Enabling/lead-in works

Prior to commencement of works a period of pre-demolition planning and activities will be carried out to ensure works can be undertaken efficiently. Certain elements of these works will require third party approvals.

- Production and submission of detailed Construction Method Statements in accordance with LBR guidance.
- Mobilisation of selected plant and operators.
- Formulation of project Health and Safety Plan and risk assessments.

- Formulation of Site waste management plans and environmental plans as per the current DEFRA guidelines.
- Production of detailed works programmes and sequencing.
- Further detailed surveys of existing services and tank structures to confirm demolition methodology and cut & fill estimates.
- Highways condition surveys to be carried out prior to commencement on site.
- Further detailed services investigations/surveys for decommissioning purposes.
- CCTV surveys of existing drainage.
- Hazmat and asbestos demolition and refurbishment (D&R) surveys, testing and ASB5 notifications to the HSE.
- Baseline environmental and movement monitoring stations with trigger alarms established.
- Section 80 of demolition (notification to Local Authority) approval in place.
- Neighbour liaison and newsletters before the commencement on site to explain the nature of works.
- Publication of 24 hour contacts and telephone numbers to LBR and neighbours.
- Discharge of Planning Conditions
- Temporary works design.

3.2 Site establishment and logistics

Site establishment is the preparation of the site to carry out the demolition and enabling process. The activity is generated from full possession of site and will include the following activities:

- Securing the front of the site, in accordance with the programme with the erection of the full height close boarded hoarding, and access gates, as detailed on the enclosed logistics drawings, included in section 5 of this document.
- Inspecting and repairing the existing boundary fences to the rear and side elevations of the site to ensure security.
- Vehicle and pedestrian access to the works will be via separate entrances controlled by fully trained gatemen and traffic marshals.
- Vehicles will enter and leave the site in forward gear and banksmen will be on hand to control

traffic, cyclists and pedestrian safety throughout the works.
- Installation of site temporary electrics, environmentally friendly lighting, water and fire alarms.
- Establishment of site security provisions to ensure that the site is protected against unauthorised or unlawful entry and potential theft from site.
- Diversions of existing utilities as required and isolation of any remaining services and systems within the tanks will be carried out at an appropriate point in liaison with the statutory service providers.
- Establish welfare arrangements and offices to the rear of the site.
- Emergency routes on site specified and clearly signposted.

Upon receipt of vacant site possession, appropriate notifications will be served and licences applied for removal of asbestos. Asbestos containing materials (ACMs) could be present in the ground. Where controlled surveys discover ACM's they will be removed by licenced removal companies in accordance with all current legislation.

Preparation of the Site for the demolition activities will involve installation of acoustic and dust screens. The site hoarding installed to the front of the Site at ground level and remain on-site throughout the construction phase and will contain all requisite lighting, safety and directional signage.

3.3 Soft Strip and Demolition

With any remaining contaminants removed mechanical and electrical equipment will be stripped from the site, together with lightweight enclosures and coverings. General waste arising will be removed to skips on site by hand, wheelie bin or small dumper.

Demolition of the existing concrete tanks will follow using 360º excavators fitted with hydraulic breakers and appropriate sheer & grapple attachments. Reinforcing steel will be exposed and severed using oxygen/propane burning equipment.

Once the tank walls and roofs have been removed, ground slabs will be broken out in a bay-by-bay sequence. The volume and quality of concrete waste will be quantified at survey stage with the intention of retaining material on site for use in constructing a piling platform in order to minimise the import of such material. This will include use of a small “city” crusher to reduce the material and will reduce the potential vehicle trips to and from site.

Dust emissions will be controlled at the working face and crushing area by a fine water spray. The quantity of water emitted by the sprays will be regulated and controlled to prevent any flooding. Storage times on site will be minimised by regular removal of unwanted material in order to further reduce the risk of dust escape.

To ensure that the potential impact of noise is kept to a minimum on this project we propose that all demolition is controlled under a section 61 prior consent application by the contractor.

It is expected that on-site storage of plant and materials will be limited. However, storage of diesel fuel in approved, double-bunded tanks will be necessary. There are currently no plans for using contaminated/hazardous materials or chemicals during the demolition or construction process.

Prior to the commencement of construction a small number of detailed investigations and surveys may need to be completed. Archaeological inspections and a watching brief for unexploded ordinance is proposed throughout the demolition and substructure programme.

3.4 Foundation and Substructure Works

On completion of the demolition of the tanks pile probing will be undertaken to ensure the removal of old foundations and obstructions in readiness for new piled foundations. Site won crushed material will be used to form a piling mat.

Piling design will need to consider the size of rig that can access the site via Melliss Avenue. A small crane will be needed to assist the piling operation – moving reinforcement cages and general materials.

Excavated arisings from the piling operation will be loaded to tipper trucks within the site boundary.

Concrete will be delivered as ready mix into the site, and placed directly from the chute.

Temporary piles, outside the footprint of the new building, will be amongst the first piles formed – for the support of a tower crane base. As piling progresses across the site of the new building the tower crane will be erected to provide lifting support to the remaining substructure and superstructure operations.

As piling completes, below ground services will be excavated and laid through the piling mat followed by the construction of concrete ground beams and ground floor slab.

3.5 Superstructure & Envelope

The new building comprises ground plus five storeys of concrete frame at its maximum height, clad in brickwork or panellised cladding with punched windows. At the time of writing we have assumed that the external wall will include an inner SFS skin of Metsec, or similar, to allow the earliest partial watertight condition for commencement of fit out and further assisting with noise reduction.

The concrete frame will be erected using post-tensioned RC construction techniques. Formwork and reinforcement will be delivered into the site on suitably sized rigid flat-bed vehicles, and placed by tower crane. Concrete will be delivered and placed by ready mix trucks discharging to mobile or static pumps operating inside the site boundary.

Concrete cores are likely to be formed in traditional formwork in parallel to columns and walls. Stairs will be pre-cast concrete or in-situ, using traditional or Stair Master (permanent) formwork, and will be constructed as each floor rises.

Scaffolding will be erected to provide access and edge protection. Operative access will be via Haki temporary staircases where necessary and a platform hoist will be erected for delivery of envelope and fit out materials.

As the frame completes and formwork is struck and removed from site the inner skin of perimeter wall can be constructed. Metsec (or similar) panels would be delivered and placed by crane or hoist to achieve early watertight conditions. Roofing materials would be placed by tower crane in a parallel operation. Windows would ideally be installed as part of the inner skin construction. Scaffolding adaptions would then take place to prepare the site for brickwork and cladding erection. Bricks and sundries would be delivered and placed by tower crane or hoist. Mortar would best be supplied in ready mixed tubs, delivered daily to meet the required bricklaying output, or mixed on site using a batching silo if the required quantity warrants it.

New service connections will be progressed and services infrastructure installed as the superstructure and envelope progresses.

Balconies, balustrades, and terrace finishes will be amongst the final elements of envelope to be completed. Scaffolds will then be struck and removed from site, leaving platform hoists in place to serve fit-out activities.

On completion of the envelope works the tower crane will be dismantled and removed.

3.6 Fitting Out

Mechanical and electrical installations in risers and common areas would commence as soon as the roof and cladding is watertight.

