



Stag Brewery, Mortlake

Framework Construction Management Statement

For Reselton Properties

February 2018

The background of the top half of the page is a photograph of the Stag Brewery in Mortlake, London. The building is a large, multi-story structure with a mix of red brick and dark grey panels. It features several gabled sections and a prominent central tower. In the foreground, there is a body of water reflecting the building and the sky. The sky is a pale, overcast blue. The bottom half of the page is a solid blue background with white geometric lines.

Stag Brewery, Mortlake, London SW14

Framework Construction Management Statement

February 2018

Quality information

Prepared by

Conor Murphy
Construction Services

Checked by

Jag Bhatti
Construction Services

Approved by

Ian Skelton
Construction Services

Distribution List

# Hard Copies	PDF Required	Association / Company Name
6Nr	Yes	Reselton Properties

Stag Brewery, Mortlake

Prepared for:

Reselton Properties

Prepared by:

Conor Murphy

AECOM Construction Services
Aldgate Tower
2 Leman Street
London
E1 8FA
aecom.com

© 2018 AECOM Construction Services UK&I. All Rights Reserved.

This document has been prepared by AECOM Construction Services UK&I ("AECOM") for the sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Table of Contents

1.	Introduction	6
2.	Stag Brewery - Site	7
3.	Description of the Project	9
4.	High Level Construction Programme	10
5.	Outline Scope of Works	12
	5.1 Chalkers Corner	12
	5.2 Phases 1, 2 and the School	12
6.	Outline Procurement Route	13
7.	Outline Construction Method Statement	13
	7.1 Asbestos Removal	13
	7.2 Demolition & Enabling Works	13
	7.3 Substructure Works	15
	7.4 Superstructure Works	15
	7.5 Internal & External Works	16
8.	Construction Logistics	16
	8.1 Considerations	16
	8.2 Traffic Routes	18
	8.2.1 Schedule of Deliveries	18
	8.2.2 Vehicle Loading and Unloading	18
	8.2.3 Demolition & Construction Traffic Routes Flow	18
	8.2.4 Road Closures	18
	8.2.5 Site Access	18
	8.2.6 Sheen Lane Mortlake Station	21
	8.3 Construction Vehicle Trips	22
	8.4 Parking on Site	22
	8.5 Wheel Wash Management	23
	8.6 Operative Access	23
	8.7 Hoarding	23
	8.8 Scaffolding and Associated Access	24
	8.8.1 Pedestrian Protection	24
	8.8.2 Full Building Scaffolding	24
	8.8.3 Safety Fans	24
	8.9 Site Set Up	25
	8.9.1 Site Accommodation	25
	8.9.2 Working Hours	26
	8.9.3 Fire Precautions & Alarms	26
	8.10 Tower Cranes	26
	8.11 Hoists	27
	8.12 Waste Management	27
	8.13 Plant & Equipment	28
	8.14 Potential Environmental Impacts during Construction	30
	8.15 Mitigation Measures	31
9.	Neighbours and External Considerations	33
	9.1 Considerate Constructors Scheme	33
	9.2 Public Relations	33
	9.3 Access by Neighbours to their Buildings	34
	9.4 Construction Logistics and Cyclist Safety	34
	9.5 Rodents and Vermin	34
	Appendix	35

Figures

Figure 1 - Site location and boundary of Stag Brewery

Figure 2 - Indicative plan of existing Stag Brewery buildings

Figure 3 - Red Line Boundary of Stag Brewery – Squire & Partners (11/10/2017)

Figure 4 - Extracted High Level Phasing Plans

Figure 5 - Indicative Sequence for Top-Down Demolition

Figure 6 - Overview of Logistics Responsibilities

Figure 7 - Proposed Traffic Routes for Phase 1

Figure 8 - Proposed Traffic Routes for Phase 2

Figure 9 - Proposed Bus Shelter Relocation

Figure 10 - Typical Protected Pedestrian Tunnel (Not to Scale)

Figure 11 - Full Building Scaffolding

Figure 12 - Safety Fans

Tables

Table 1 - Summary of Vehicle Type and Site Use

Table 2 - Estimated Number of Construction Operatives on Site at Peak

Table 3 - Plant and Equipment

Table 4 – Summary of Potential Impacts and Mitigation Measures

Appendices

Appendix A – High Level Summary Programme

Appendix B – High Level Phasing Plans

1. Introduction

This document is known as a Framework Construction Management Statement (FCMS) and it provides an indicative strategy for the proposed demolition, construction methodology, construction logistics and associated assumptions for the proposed development of the Stag Brewery, Lower Richmond Rd, London, SW14 7ET.

This FCMS has been prepared by AECOM Construction Services on behalf of Reselton Properties Limited ('the Applicant') in support of three linked planning applications for the comprehensive redevelopment of the former Stag Brewery Site in Mortlake ('the Site') within the London Borough of Richmond upon Thames ('LBRuT'). Full details and scope of all three planning applications are described in the submitted Planning Statement, prepared by Gerald Eve LLP.

This FCMS is an initial plan and has been prepared in advance of the appointment of a Principal Contractor(s). Upon appointment, the Principal Contractor(s) will outline their project Construction Method Statement and Construction Logistics Plan

This document has been prepared to communicate the proposed high level construction delivery strategy and methodology for Stag Brewery. The over-riding intent is to deliver a high quality project in line with safe methods, sustainable initiatives and strong relationship. The FCMS is supported by phasing plans and supplementary sketches/figures.

2. Stag Brewery - Site

Site Description

The site is located in Mortlake, between Lower Richmond Road / Mortlake High Street and the River Thames in the London Borough of Richmond upon Thames (LBRuT), SW14. It is centred on an approximate National Grid reference of 520410E, 176032N

The site extends to circa 8.6 ha (21.2 acres), divided into two parts by Ship Lane which runs North-South through the centre of the site. The Eastern part is 3.1 hectares and the Western part is 5.5 hectares. The existing site level is approximately 5 to 6 mAOD, with the highest level to the West falling to the East. The site is bounded by the River Thames to the North, Lower Richmond Road and both Mortlake High Street and Mortlake Green to the South and Williams Lane to the West. The site is currently occupied by a number of redundant buildings associated with the brewing process, ranging between 2 to 10+ storey buildings. There is also a private playing field on the site.

There is approximately 353,000 sq ft of existing accommodation on site, totalling 11 number buildings.

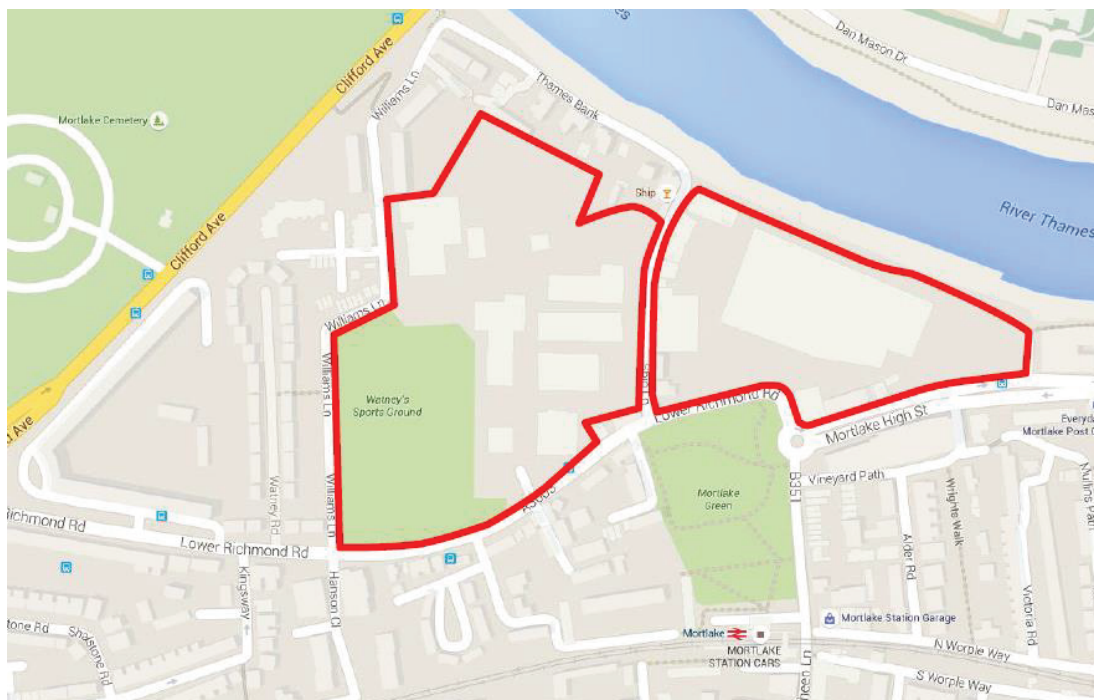


Figure 1: Site location and boundary of Stag Brewery



Figure 2: Indicative plan of existing Stag Brewery buildings

The proposed site is currently split into three phases of works: Development areas 1 and 2, plots East and West of Ships Lane respectively, and road improvement works to Chalkers Corner – see below Red Line Boundary.

It has been advised that each plot is to be self-contained from a constructability and practical completion perspective. For example, Plot 1A and Plot 1B must be able to be constructed, completed and in use independently of each other. The final construction sequence will have to be confirmed by the client and appointed Contractor(s) but the scheme will be designed to be compatible with either a phased or continuous construction.

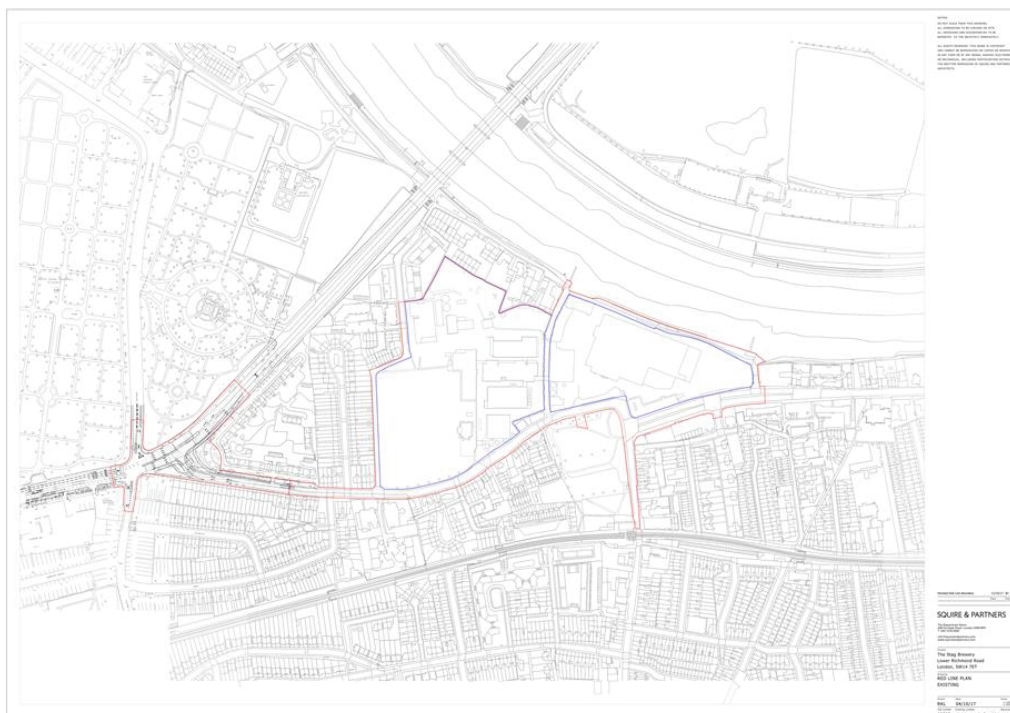


Figure 3 - Red Line Boundary of Stag Brewery – Squire and Partners (11/10/2017)

3. Description of the Project

The redevelopment works to the former Stag Brewery site can be described as the following:

- Demolition of existing buildings, walls and associated structures to allow for the comprehensive phased redevelopment of the site to provide residential units and a mix range of land uses.
- Alterations and extensions to existing historically notable buildings to comprise residential dwellings.
- Ancillary works such as: landscaping, amenity space, play space, public open space, car and cycle parking.
- Construction of new school building and associated rooftop play area, external play (including Multi-Use Games Area), playing pitch (artificial surface), with floodlighting, public park, landscaping, boundary treatments, car and cycle parking, new access routes and associated works.
- Reconfiguration of Chalkers Corner traffic junction and existing landscaped and informal parking area to facilitate amendments to lane configuration, a new cycle lane, works to existing pedestrian and cycle reservoirs and provision of landscaping and trees.

4. High Level Construction Programme

A high level outline construction programme has been developed for the Stag Brewery scheme illustrating the main timescales and phases.

Demolition works will commence on Stag Brewery in June 2019 and are scheduled for completion in January 2020. Construction works are scheduled to start in May 2020 with completion of the development being scheduled for September 2027.

From our high level summary programme, we anticipate that the peak construction period is Q2 2022.

The programme is based on continuous working with no gap in time related to the completion of demolition and start of enabling works and construction. This may not be the case as there are likely to be 2 different contractors at this stage. This will be decided during the development of the procurement strategy.

The programme show works commencing in Plot 1A progressing through 1B, 1C, 2D and 2E. Improvement works to Chalkers Corner will be completed prior to the completion of the school.

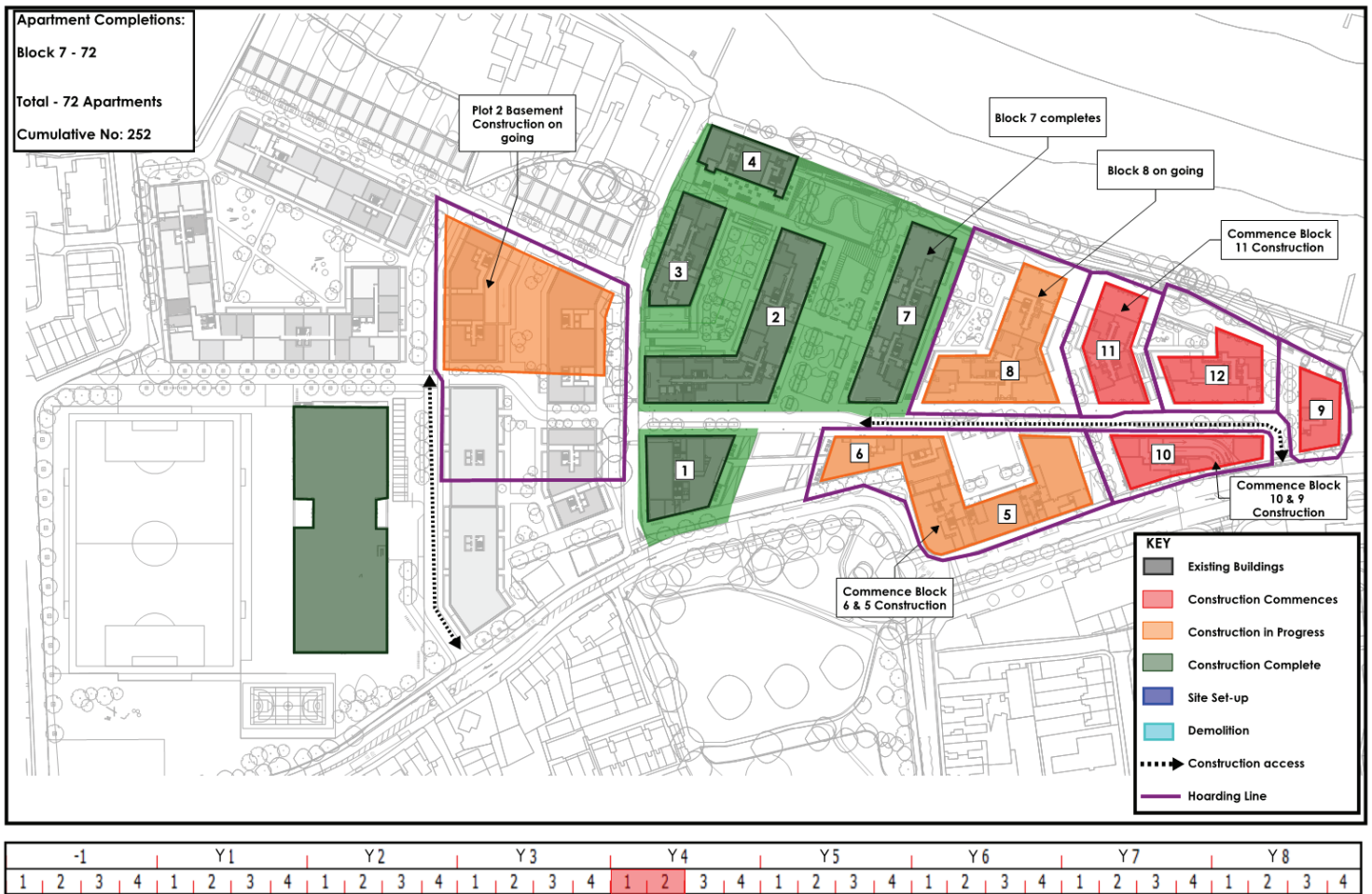
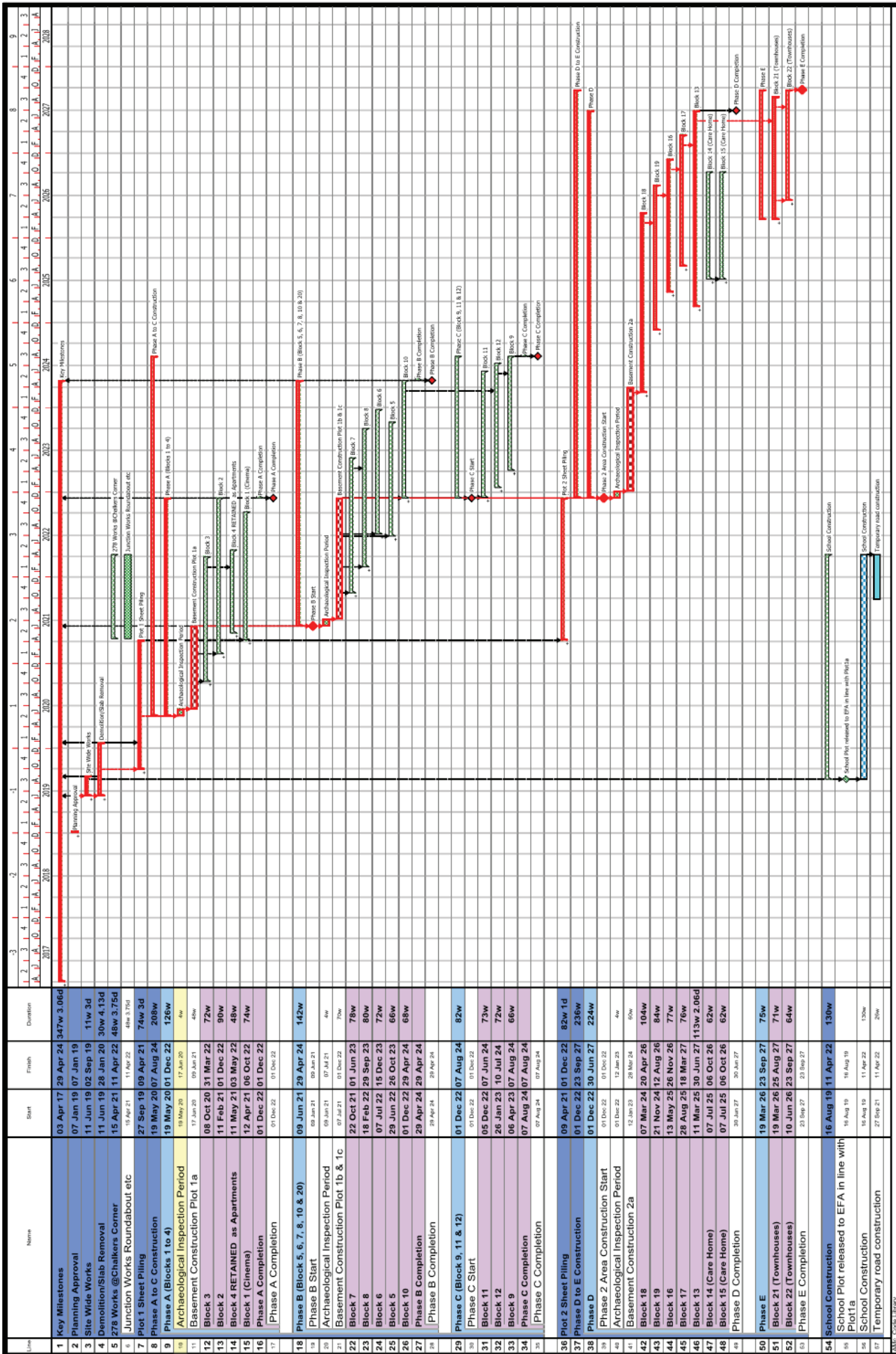