Fitting out of the units is estimated to be of 26-week duration per apartment. Materials would be delivered and distributed by external hoist until that is removed and the envelope sealed. Final deliveries would utilise the permanent lift installation. Just in time delivery of materials is to be encouraged, with components being delivered directly to point of fixing.

Service connections, commissioning and setting to work will be undertaken as the project nears completion, in parallel to external works.

3.7 Landscaping

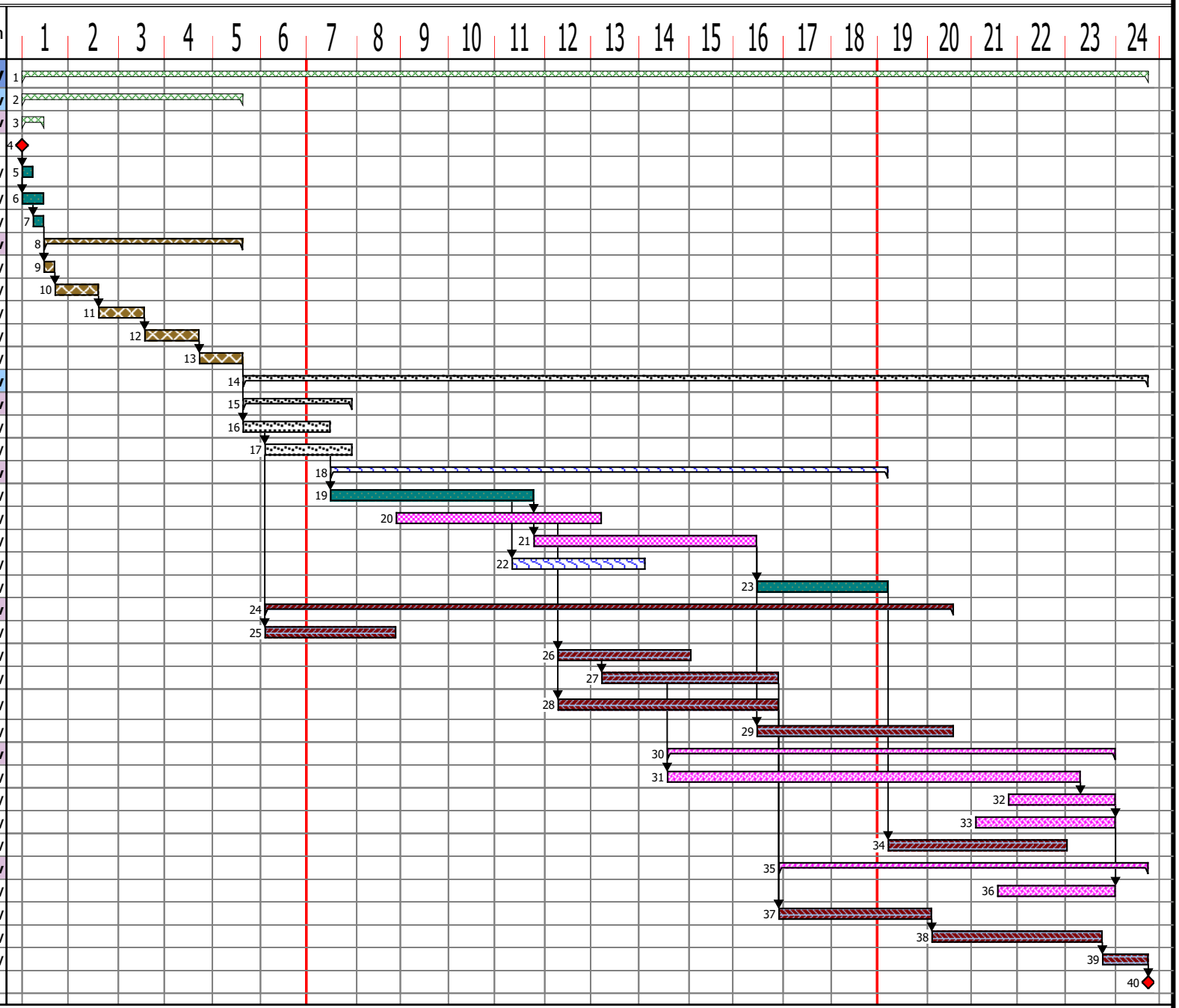
As the major construction works complete and deliveries slow then the loading areas will be reduced and hard landscaping completed, followed finally by planting of soft landscape areas.

Please Refer to the Outline Programme Overleaf

Red & Yellow Extra Care, Melliss Avenue, Kew

BLUE SKY BUILDING

Line	Name	Duration
1	**Melliss Avenue**	**97w**
2	**Demolition**	**20w**
3	**Site Establishment**	**2w**
4	Vacant Possession	
5	Isolate Services, install temporaries	1w
6	Site Welfare	2w
7	External Hoarding	1w
8	**Demolition**	**18w**
9	Form Construction Access	1w
10	Strip M&E & Asbestos	4w
11	Tank Demolition	4w
12	Break out Slabs Founds	5w
13	Crush/ Lay Piling Mat	4w
14	**New Construction**	**77w**
15	**Substructure Construction**	**8w**
16	Piling and Groundworks	6w
17	GF Slab	6w
18	**Structure & Envelope**	**48w**
19	Concrete Frame	18w
20	Metsec Inner Skin	18w
21	Brickwork/ External Cladding	20w
22	Roofing	12w
23	Strike Scaffold	10w
24	**Core Installations**	**58w**
25	Utility Connections	10w
26	Plant	12w
27	Risers	16w
28	Common Areas Services Carcass	20w
29	Lift Installation	16w
30	**Fit Out & Finishes**	**38w**
31	Resi Fit Out	35w
32	handovers @ 2/day	9w
33	Stairs & Corridors	12w
34	External Woks	16w
35	**Close Out**	**31w**
36	Finals All Trades	10w
37	Core Services Commissioning	12w
38	Apartments Commission	15w
39	Whole Building Testing	4w
40	Completion	



Build Stages

Site Establishment/ Logistics | Substructure | Envelope | Superstructure | Services | Strip Out/ Demolition | Key Milestone | Fit Out

Programme No :00001	Client: Melliss Ave Devco Limited	Notes: Outline Construction Programme. Draft For Discussion	Revision No. A
Drawn by: TJC	Page: 1 of 1		Revision Date: 04/09/2018

4.0 THE CONSTRUCTION SITE

This section outlines the requirements relating to site management practices, ranging from the location of accommodation and equipment to the operation of equipment on site. It outlines a number of procedures that should be implemented during site operation.

These relate to working hours, site layout, appearance, and good housekeeping.

Representatives from the Contractor and LBR Environmental Control should regularly inspect the construction site to ensure that these procedures are adhered to. The Contractor must follow a 'good housekeeping' policy at all times. The site should be cleared by the Contractor on completion of the development.

The specific measures to be implemented by the Contractor will include:

Working hours

Core working hours will be determined by the Control of Pollution Act and will be 8am – 6pm on weekdays and 8am – 1pm on Saturday.

There may occasionally be a need to work outside these hours in order to undertake essential works and the Contractor will make due application to the council and Kew Riverside residents' association should this be required.

To ensure that the impact of the construction is kept to a minimum on this project we propose a voluntary Prior Working Agreement under Section 61 of The Control of Pollution Act 1974. The application details how noise is to be managed on-site. The underlying principle is that Best Practicable Means (BPM) is being adopted.