Figure 4: Extracted High Level Phasing Plan



Item	Name	Start	Finish	Duration
1	Key Milestones	03 Apr 17	29 Apr 24	347w 3.06d
2	Planning Approval	07 Jan 19	07 Jan 19	11w 3d
3	Site Wide Works	11 Jun 19	02 Sep 19	30w 4.13d
4	Demolition/Slab Removal	15 Apr 21	11 Apr 22	48w 3.75d
5	Junction Works Roundabout etc	27 Sep 19	09 Apr 21	74w 3d
6	Plot 1 Sheet Piling	19 May 20	07 Aug 24	208w
7	Phase A (Blocks 1 to 4)	19 May 20	01 Dec 22	126w
8	Archaeological Inspection Period	08 Oct 20	31 Mar 22	48w
9	Basement Construction Plot 1a	11 Feb 21	01 Dec 22	72w
10	Block 2	11 May 21	03 May 22	48w
11	Block 1 (Kinema)	12 Apr 21	06 Oct 22	74w
12	Phase A Completion	01 Dec 22	01 Dec 22	0w
13	Phase B (Block 5, 6, 7, 8, 10 & 20)	09 Jun 21	29 Apr 24	142w
14	Phase B Start	09 Jun 21	29 Apr 24	142w
15	Archaeological Inspection Period	22 Oct 21	01 Jun 23	78w
16	Basement Construction Plot 1b & 1c	18 Feb 22	29 Sep 23	80w
17	Block 7	07 Jul 22	15 Dec 23	72w
18	Block 8	29 Jun 22	26 Oct 23	66w
19	Block 6	01 Dec 22	29 Apr 24	68w
20	Phase B Completion	29 Apr 24	29 Apr 24	0w
21	Phase C (Block 9, 11 & 12)	01 Dec 22	07 Aug 24	82w
22	Phase C Start	01 Dec 22	07 Aug 24	82w
23	Block 11	05 Dec 22	07 Jun 24	73w
24	Block 12	26 Jan 23	10 Jul 24	72w
25	Block 9	06 Apr 23	07 Aug 24	66w
26	Phase C Completion	07 Aug 24	07 Aug 24	0w
27	Plot 2 Sheet Piling	09 Apr 21	01 Dec 22	82w 1d
28	Phase D to E Construction	01 Dec 22	23 Sep 27	236w
29	Phase D	01 Dec 22	30 Jun 27	224w
30	Phase 2 Area Construction Start	01 Dec 22	01 Dec 22	0w
31	Archaeological Inspection Period	12 Jan 23	28 Mar 24	65w
32	Basement Construction 2a	07 Mar 24	20 Apr 26	104w
33	Block 18	21 Nov 24	12 Aug 26	84w
34	Block 19	13 May 25	26 Nov 26	77w
35	Block 17	28 Aug 25	18 Mar 27	76w
36	Block 13	11 Mar 25	30 Jun 27	113w 2.06d
37	Block 14 (Care Home)	07 Jul 25	06 Oct 26	62w
38	Block 15 (Care Home)	30 Jan 27	30 Jan 27	0w
39	Phase D Completion	19 Mar 26	23 Sep 27	75w
40	Phase E	19 Mar 26	25 Aug 27	71w
41	Block 21 (Townhouses)	10 Jun 26	23 Sep 27	64w
42	Phase E Completion	23 Sep 27	23 Sep 27	0w
43	School Construction	16 Aug 19	11 Apr 22	130w
44	School Plot released to PH in line with PH1a	16 Aug 19	11 Apr 22	130w
45	School Construction	16 Aug 19	11 Apr 22	130w
46	Temporary road construction	27 Sep 21	11 Apr 22	26w

Prog No : AC/SB/ST03
24/01/2018 Rev 2

Bar Chart View

View

STAG Programme

Project

R.P.M.

5. Outline Scope of Works

The proposed construction works will be completed in distinct stages, in line with the project targets and objectives. The stages can be summarised as:

- Chalkers Corner
- Phases 1, 2 and the School
- School

5.1 Chalkers Corner

Junction improvement at the junction between Lower Richmond Road and Clifford Avenue is currently being progressed with highways engineers and through close liaison with LBRuT and TfL.

The current proposals are as follow:

- The alignment of the Lower Richmond Road arm is moved approximately 16 metres to the North East. This allows:
 - The provision of a short additional left turn lane (flare) from Lower Richmond Road into the junction (26 metres long or about 5 car lengths);
 - Provision of an extended queuing reservoir between the main junction of Lower Richmond Road (this will accommodate about 9 extra cars South Westbound) and also provides extra storage for North East bound vehicles including those waiting to turn right into Lower Richmond Road);
 - Provision of a wider pedestrian island within the Lower Richmond Road arm – this is 4 metres wide which is now sufficient to cater for cyclists crossing as well as pedestrians.
- The scheme also includes an extended, dedicated lane for traffic turning left from Clifford Avenue into Lower Richmond Road

5.2 Phases 1, 2 and the School

The outline scope for the redevelopment works on the former Stag Brewery site can be defined as follows:

- Demolition
- Enabling Works
- Construction of the new basement
- Construction of the Superstructure
- Envelope/Wrap
- Waterproofing and finishes
- MEP Services
- Internal Fit Out

6. Outline Procurement Route

It is considered that the works will be separated in to three distinct procurement packages; however this has yet to be confirmed. The likely packages to be procured are:

1. Demolition Package
2. Piling & Enabling Works Package
3. Construction Package

Subsequent splitting of packages will be outlined by the appointed Main Contractor(s).

7. Outline Construction Method Statement

The methodology outlined within this document will be further developed in line with final designs and the appointment of specialist contractors.

Improvement works to Chalkers Corner are not outlined within this document.

7.1 Asbestos Removal

A suitably qualified Asbestos remediation company will be employed to survey, make notifications and remove all asbestos from the site in accordance with good practice to a suitably registered waste facility. Works are to be carried out in accordance, but not limited to:

- Control of Asbestos Regulations 2012

7.2 Demolition & Enabling Works

The buildings will be demolished by top-down de-construction method by means of mechanical plant and mobile craneage.

In advance of demolition, enabling works will be required to protect any existing infrastructure, buildings or features of value which have been determined to be retained throughout the works. Such protection may include

- Protection of any buildings of significant interest or structures including the Maltings, Stag Tavern, War memorial, Northern and Southern boundary structures. Historic England, although initially in favour of the development, have made it clear that any buildings or structures of historic or townscape merit be retained and protected throughout the works.
- Protection of TPO-protected trees. At this stage in the development, tree surveys (Refer to section 3.3.3.4.Tree Management) have been commissioned which are expected to highlight all of the arboricultural constraints on the site (further information relating to site preparation of existing trees is provided in Section 3.3.3.4 of this document).
- Decommissioning of the existing services within the brewery and disconnection of services and utilities connected to the existing site has already been undertaken according to our site visit on 08 March 2017. These utilities should be made safe, diverted and protected

during the works with the intention that many utilities and underground services may require upgrading at a later date to accommodate the new development.

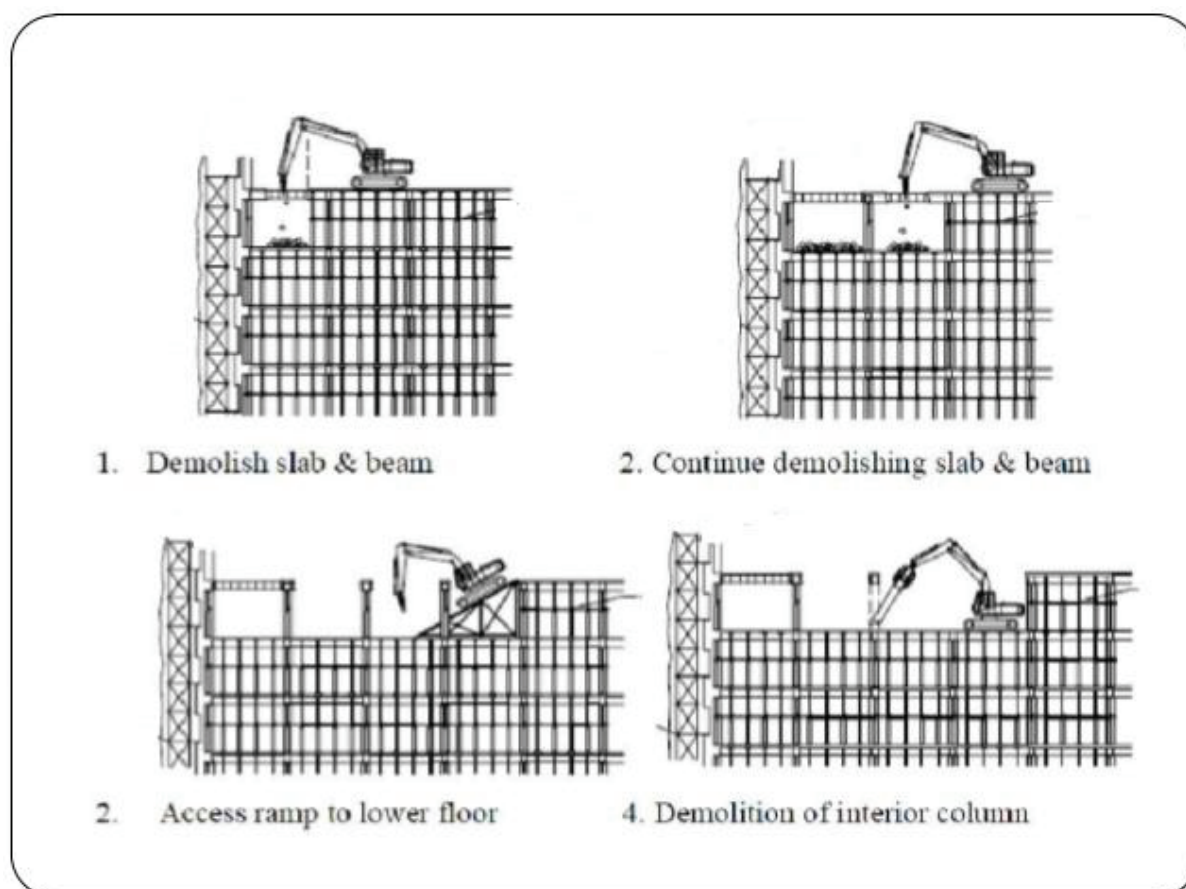


Figure 5: Indicative Sequence for Top-Down Demolition

All spoil/construction waste will be removed from site in accordance with the Waste Management Plan.

All demolition and deconstruction work must be carefully planned and carried out in a way that prevents danger, and reduces as far as possible the impact on the local area and community and is undertaken in accordance with the relevant British Standard Code of Practice; including but not limited to:

1. BS 6187:2000 - Demolition
2. BS 7375:2010 – Electrical standard for constructions sites
3. BS EN ISO 7518:1999- Construction drawings for demolition and rebuilding DD CEN T/S 13778:2005 – Mobile demolition plant safety requirements

Prior to commencing any operations, the client's representatives, will be required to verify all associated technical information such as presence of services, existing foundation coordinates, platforms and cut-off levels and the validity of the existing drawings.

During demolition works, the public will be protected at all times by the use of suitable protection barriers, a safe deck/gantry and traffic control measures (where applicable). These measures will be

continually reviewed and adapted to meet the ongoing works programme. All temporary works for the project will be fully designed and approved prior to installation.

7.3 Substructure Works

Following the completion of the demolition and enabling works, the Sub-Contractor will install a suitable piling mat for the benefit of the construction works.

Sheet piling works will then commence to the perimeter of the basement boxes forming a retaining wall and groundwater stop. Sub-structure works will then commence to form the basement boxes. The activities to take place are:

- Deep excavations
- Ground remediation and preparation of excavated surface
- Construction of basement structure: foundations, RC slabs and columns
- Installation of waterproofing system
- Dewatering and disposal
- Backfilling, where required

The design of all temporary works will be such that they can be removed in a coordinated manner to allow the permanent works to proceed. It is considered that all bracing will be internal and not external to the structure.

The basement design will need to allow for temporary wall/bund construction so that each basement area designated to the plot above can be developed independently.

It is assumed that archaeological trenches will be dug in line with basement excavations to allow for the investigation into potential archaeological find on site. This will minimise the potential delays upon any positive finds.

7.4 Superstructure Works

The main construction material & method to be used on Stag Brewery is in-situ Reinforced Concrete. Reinforced Concrete (RC) frames consist of horizontal elements (beams) and vertical elements (columns).

The superstructure works will follow the sequence of; formation of the columns, propping and decking the slabs, pouring and later striking where the process repeats itself. Any cast-in items required by follow on trades will be free-issued prior to this stage. All propping, formwork and reinforcement will be delivered to site in manageable sections.

Slab pours will be sequenced in line with the Structural Engineers guidelines and any associated Temporary Works.

Core construction methods would be utilised whereby reinforced concrete lift shafts are prioritised for construction early in the programme.

Mobile concrete pumps or placing booms will be advised by the Principal Contractor.

Edge protection and fall prevention systems will be installed by the Concrete Sub-Contractor as the building progresses beyond Level 1.

7.5 Internal & External Works

Once the structure is deemed to be adequately water and weathertight, the internal finishes will be commenced. The initial work will be to the plant rooms, reception areas and communal lobbies.

Safety and task lighting will be provided where appropriate to assist with ongoing work flow during winter or night time working.

This work will also include the floor by floor mechanical and electrical services installations, partitioning and ceiling works, flooring, basement facilities, roof areas and landscaping. Roof works will only take place once the roof slab has cured sufficiently.

Within the basement, the key plant will include boilers, air handling units, water tanks and electrical switchboards etc.

Internal and external works would be phased to suit handover sequences. Any occupied areas would be provided with segregated walkways and routes if any external works are still being completed prior to completion of final access routes.

It is anticipated that landscaping works would be undertaken in seasonally acceptable periods.

8. Construction Logistics

8.1 Considerations

Stag Brewery is a complex project with close proximity to the Thames, vehicular traffic and various neighbouring buildings. Because of this, it is important to consider how the site will be serviced and the impact of the construction logistics on the surrounding Mortlake area.

Works should be carried out on the basis that; no local businesses or persons are affected by the construction of Stag Brewery.

The main requirement of the Construction Logistics Plan is to provide the safe, efficient, effective delivery of labour, materials and associated plant & equipment to their respective work areas.

This FCMS considers use of road networks surrounding the development only. The Project Team has considered whether the river could be utilised for logistics, either for removal of spoil associated with the demolition phase or to transport materials associated with the construction phase. A number of significant constraints have been identified in respect of river use, including the highly tidal nature of the river in this location, the significant use of the river in this location (rowing clubs and leisure users) and the poor quality and condition of the wharf and river wall. Notwithstanding this, and subject to securing appropriate permissions and permits, a River Transport Feasibility Study could be carried out to identify whether there is any scope to use the river and overcome the constraints identified.

The unique site environment, multiple contractors sharing access and working in close proximity requires defined responsibilities in order to manage the complex construction coordination requirements.