Good housekeeping

The Contractor will follow a 'good housekeeping' policy at all times. This will include, but not necessarily be limited to the following. The Contractor will:

- ensure considerate site behaviour of the Contractor's staff at all times;
- ensure the noise from lorry reversing alarms and the like are kept to minimum levels;
- prohibit open fires;
- ensure that appropriate provisions for dust control and road cleanliness are implemented;
- remove rubbish at frequent intervals, leaving the site clean and tidy;
- frequently inspect, repair and re-paint as necessary all site hoardings. All flyposting and graffiti is to be removed as soon as reasonably practicable;
- maintain toilet facilities and other welfare facilities for its staff;
- remove food waste;
- frequently cleanse wheel washing facilities and approach road sweeping if required;
- prevent vermin and other infestations; and
- undertake all loading and unloading of vehicles from inside the site boundary as identified on the logistics drawing.

Public information

The site hoarding will display all necessary health & safety material.

Security

The Contractor will ensure that the site is secure and prevent unauthorised entry to or exit from the site. Site gates will be closed and locked when there is no site presence. Alarms will incorporate an appropriate cut-off period. Access and egress will be via manned security gates.

Hoardings, site layout and facilities

The site will be completely secure to deter public access. The proposed hoarding line and gates, are shown on the logistics plan in Section 5 of this document.

Site welfare arrangements will be established to the rear of the site. Negotiations are at an early stage with neighbouring property to use spare land to the south east corner of the site, adjacent to the boundary. Otherwise accommodation will be erected between the proposed new building and the river path, with the location planned to avoid the tree and cable protection zone (as noted on the Logistics Plan)

Emergency planning and response

The Contractor will develop a plan for emergencies to incorporate:

- Emergency procedures including emergency pollution control to enable a quick response.
- Emergency phone numbers and the method of notifying LBR and statutory authorities. Contact numbers for the key staff of the Contractor will also be included. The Contractor will display a 'contact board' on the hoarding identifying key personnel with contact addresses and telephone numbers, so that members of the public know who to contact in the event of a report or query.
- London Fire and Emergency Planning Authority (LFEPA) requirements for the provision of site access points.
- Site Fire plan and management controls to prevent fires.
- A plan to reduce fire risk and potential fire load during construction, operation and subsequently during maintenance or repair. The project will comply with any third party requirements as may be appropriate at specific sites.

Cranes

One, centrally located tower crane is proposed for the construction works. Offloading areas for the tower crane will be located inside the site boundary. Lifting will not be required from or over the public highway or neighbouring property.

Hoists

To deliver materials to the new floors during the fit-out period there will be external hoists positioned to the rear of the site.

Considerate Constructors Scheme

The site will be registered with the Considerate Constructors Scheme. This scheme ensures that contractors carry out their operations in a safe and considerate manner with due regard to neighbours, passing pedestrians and road users.

5.0 SITE LOGISTICS

The efficient management of the site logistics will be vital to the success of the project. A key strategy of logistics for a construction project is to ensure that the products and materials arrive on site at the time and in the quantities that are required.

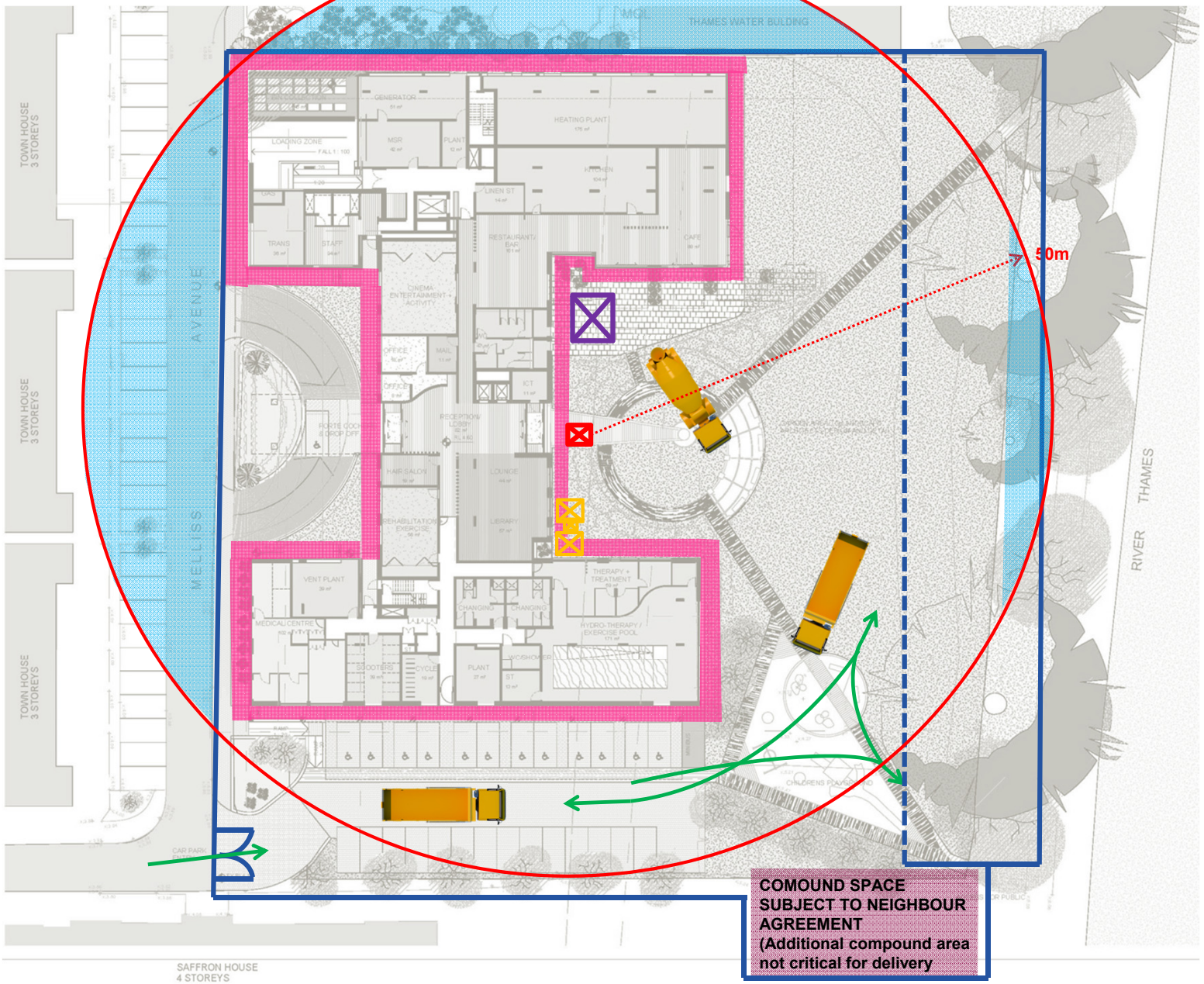
The Contractor will ensure that the necessary pre-planning is undertaken and that the quality of the communication between those planning the project and those supplying the products and materials is maintained throughout the duration of the project.