Combined construction and handover activities across a project wide area with multiple contractors working to different timescales also needs to be addressed. The introduction of integrated logistics arrangements reduces process duplication, potential for disruption and safeguards planned productivity. The Logistics Strategy will be developed further by the Principal Contractor.

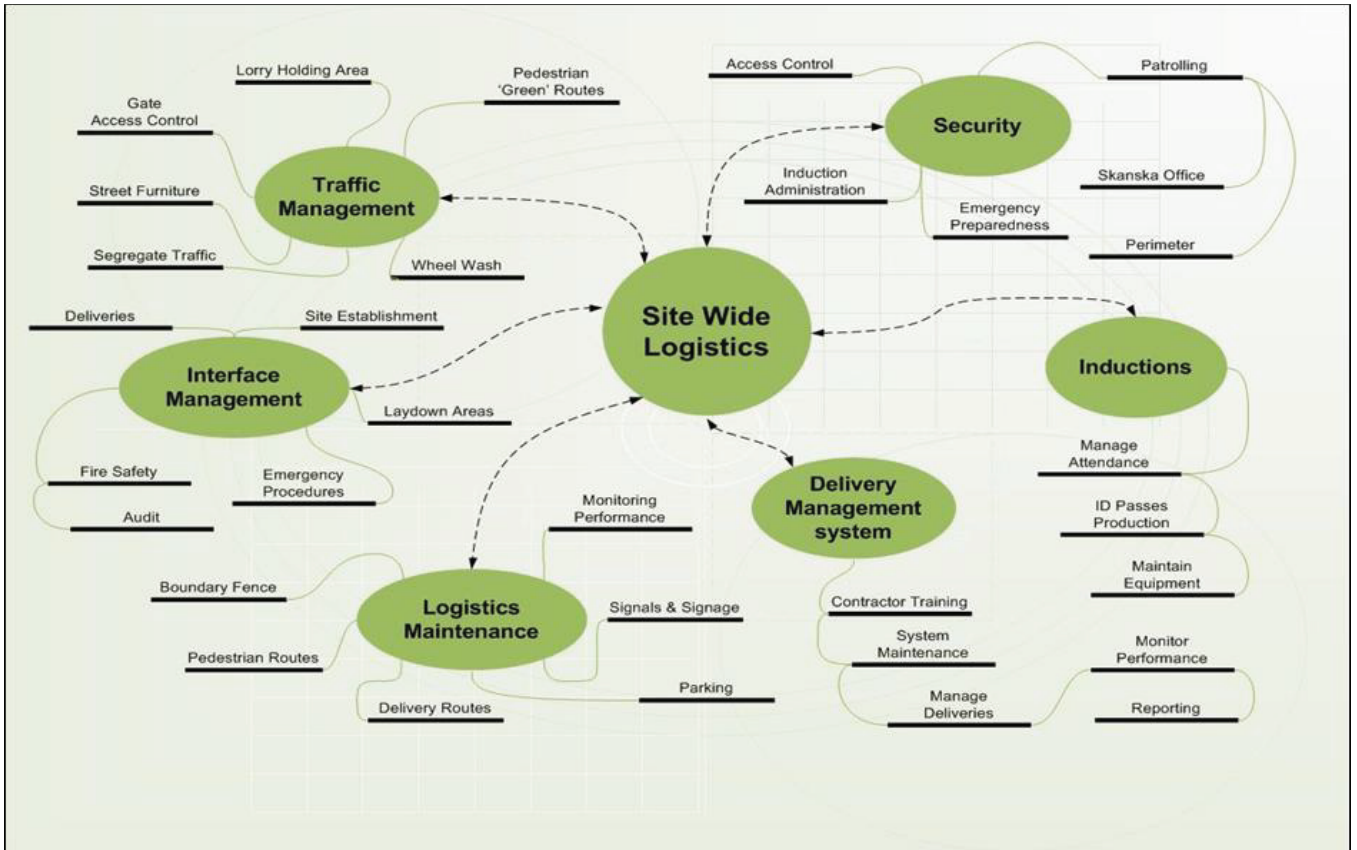


Figure 6: Overview of Logistics Responsibilities

The principles of logistics management apply project-wide. Contractor participation is critical to enable successful mobilization and maintenance of logistics support. Best practice through integration requires input from Contractors to ensure plans and strategies provide added value and performance to the construction process.

The scope of the Logistics Strategy is not inclusive of all roles and responsibilities illustrated above. Logistics processes and procedures are subject to continuous review. During the procurement process Sub-Contractors may propose or suggest options that impact the Logistics Strategy.

Changes will be managed in liaison with the Sub-Contractors and formally issued through the Principal Contractor.

8.2 Traffic Routes

8.2.1 Schedule of Deliveries

All deliveries to site should be undertaken through an electronic Delivery Management System (DMS) that will be managed by the Logistics Contractor, and with all deliveries allocated a specific time slot. Typically, failure to adhere to their time slot may result in a sub-contractor's delivery being denied access to the site. There will be no waiting on street for access to the site.

A schedule of predicted size and frequency of vehicles will be finalised by the Contractors. Where practical, and subject to Principal Contractor(s) appointment, vehicle movements/deliveries will be reduced during weekday highway peak hours 8am-9.30am and 4.30pm-6pm.

Currently, it is assumed that all deliveries will be during operating hours. If deliveries are required to take place out of hours, for considered beneficial reasons, they will be agreed with LBRuT prior to commencement of works. The contractor will negotiate timings for deliveries with local business and "other" local building sites through their appointed communications team.

8.2.2 Vehicle Loading and Unloading

As a general principle, all deliveries to site will be off-loaded within the site boundary (to include public foot paths and carriage way by agreement with LBRuT, where required).

However if it is required either due to their timing on the programme or their physical size (e.g. major mechanical plant) it may be necessary to off load from pre-requested suspended car parking bay(s). Where offloading is to occur on the road side, permissions must be sought as required and generally be undertaken out of hours.

Off-site marshalling and storage facilities will be investigated to assist in the management of materials. The waste material will be directly transported to registered waste reclamation centres.

8.2.3 Demolition & Construction Traffic Routes Flow

All Logistic Routes will be planned prior to commencement of works, and route management to reflect TfL requirements, LBRuT sensitivities (either regarding areas, or specific events etc.) and traffic loading due to existing traffic patterns and that of adjacent sites will be taken in to consideration.

8.2.4 Road Closures

Full road closures are to be avoided throughout the works on Stag Brewery with temporary lane closures to be the primary proposal.

If a full road closure is required it is considered that this would be a temporary requirement and would be undertaken through the LBRuT and TfL road closure procedures.

8.2.5 Site Access

Proposed traffic routes for phases 1 and 2 are outlined and illustrated below. These traffic routes are proposed and are subject to further discussions with the appointed Contractor and Local Authorities.

For Phases 1 & 2 works, it is proposed that the entrance to the respective sites will be via Ships Lane. This location has been selected as it allows for a separate entrance and exit to site whilst utilising existing infrastructure.

For Phase 1, additional access/egress at the corner of Bulls Alley and Mortlake High Street will also be utilised. Gates to site will be designed so as not to encroach on to the footpaths or highway.