The drawings overleaf illustrate the proposed overall logistics plan for the site which incorporates the following key features:

- Products and materials will be delivered to site by vehicle, unloaded inside the site boundary by crane or forklift.
- The tower crane should be a flat jib model with minimal oversailing beyond the boundary. Where the jib extends beyond the boundary lifting will be computer limited with no lifting required or allowed over neighbours land. Oversailing agreement will be sought for the jib only.
- Delivery vehicles will enter and leave site in forward gear. (Please refer to the Logistics Drawing at the end of this section, and to section 7 of this document for details of traffic management and associated swept path analysis).
- Access and egress to be controlled by fully manned security points.
- A fixed concrete pump and boom will be positioned to the rear of the building where mixer trucks can offload inside the site boundary.
- Materials storage on site will be minimal and loose materials will be covered to prevent dust escape..
- The contractor will maintain and operate a Delivery Management System (DMS) whereby all deliveries to site are pre-arranged and booking times allocated. Non-compliant deliveries will be turned away.

- Just in time delivery of materials is to be encouraged, with components being delivered directly to the point of fixing. The contractor will also consider the benefits of an off-site consolidation centre for short-term storage.
- Appropriate wheel washing facilities will be established on site and any vehicle that enters the site will be cleaned before re-entering the public road network.

Please Refer to the Site Logistics Plan Overleaf



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PROJECT: Melliss Avenue, Kew
CLIENT: Red & Yellow Care

TITLE: **Logistics Plan**

DRAWING NO.: BSB-MA-001

REVISION NO. & DATE: Rev 1 – 01/10//2018

6.0 TRAFFIC MANAGEMENT

This section highlights the measures by which the Contractor will avoid nuisance to the public that may arise from increases in traffic flows and temporary rearrangements of the road network associated with the construction works. Measures have been considered in relation to access routes, site access, marking of lorries, timing of movements, environmental standards, vehicle registration and parking.

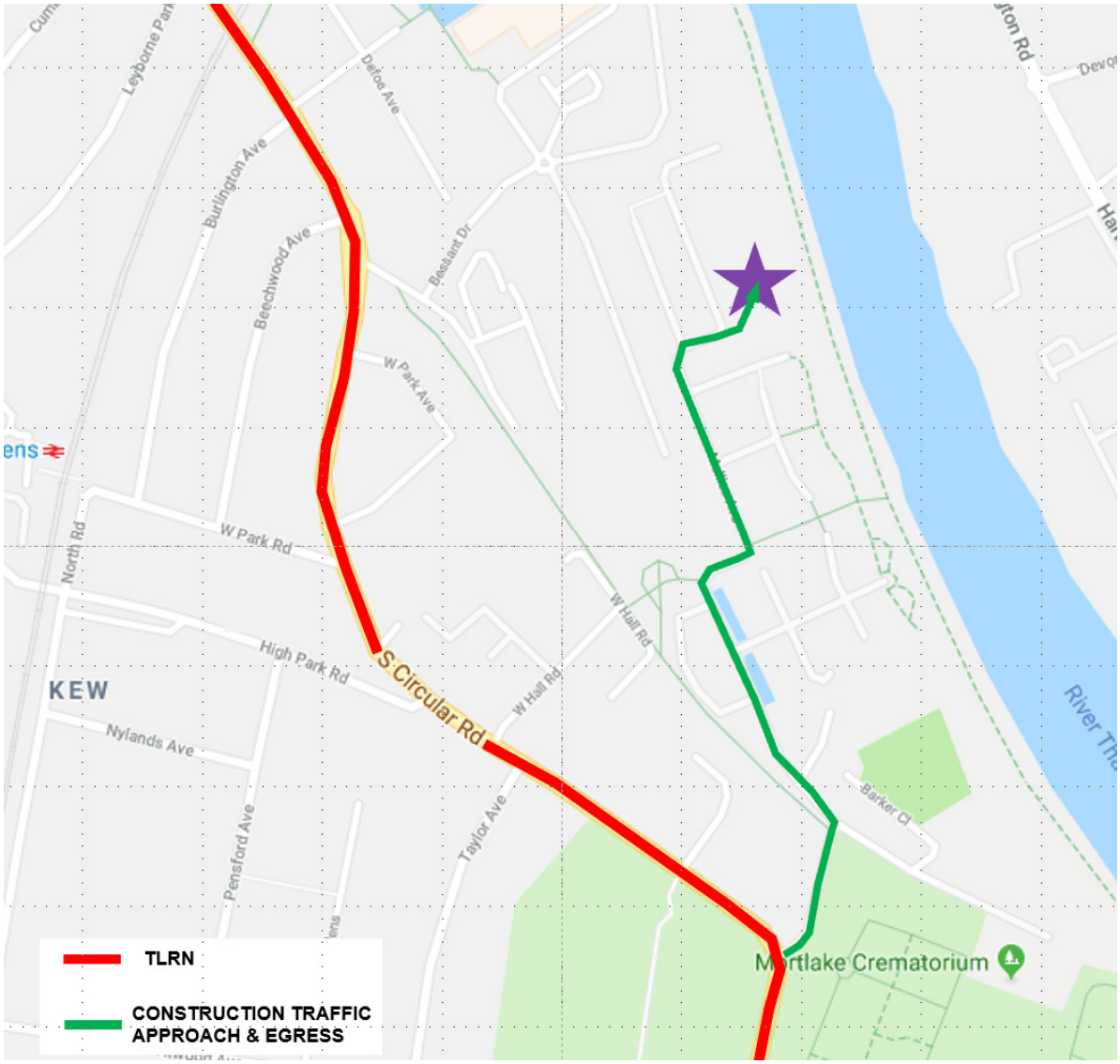
The road width for through traffic will be maintained as existing.

Access routes

The Contractor will use designated construction traffic routes for deliveries to the site and removal of waste etc.

Access routes to and from the site to be used by heavy goods vehicles (HGVs) will be agreed with LBR prior to initiation of the demolition and construction programme, to minimise disruption to the road and pedestrian network. It is anticipated that the strategic road network (SRN) will be used as far as possible for this purpose, with the majority of construction traffic assumed to be approaching the site from the West of London.

Vehicles final approach and egress from the SRN will be via the A205, South Circular Road, into Townmead Road and Melliss Avenue in accordance with the map below:

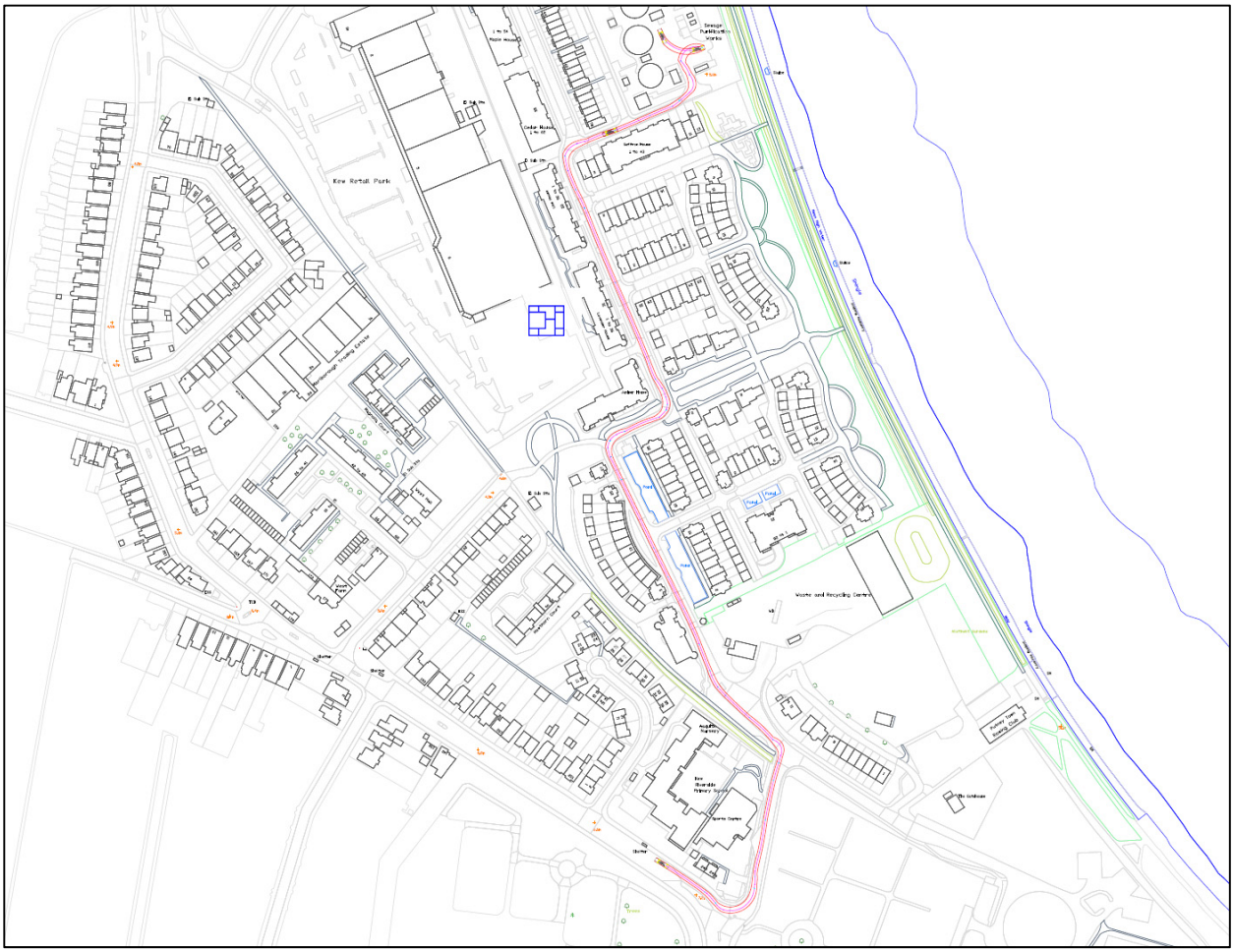


As mentioned in the introduction an alternative access point is being explored to alleviate congestion.

Swept Path Analysis

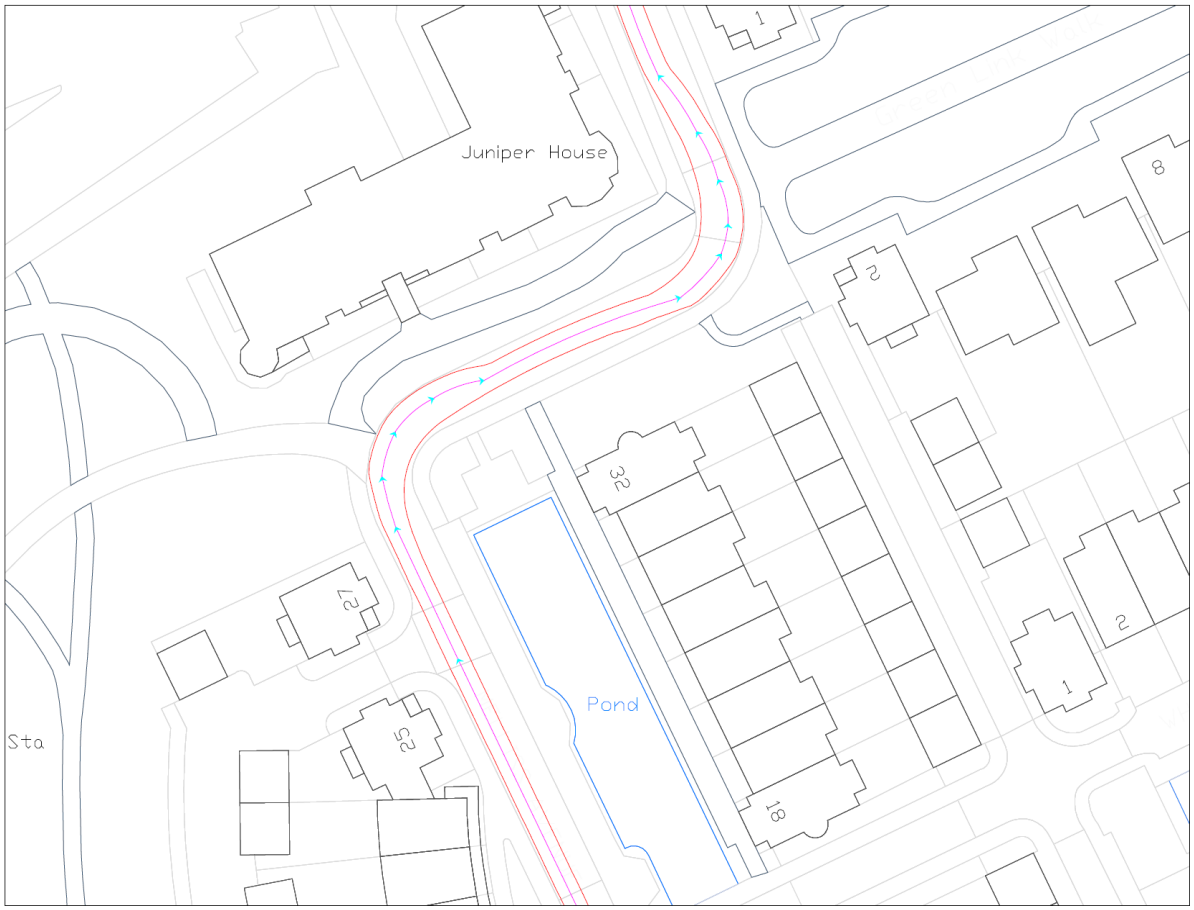
Melliss Avenue is a relatively narrow winding private road. Traffic and parking is restricted and controlled and Swept Path Analysis confirms that the avenue can be negotiated by 10m rigid lorries. This would include 4 axle tipper lorries, for muck away, and 8m^3, 4 axle concrete mixer trucks. Our vehicle number forecasts are therefore based on vehicles no larger than these.