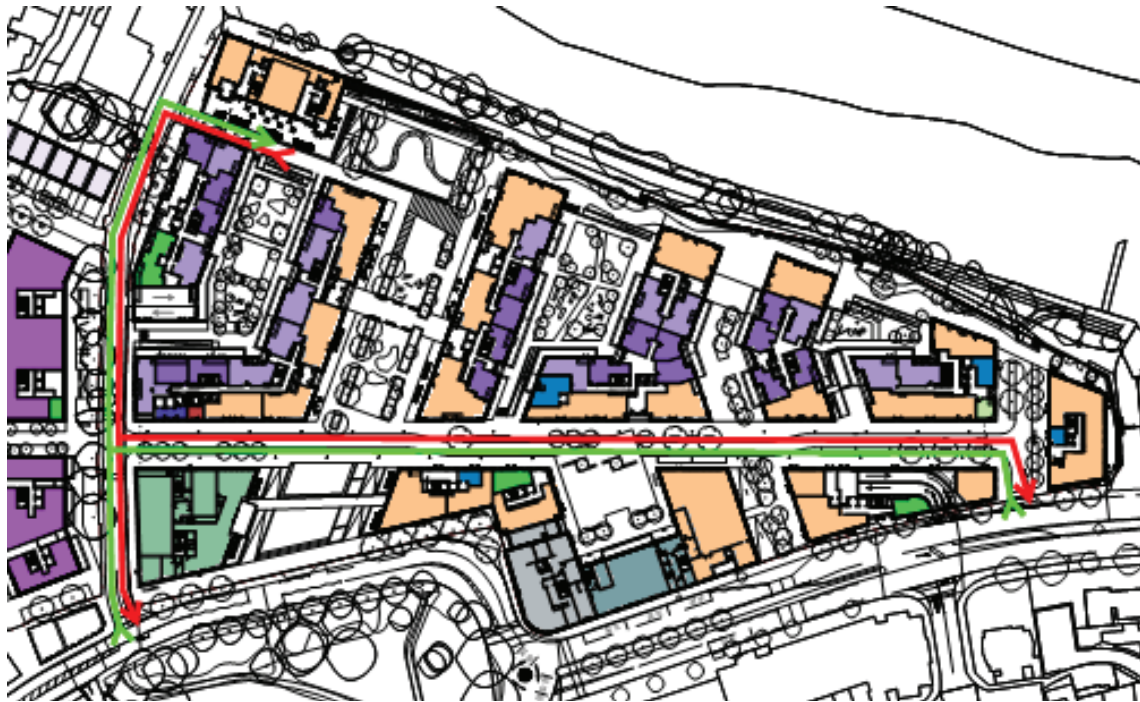


Figure 7: Proposed Traffic Routes for Phase 1

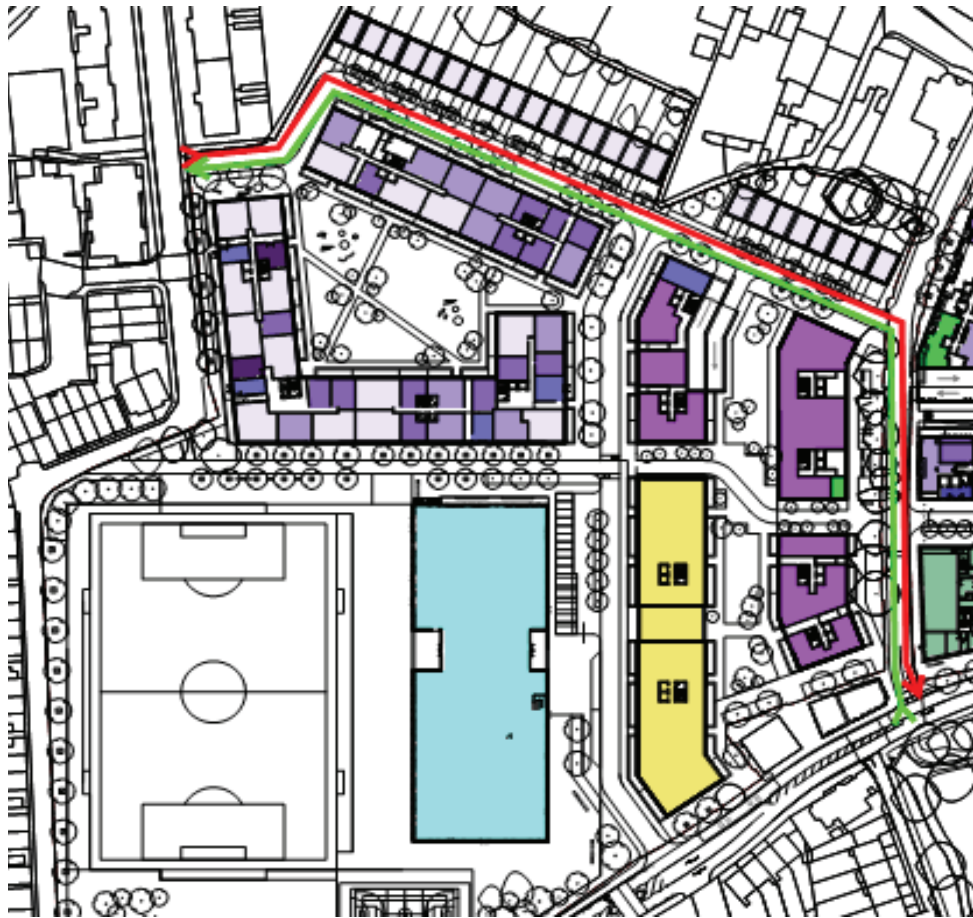


Figure 8: Proposed Traffic Routes for Phase 2

8.2.6 Sheen Lane Mortlake Station

The bus stop/shelter located at Sheen Lane (Stop A) will require relocating due to its current location in relation to site access. By undertaking this action, it would enable a further degree of access/egress for Phase 1 work and enhanced safety for pedestrians accessing the bus

It is anticipated that the bus stop could be relocated by a distance (to be agreed) to the West of its current location.

This activity will require further discussions with the appointed Contractor, TfL and the Local Authority.

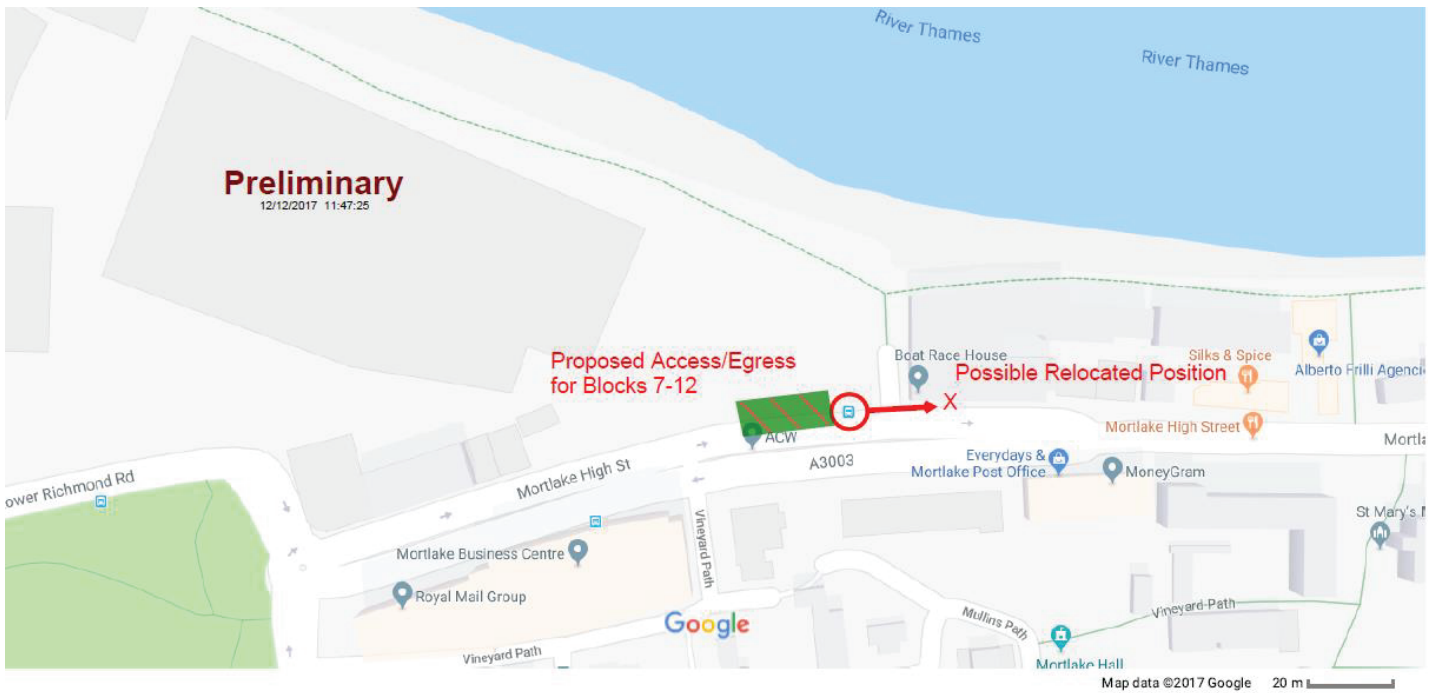


Figure 9: Proposed Bus Shelter Relocation

8.3 Construction Vehicle Trips

Vehicle movements will vary during construction activities across the Stag Brewery development, however it is anticipated that the maximum number of trips will reach a peak during Q2 2022 where it is expected that 164 traffic movements (total - to and from site) will take place per day. These traffic movements can be summarised as follows:

- Basement Construction ongoing – 30 deliveries
- Block 7 Fit Out – 5 vehicles
- Block 8 Superstructure and Cladding – 8 vehicles
- Block 6 Foundations – 6 vehicles
- Block 5 Foundations – 6 vehicles
- Block 20 Superstructure – 5 vehicles
- Block 1 Final Finishes – 3 vehicles
- Block 2 Fit Out – 5 vehicles
- General Deliveries to Blocks – 14 vehicles

Vehicle Type	Use
Rigid Heavy Goods Vehicles (HGV)	Excavated material removal
Small Articulated Vehicle	Plant, steel rebar, cladding panels, and bricks/blocks, etc
Specialised Articulated HGV	Tower Crane (erection & dismantle), MEP Plant, façade panels, Roofing materials, etc.
Specialised Low Loaders	Occasional Delivery of Plant
Vans	Plant service, materials, general deliveries, etc
Cars	Couriers
Motorbikes	Couriers

Table 1: Summary of Vehicle Type and Site Use

8.4 Parking on Site

There will be no on-site parking provided for operatives working on Stag Brewery. Parking should not be allowed on site and all Contractors and Sub-Contractors on site should be advised through their contract documentation that no parking is available on site and that site personnel and visitors should use public transport.

8.5 Wheel Wash Management

Due to the layout and interfaces within the Stag Brewery development, the site will have designated loading areas. These areas will also serve as wheel wash areas for vehicles leaving the confines of the sites during the demolition and substructure works.

All ground or surface water run-off will be strictly controlled in line with environmental legislation and best practice to prevent pollution of drains and watercourses.

8.6 Operative Access

The number of construction workers on-site at any one time will depend on the different phases of the development. The maximum number of operatives on site is estimated below:

Number of workers on site:	High
Fit-out and Main Works	1000 – 1200

Table 2: Estimated Number of Construction Operatives on Site at Peak

As mentioned in section 8.4 – *Parking on Site*, it is anticipated that the majority of construction workers will travel to the site by public transport and personnel will be given detailed information on travel options.

8.7 Hoarding

An early activity to take place will be to protect and enclose the site and buildings where access is to be provided to the contracting team and where external works are to take place adjacent to public areas.

The hoarding arrangement will reflect the construction methodology, which will need to be further developed by the appointed Contractor(s) and agreed with LBRuT prior to commencing the works.

The hoarding will be 2.4 metres in height.

A solid hoarding will be employed to the whole perimeter of the site that will be agreed in advance with LBRuT and TFL to ensure that it is compliant with their needs. The Hoarding will be in alignment with the all statutory guidelines and policies.

Signage will be displayed on the hoarding for health and safety purposes, advertising, Considerate Contractors and general site signage. All signage will be agreed with the local authority in advance of installation.

8.8 Scaffolding and Associated Access

8.8.1 Pedestrian Protection

Full pavement width hoarding is anticipated to the road frontages with temporary pedestrian tunnels to maintain pedestrian access. The pedestrian access will be fully lit throughout, and on the highway side there will be baulk timbers that will be lit along their length. The area will be regularly maintained to ensure it is kept clean and maintained to acceptable standards.

The Scaffold Tunnel will be constructed such that it is weather proof from above as well as protected from the unlikely event of any falling material – see figure 10 below. Where the pedestrian tunnel extends beyond the pavement into the highway (if necessary) the levels will be locally adjusted to create a level walking surfaces.

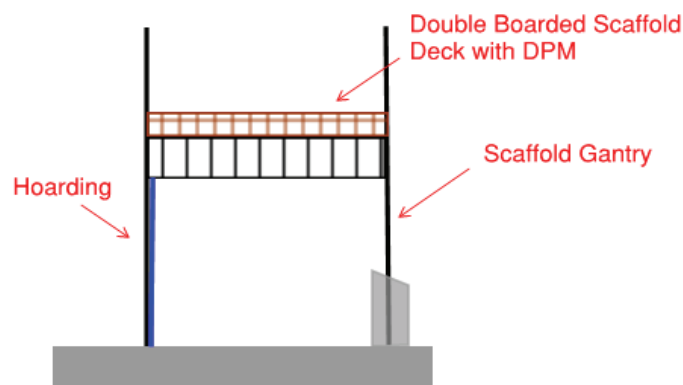


Figure 10: Typical Protected Pedestrian Tunnel (Not to Scale)

8.8.2 Full Building Scaffolding

Fully wrapped scaffolding will be utilised within the Stag Brewery site to provide protection during the demolition works. The wrap will protect adjacent roads, walkways and buildings from debris, falling materials and dust.

The Scaffolding will be reduced in height appropriately during the top-down demolition – see figure 11 overleaf.

8.8.3 Safety Fans

Safety fans will be utilised throughout the project on all structures once work has progressed beyond the first floor level. Like the Full Building (Body) Scaffolding, the safety fans will prevent object falling and as such protecting the public, site operatives and adjacent property.

The safety fans will be installed by either the Concrete or Steelwork Sub-Contractor depending on the form of construction – RC frame of composite structure. See figure 12 overleaf.



Figures 11 & 12: Full Building Scaffolding and Safety Fans

8.9 Site Set Up

8.9.1 Site Accommodation

Site accommodation will be situated in multiple locations across the Stag Brewery development. The appointed Principal Contractor(s) will situate and configure their welfare facilities in line with the development plots awarded.

The strategy for main contract awards is to be finalised post application.

During the demolition stage, a minimum site set up (consisting of 6 portable cabins) is envisaged. As construction works begin and progress, the site set up will be reconfigured into a stacked (not exceeding 3 cabins in height) accommodation area.

Typical site accommodation will include:

- Main Contractor management offices and meeting room(s)
- Sub-Contractor facilities
- Welfare facilities including canteen, drying and changing rooms and toilet and shower facilities
- Security office

Due to the size of the site, and subject to the number of contract awards, it is anticipated that the canteen(s) would be leased out to a catering contractor(s) for the durations of the respective works.

8.9.2 Working Hours

The working hours for the construction activities will be in line with the requirements of the control of pollution act 1974, Part III, section 60, namely;

- Monday to Friday 8.00 am to 6.00 pm
- Saturday 8.00 am to 1.00pm
- Sunday and Bank Holidays (normally) No working

Where working is required outside of the above hours due to unforeseen circumstances or planned work that can only occur outside of the core hours e.g. road closure requirements, then these will be undertaken following forward and timely discussions with LBRuT.

The site will be open from 07:00am to enable operative access to welfare.

8.9.3 Fire Precautions & Alarms

All fire precautions will be taken, and fire checks made at the end of each working day, before personnel leave the site. Fire points will be set up within easy reach of the work areas, storage points and hot works locations. Throughout the works, "hot works permits" will be required as standard for all hot works. The process will be managed by the Main Contractor.

Each building will be temporarily fire alarmed back to separate security monitoring areas. The contractors will co-operate to agree fire communication, evacuation strategies, drills for both themselves and relevant third parties (where applicable).

8.10 Tower Cranes

During the construction of the Stag Brewery development, the use of tower cranes will be required to progress and deliver the contract works.

It is assumed at this stage that no cranes will be required during demolition works and that the use of mobile cranes will be utilised to carry out these works.

It is envisaged that over sailing licences may be required for the out of hour's free slewing condition throughout the works period. Due to this it is anticipated that luffing jibs will be used on all static cranes to provide better radii control, minimise over sailing and better management in high winds.

All Cranes will have electronically limited rotation of the jib to prevent them over sailing the adjacent buildings and roadways. Crane jibs for the works are estimated at 40 - 45m.

All cranes will be suitably sized by the Principal Contractor to ensure that there will be no height clashes with the existing adjacent buildings. Due to the requirement of multiple cranes within a tight area, the crane strategy will be developed further by the contractor.

Where mobile cranes are needed for specific operations their use and impact will be agreed with the appropriate parties a minimum of 28 days prior to the works being undertaken.

8.11 Hoists

External hoisting positions will be required during the construction and fit out of the plots within Stag Brewery. The hoists will be required to bring operatives, equipment and materials to their respective work faces.

External twin passenger/goods hoists will serve all floors, on each building, by leaving sections of the external works out (leave-downs) on each floor to be infilled later once the hoist has been removed.

All hoists will be suitably sized by the Principal Contractor to ensure that they can accommodate plant/materials that cannot be placed at their end location by the tower crane.

8.12 Waste Management

Control of waste material on site is a key factor in the successful outcome of the project and BREEAM requirements. Sub-Contractors are to follow directives in the Construction Environmental Management Plan (CEMP).

The Sub-Contractors are responsible for the management and removal of all their waste from their work sites. Ito the designated skip provided.

The Principal Contractor will produce a detailed 'Waste Management Plan' - a requirement of the CEMP.

The Principal Contractor will coordinate and lead the role of collating and reporting waste produced by both the SWIC team and the Sub-Contractors. The Sub-Contractors are responsible for providing the information to the Principal Contractor in the format provided. The Waste Management Plan shall set out aspirations for waste management activities that should be achieved, such as;

- recover at least 85% of waste construction materials (by volume), and aim to exceed 90%
- achieve a waste recovery (diversion from landfill) of 100% for all-hazardous excavation waste
- ensure that at least 15% (by volume) of construction material derives from reused and recycled materials, select the top opportunities to exceed this figure without increasing the cost of materials, and report actual performance
- ensure that at least 35% of total high grade aggregate used in the development is recycled or secondary and locally sourced (within 30km); and no transfer of materials to or from the site as a result of ground works; excluding materials that may be required for the formation of road bases and working areas / piling mats on building footprints.

The Principal Contractor will be responsible for managing/cleaning non-attributable wastes from common-user areas only. Common areas include, but are not limited to, roads and footpaths.

8.13 Plant & Equipment

Sub-Contractors are to supply all plant & equipment required to deliver their works. All plant should carry spill kits in case of fuel or hydraulic leaks/spillages. Plant emissions will be controlled by implementing, but not limited to the following measures, where practical:

- using low emission plant fitted with catalytic converters, diesel particulate filters or similar devices
- plant will be well maintained, with routine servicing to be completed in accordance with the manufacturer's recommendations and records maintained for the work undertaken
- avoiding the use of diesel or petrol powered generators and using mains electricity or battery powered equipment
- all Sub-Contractors to provide test certs to for PUWER / LOLER REGS
- engines of all mobile and fixed plant on site are not left running unnecessarily
- using ultra low sulphur fuels in plant

Tabulated overleaf (**Table 3: Plant and Equipment**) is an indication of the likely and typical types of plant and equipment associated with the works at Stag Brewery.