Full Route from A205:



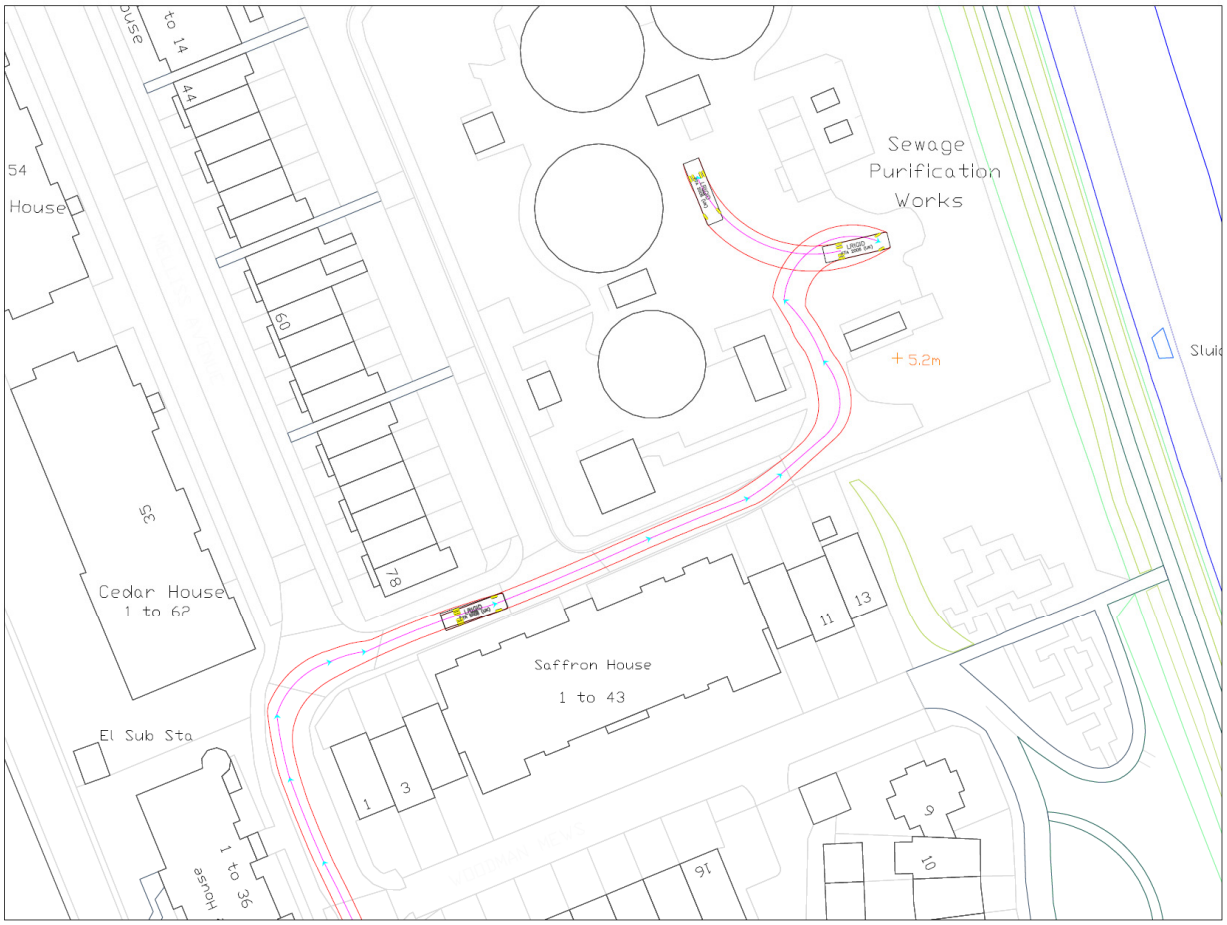
Mellis Avenue

Parking on Mellis Avenue is strictly controlled by Estate Management and deliveries will be marshalled by banksmen to ensure that the two right angle bends are safely negotiated:



Site Entry and Exit

Vehicles will enter and leave the site in forward gear throughout demolition and construction.:



Vehicle Numbers & Management

Provisionally the average vehicle numbers per day for each construction period are as follows:

Construction Section	Vehicles Per Day
Site Establishment	3-4
Demolition	6-8
Piling & Substructure	12
Frame & Envelope	12
Fit Out	10
External Works	5

The number of lorry movements, hours of operation and any lorry holding areas will be agreed in advance with LBR. The Contractor will maintain an up-to-date log of all drivers that will include a written undertaking from them to adhere to LBR's approved routes for construction traffic.

Where possible all delivery and waste removal vehicles will be brought to site between the hours of 09.30 and 15.30 hours to avoid the peak periods.

No vehicle waiting will be permitted in Mellis Avenue or neighbouring streets. Vehicles will only deliver in accordance with their Delivery Management System slot. Please see also Section 5: Logistics.

Delivery companies and suppliers will be required to be registered with FORS. CLOCS compliance will be a contract requirement. Copies of registration documents for regular / repeat vehicles will be held on site and will be available for inspection.

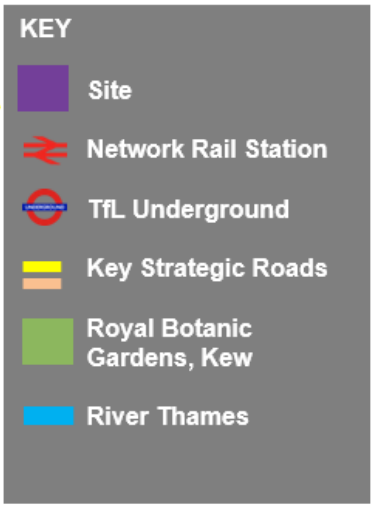
All suppliers will be notified of the requirement in supply orders and a log of vehicles held on site. Non-compliant vehicles will not be permitted entry.

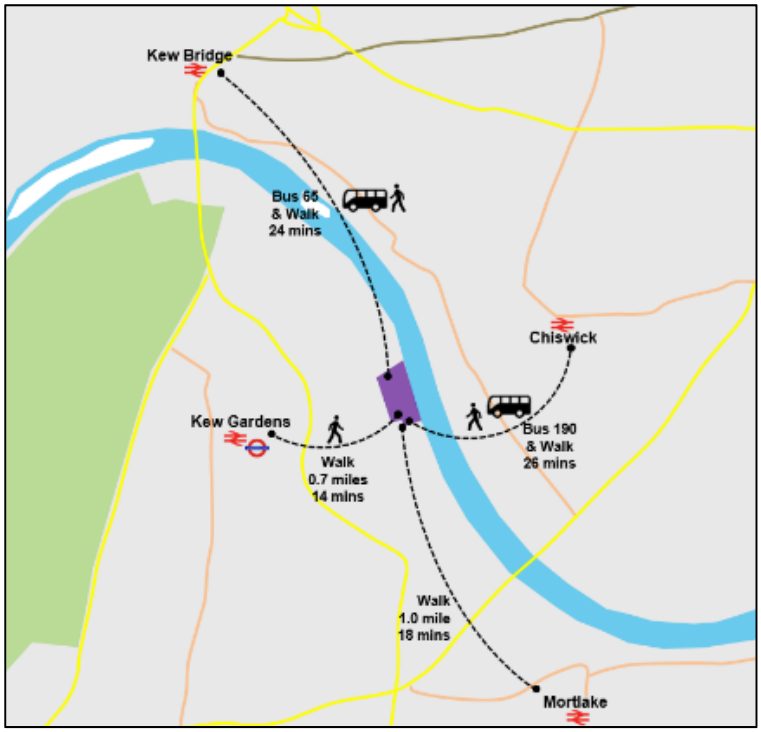
Operatives Journeys to Work

Operatives will be encouraged to come to work by public transport or cycle. Parking will not be permitted on site for individuals although sub-contractors willing to bring operatives to site by minibus may be granted a parking space within the site boundary.

Bike parking will be allowed on site and showers will be provided for cyclists. The map below highlights the public transport options for site attendees. It will be included in the site induction and included in sub-contract tender information.

TRANSPORT LINKS





7.0 SITE WASTE MANAGEMENT

The Contractor must use working methods that minimise waste. Any waste arising from the site must be properly categorised and dealt with in accordance with appropriate legislation. Opportunities for re-using or recycling construction or demolition waste should be explored and implemented.

The Contractor will carry out the works in such a way that as far as is reasonably practicable the amount of spoil and waste (including groundwater, production water and run-off) to be disposed of is minimised, and that any waste arising from the site is properly categorised and dealt with in accordance with the appropriate legislation and guidance.

A formal and detailed Waste Management Plan will be prepared by the Contractor. The disposal of all waste or other materials removed from the Site will be in accordance with the requirements of the Environment Agency, Control of Pollution Act (COPA), 1974, Environment Act 1995, Special Waste Regulations 1996, Duty of Care Regulations 1991 and the Waste Management Regulations 2006.

In general and in accordance with the principles of the UK Government's 'Waste Strategy 2010', a principal aim during demolition and construction will be to reduce the amount of waste generated and exported from the Development site.

This approach complies with the waste hierarchy whereby the intention is first to minimise, then to treat at source or compact and, finally, to dispose of off-site as necessary. All relevant Contractors will be required to investigate opportunities to minimise and reduce waste generation, such as:

- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme.
- Implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste.
- Attention to material quantity requirements to avoid over-ordering and generation of waste materials.
- Re-use of materials wherever feasible (e.g. re-use of crushed concrete from demolition process for piling platform (crushed using an on-site concrete crusher); re-use of excavated soil for landscaping;
- The Government has set broad targets of the use of reclaimed aggregate, and in keeping with best practice, Contractors will be required to maximise the proportion of materials recycled.
- Segregation of waste at source where practical.
- Re-use and recycling of materials off-site where re-use on-site is not practical (e.g. through the use of an off-site waste segregation facility and re-sale for direct re-use or re-processing). Our expectations in this regard are shown in the following table.

Material	Target	Probable Location
Metals	100% recycled	All metals from the existing facility and off-cuts generated by site works to be recycled as scrap metal.
Hardcore (brick/block/ concrete etc.)	100% recycled	To be crushed on site for use in hardstandings and piling platform if practical. Alternatively taken off-site to be crushed and reused as fill.
Excavated material/ clay etc.	100% recycled	Clay – 100% processed for re-use (subject to analysis).
Timber	Up to 80% recycled The amount re-used will depend on the material	Sundry timber, fence posts or cladding materials salvaged from the existing site; off-cuts, timber packaging and used formwork timbers will be retained and re-used where possible or processed as scrap timber.
Glass (non-tempered, non-laminated and non-bomb proofing film etc.)	100% recycled	Processing facility in Greenwich.
Mixed waste	The amount recycled will depend on the material	An absolute minimum will remain for transport to landfill. The proposed development has set a target of 85% of non-hazardous waste to be diverted from landfill.
Asbestos	100% landfill	Taken to a licensed site.

Overall, the waste management for the site is likely to comprise of the following:

- **Demolition.** Plant and steel components will be lifted directly to lorries using small plant. Debris will be cleared using skid steer Bobcat or similar to a conveyor belt and deposited into an eight-wheeled tipper wagons or roll on/off skips for processing off site.
- **Excavation**. Arisings will used in regrading landscape areas if possible or loaded directly into a waiting tipper or skip for processing off-site.
- **Construction Waste.** Will be minimised as far as possible as noted above and remaining waste removed from site for segregation into recycling streams.

8.0 NOISE AND VIBRATION

The Contractor will monitor and control levels of noise and vibration from the site. Control of noisy activities will be in accordance with the LBR SPD: Development Control for Noise Generating and Noise Sensitive Development. A base level survey is included in Aecom – Noise Survey Assessment, October 2018, submitted separately.

Measures for reducing such levels are set out of this section. Prior approval via Section 61 of the Control of Pollution Act 1974 will be sought before commencement. The application details how noise is to be managed on-site. The underlying principle is that Best Practicable Means (BPM) is being adopted.

Noise control

The Contractor's environmental team will undertake a noise assessment for a minimum of 24 hours using noise predicting software which projects noise levels at adjoining properties based on the emissions made by specific plant. This noise assessment will be carried out in accordance with BS5228-1 2009 'Code of Practice for noise and vibration on construction and open sites.

This assessment allows the Contractor to select the most appropriate plant, methodology and controls to minimise disruptions of buildings at close proximity of the adjacent structures (sensitive receptors) and in particular live and occupied premises during the demolition piling work and construction phases.

Noise levels will be monitored by the Contractor during the course of the works. LBR shall be given access to all noise readings if required as soon as they become available.

Although the noise levels to be included in a formal agreement between the Contractor and LBR are the maximum to be allowed, at sensitive locations the Contractor will be requested to achieve, where practicable, noise levels lower than the specified limits.

Noise control provisions – screens and barriers

Throughout the critical demolition, piling and structural frame construction, all works will take place behind a solid sensitively designed hoarding to the perimeter of the site, plus scaffolds clad in Monarflex sheeting and additional acoustic barriers where appropriate. The solid barriers and encapsulation provide the following benefits during the de construction/construction stages of the works:

- It acts as a visual screen hiding the on-going works.
- Dust arising will be contained within the scaffold enclosures.
- With the use of the sheeting, solid barriers and acoustic blankets where appropriate, noise is contained.
- The scaffold and barriers are easily adapted to suit the progress of the works.

The barriers will be erected before any of the demolition works commence.

Vibration control

Vibration is a particular risk during the demolition and piling phases. The measures taken to reduce the acoustics of these two operations will also assist in mitigating the effects of vibration on neighbours, their property and the existing building to be retained.

A digital seismograph measuring device will be used to measure the amount of vibration produced during these works. Where elevated levels are recorded the source will be investigated and, where possible, alternative techniques employed to reduce the levels.

The Contractor will comply with the vibration levels established by agreement with LBR.

Piling will be bored rather than driven to limit noise and vibration. Tank demolition will employ sawing and hydraulic crushing techniques rather than pneumatic breaking where possible.

9.0 AIR QUALITY

The London Borough of Richmond upon Thames is designated as an Air Quality Management Area.

The Contractor will, as far as reasonably practical, seek to control and limit emissions to the atmosphere in terms of gaseous and particulate pollutants from vehicles and plant used on site and dust from construction activities. Prior to commencing any demolition or construction works, the contractor will prepare an Air Quality and Dust Management Plan for agreement in accordance with the Mayor of London's Supplementary Planning Guidance: The Control of Dust and Emissions during Construction and Demolition dated July 2014.

Please also refer to Aecom – Air Quality Assessment, October 2018, submitted separately.

The contractor must submit a statement identifying proposed dust control measures for LBR approval before work starts. Special precautions must be taken if materials containing asbestos are encountered.

Throughout the critical activities, all works will take place behind a hoarding and encapsulation screens. This encapsulation together with the scale of the existing construction, results in a low risk of emissions to the air; the project will be a site with a low risk of Emissions (Tier 1).

Throughout the project the Contractor will ensure the following:

- Where potential dust producing activities are taking place the screens remain in position. This will include the demolition, piling and structural works.
- There is no burning of waste materials takes place on site.
- There is an adequate water supply on the site.
- Disposal of run-off water from dust suppression activities is in accordance with the appropriate legal requirements.

- All dust control equipment is maintained in good condition and record maintenance activities.
- Site hoarding, barriers and scaffolding are kept clean.
- The provision of clean hardstanding for vehicles. Regular cleaning of hardstanding using wet sweeping methods No dry sweeping of large areas permitted.
- Loading of material into lorries within designated bays/areas.
- If necessary, clean public roads and access routes using wet sweeping methods.
- Vehicles working on site have exhausts positioned such that the risk of re-suspension of ground dust is minimised (exhausts should preferably point upwards), where reasonably practicable.
- All vehicles carrying loose or potentially dusty material to or from the site are fully sheeted.
- Materials with the potential to produce dust are stored away from site boundaries where reasonably practicable.
- Minimise the amount of excavated material held on site.
- Sheet, seal or damp down unavoidable stockpiles of excavated material held on site, where required.
- Avoid double handling of material wherever reasonably practicable.
- Ensure water suppression is used during demolition operations.
- Use enclosed rubble chutes and conveyors where reasonably practicable or use water to suppress dust emissions from such equipment.
- Sheet or otherwise enclose loaded bins and skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Use prefabrication of goods and materials to reduce the need for grinding, sawing and cutting on site wherever reasonably practicable.
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction.
- The engines of all vehicles and plant on site are not left running unnecessarily to prevent exhaust.
- Use low emission vehicles and plant fitted with catalysts, diesel particulate filters or similar devices.

- Use ultra-low sulphur fuels in plant and vehicles.
- That plant will be well maintained, with routine servicing of plant and vehicles. On site servicing and maintenance to be carried out where possible.
- That all project vehicles, including off-road vehicles, hold current MOT certificates where required.
- Carry out site inspections regularly to monitor compliance with dust control procedures set out above and record the results of the inspections, including nil returns, in the log book detailed.
- Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Record any exceptional incidents causing dust episodes on or off the site and the action taken to resolve the situation in the log book detailed in above.

The Contractor will ensure that dust monitoring will be carried out during potential dust producing activities. The assessment will look at the dust raising potential of construction activities proximity to potential receptors and the duration of construction activities at each location.

10.0 MANAGING THE ENVIRONMENTAL IMPACT OF CONSTRUCTION

This section sets out the requirements on the Contractor for managing the environmental impacts of constructing the development. The Contractor must prepare a site specific Method Statement setting out how LBR requirements will be met.

The Contractor will need to demonstrate the management, monitoring, auditing and training procedures that are in place to ensure compliance with LBR requirements. The Contractor will also need to set out the specific roles and responsibilities of personnel in managing, monitoring all sub-contractors.

The specific measures to be implemented by the Contractor will include:

- The Contractor will liaise with LBR's Environmental Inspectorate on a regular basis, agreeing routine arrangements for each site's activities and ensuring compliance with their requirements.
- The Contractor will be responsible for establishing and maintaining contact with LBR and local residents, and keeping them informed of construction matters likely to affect them.
- This liaison will include the regular and frequent distribution of Newsletters and attendance at meetings at the request of LBR with representatives of local residents' groups. (See under community relations below).
- The Contractor will advise the local authority within 24 hours of any incidents of non-compliance with LBR requirements and health and safety issues. The Contractor will respond to any reports referred by LBR, Police or other agencies within 24 hours, or as soon as reasonably practicable.

- The Contractor will maintain on site, a system for recording any incidents and any ameliorative action taken for inspection by the Council's representatives. This will be forwarded to the Council on a regular basis. The Contractor will ensure as far as is reasonably practical, that necessary action has been taken and steps to avoid recurrence have been implemented.
- The Contractor will provide an information and reporting telephone 'Hot Line' staffed at all times during working hours, and with message recording facility outside hours. Information on this facility shall be prominently displayed on site hoardings. The Contractor's nominated person will attend monthly reviews with LBR's Environmental Inspectorate, or otherwise as requested.
- The Contractor will facilitate LBR's Environmental Inspectors to undertake regular planned inspections of the site to check compliance with LBR requirements and associated records.

Schedules of work

Prior to commencement of the works the Contractor will submit and agree schedules of work with LBR.

The schedule will include:

(i) Construction drawings

(ii) Programmes of demolition works.

(iii) Demolition methodology.

(iv) Programme for construction works including specific construction tasks.

(v) Location of main storage areas during demolition and construction, including secure off site facility for storing retained architectural features.

(vi) Routes for construction traffic and traffic management arrangements, including accesses to site during demolition and construction phases.

(vii) Site arrangement plans.

(viii) Outline and detailed method statements.

(ix) Outline, and if necessary, detailed construction programmes

The Contractor will notify LBR of any revisions to the schedule.

11.0 AUTHORITIES AND PUBLIC LIAISON

This section sets out the processes involved in liaising with local authorities and the public prior to the commencement of development activities.

Contractors should provide LBR's Environmental Inspectors with a full programme of activity for each development before it starts. Specific information and details for each site have been outlined within this section.

The specific measures to be implemented by the Contractor will include:

- Inform on the nature and timing of all main site activities relating to LBR requirements, in particular the demolition, piling, new structural frame and external envelope.
- All site construction staff to be made aware of the requirements of the CMS and will be made responsible for its implementation.
- Sufficiently in advance of works, the Contractor will provide the Environmental Inspectors with a full programme. This will include:

  i) an outline method statement for works and activities affecting the highway.

  ii) detailed method statements for specific/special activities in Melliss Avenue in line with the principle identified in this report. Temporary works, piling, removal of excavation material, concrete pours, deliveries of heavy plant, deliveries of mechanical equipment.

  iii) details of site traffic movements showing the projected number of vehicles, what is being delivered, when peaks in activities occur, traffic marshalling arrangements, holding areas, etc.

  iv) routes to site for deliveries.

  v) a health and safety plan.

- The Contractor will agree detailed schedules of work with the Inspectors acting on behalf of LBR prior to commencement of development to assess the potential for nuisance.
- Liaison with LBR's Environmental Inspectors to agree working arrangements on site.

Community relations

The Contractor will provide community relations personnel, who will be focussed on engaging with the local community. The Contractor will ensure that occupiers of nearby properties and local residents will be informed in advance of works taking place, including the estimated duration.

The Contractor will inform local residents likely to be affected by such activities at least 14 days prior to undertaking the works, as well as applying for the appropriate permits and licences, in agreement with the KRRA fortnightly. LBR requires notices to be posted in a prominent location of site hours and events and this will be augmented by issuing regular newsletters.

The Contractor will provide monthly newsletters, and we propose that an additional liaison group be set up with representatives of the adjacent properties to meet regularly. Invitations to attend monthly site meetings will also be offered.

The Contractor's project director together with the nominated person (if different) will agree with these neighbours a schedule of regular review meetings. Sufficient time prior to activities will be allowed for the neighbours' reasonable concerns to be addressed. Where required and reasonable, requested ad-hoc meetings with these neighbours will be attended by the Contractor's project director and the nominated person.

In the case of work required in response to an emergency, LBR, and all neighbours will be advised as soon as reasonably practicable that emergency work is taking place. Potentially affected occupiers will also be notified of the 'hotline' number, which will operate during working hours.

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