Plant and Equipment

	Site Preparation and Demolition	Enabling Works	Substructure	Superstructure	Cladding	Fit out	Public Realm & Landscaping
360° tracked excavator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>
Concrete crusher and handheld compressor breakers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Concrete ready-mix lorries	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
Concrete splitters and concrete saws / Steel muncher machines	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>
Cranes and hoists	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cutters, drills and small tools	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Excavators and breakers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>
Floodlights / telehandler	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Fork lift trucks	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hydraulic benders and cutters	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lorries/vans	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tarmac laying equipment	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>
Scaffolding and hydraulic access platforms	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Temporary supports	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Articulated flatbed trucks	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Piling Rig			<input checked="" type="checkbox"/>				
Scissor Lift	<input checked="" type="checkbox"/>						
Site Dumper	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>

Table 3: Plant and Equipment

Note

- Excavators ranging in size between 5T and 50T (a number of long-reach excavators will also be required as will grab attachments)
- Crange covers tower cranes, mobile cranes, spider cranes, etc

8.14 Potential Environmental Impacts during Construction

Strategies to mitigate potential sources of noise and vibration generated during the enabling, demolition and construct phases will be developed with consideration of local residents and neighbours whilst maintaining a safe, sustainable and efficient construction methodology. The mitigation of both dust and noise are considered through the below specific project proposals:

- The avoidance of using piled foundations thus reducing both vibration and noise; Note: Watermans suggest that is unlikely that we will use piled foundations 09/02/2017
- Maintaining site operational hours during daylight hours only where possible;
- Provision of environmental dust screens and dust suppression through water jets.

Recognition is given to traffic and pedestrian management, as well as the segregation of construction activities. The use of just-in-time deliveries will look to minimise material delivery waiting times and reduce congestion and pollution on local highways. The segregation of construction traffic and public vehicles will be maintained wherever possible and deliveries will be aimed for times avoiding traffic rush-hours.

Whilst on-site construction traffic will utilise custom-built temporary haul roads throughout all phases. These roads will be constructed with a temporary asphalt/concrete surface to avoid the site becoming waterlogged. A wheel-wash facility will be identified for use at all exit points form the site and manned power-wash stations will be identified for exit points where wheel-wash facilities do not provide suitable means of cleaning.

Clear directional signage and consistent drop-off/pick-up areas are recommended to be maintained. This will provide continuity regardless of which haulage contractor is involved in the scheme at any given time. The Principal Contractor will also need to implement a strong site induction targeting specific areas of site access and deliveries.

8.15 Mitigation Measures

Industry accepted practical means of preventing, reducing and minimising noise generation will be adopted in agreement with LBRuT.

Appropriate procedures need to be followed in order to mitigate noise, vibration and air pollution (e.g. through dust and fume generation) impacts. Noise complaints from Sub-Contractors or local residents and businesses must be immediately investigated

Measures may include, but not limited to:

- No works will be undertaken outside the specified working hours; except in cases of emergency, where safety is an issue, or where conditions of dispensation apply
- The contractor will comply with the requirements of the COPA 1974, with particular reference to Part III of the Environmental Protection Act 1990, The Control of Noise at Work Regulations 2005 and the Health and Safety at Work Act 1974
- All plant and equipment to be used for the works will be properly maintained, silenced where appropriate to prevent excessive noise and switched off when not in use and where practical
- Hydraulic machinery and plant will be used in preference to percussive techniques where practical
- The contractor will erect and maintain throughout the construction period temporary hoarding around all working areas to assist in the screening of noise and dust generation from low-level sources
- Noise and dust levels will need to be controlled by the constant monitoring of air quality & noise levels including positioning of monitoring equipment & agreement and implementation of trigger and action levels
- Loading and unloading of vehicles, dismantling of equipment such as scaffolding or moving equipment or materials around the site will be conducted in such a manner as to minimise noise generation

Overleaf is a summary table of the Potential Impacts and their respective Mitigation Measures.

Issue	Potential Impacts	Mitigation
Noise	Increased road noise levels from Vehicles, Increased noise levels from plant during demolition, excavation, piling and general construction works.	Defined working hours, plant mufflers, local acoustic screening, Vehicle routing, engines turned off and all measures outlined in the considerate constructors scheme.
Vibration	Increased vibration levels from; Vehicles, plant during deconstruction, piling and general construction works, working hours, selection of appropriate plant and work procedures.	Phased deliveries to minimize numbers of vehicles attending site, vehicle routing, engines to be switched off when vehicles are idle or on site
Dust/Air Quality	Windblown dust from ground surfaces, stockpiles, vehicles, work faces and cutting and grinding of materials. Exhaust emissions from lorries and plant delivering and removing materials including dust and particulates.	Regular and controlled monitoring of air quality, including agreement and implementation of trigger and action levels, 'water down' deconstruction activities; switch off vehicle engines when parked.
Waste	Waste generation and its disposal.	Instigate Site Waste Management Plan and recycling programme.
Water	Increased sediment loadings to storm water system. Potentially contaminated storm water run-off.	Do not allow direct discharge of water into sewerage collection system.
Traffic	Traffic congestion caused by site traffic. Local traffic diversions may be required for tower crane delivery and erection/dismantle. Increased vehicle movements mainly consisting of Heavy Goods Vehicles (HGVs). Disruption from abnormal or hazardous loads. Exhaust emissions.	Phased deliveries to minimise numbers of vehicles attending site, switch off vehicle engines when parked, minimise abnormal loads. Vehicle routing.
Storage of Materials & Fuels	Accidental spills, discharges to drains/storm-water systems. Contamination to ground.	All fuel tanks etc. to be bunded, no discharge allowed into the sewerage collection system.
Pedestrian Access	Restrictions on pedestrian access to walkways, footpaths and roads.	Erect protective gantries / Pedestrian tunnels over footways.
Ecology	Water / mud run off into the drains.	Do not allow direct discharge of water into sewerage collection system, utilize interceptors where necessary.
Energy Usage	Indirect impacts associated with energy consumption such as CO2 emissions, depletion of natural resources, air pollution etc.	Site environmental plan to implement.

Table 4: Summary of Potential Impacts and Mitigation Measures

9. Neighbours and External Considerations

9.1 Considerate Constructors Scheme

AECOM Construction Services are proud to be members of the Considerate Contractors Scheme (CCS), having registered sites at Farringdon Street, Long Street and the Spire, London.

Prior to the commencement of main contract works the Principal Contractor will be required to register and comply with all of the requirements of the CCS ensuring that their project methodology is tailored to the specific requirements of the CCS Code of Practice and the requirements of the London Borough of Richmond upon Thames.

This industry recognised body is the leading initiative to encourage construction projects to recognise their surroundings with sensitivity, employment awareness and positive considerations. It is a voluntary code of practice that encourages:

- Recognition of neighbours and maintaining a good neighbour policy;
- Minimise environmental damage;
- Use of sustainable materials, methods and resources;
- Clean site and local vicinity;
- Safety.

The project specification will identify a grade to which the Principal Contractor must attain and it is recommended that the Principal Contractor is contractually obliged to achieve this grade (similar approach to BREEAM/CEEQual etc.).

9.2 Public Relations

During the redevelopment works at Stag Brewery, there will be regular communication with residents and local businesses. A regular newsletter will be issued to the surrounding residents to keep all parties informed about the progress to date and forthcoming events. Any special activities (road closures, wide load deliveries) will be notified by way of supplementary letter issued to the relevant local contacts. In addition, the appointed principal contractor will:

- Provide a named point of contact, to the neighbouring residents and relevant statutory authorities.
- Establish a complaint register, which will be logged and investigated.
- Display local and project information on the site hoarding.

On site communication and neighbour liaison (in conjunction with London Borough of Richmond upon Thames) should also be managed by the appointed Principal Contractor.

It is advised that the Principal Contractor should be instructed to update the local community on construction progress via quarterly local community progress meeting sessions. It is anticipated that these regular updates on construction activities should be held in a nearby community centre, be open to the general public and affected local residents and will likely include:

- Issuing regular letter-drops / web-updates (on the London Borough of Richmond website);
- Organising regular meeting sessions in vicinity;
- Reporting on street cleaning activities around the site;
- Addressing any neighbourly concerns raised at previous meetings;
- Informing residents of any upcoming noisy works such as demolitions/ foundations and other significant construction works;
- Liaison and co-ordination of construction traffic activities with local Schools and other nearby sensitive establishments.
- Notice of any temporary traffic management measures in surrounding roads;
- Overall programme reporting and anticipated completion date.

9.3 Access by Neighbours to their Buildings

In accordance with the CCS requirements, and being a good neighbour, the contractor will conduct full negotiations with the adjacent landlords and tenants to ensure that there is a shared philosophy to deliveries, pick-ups, and access.

An agreed route for communication with all parties will be agreed and refined where necessary for individual needs.

9.4 Construction Logistics and Cyclist Safety

The Principal Contractor(s) will be required to operate both the Fleet Operator Recognition Scheme (FORS) and Construction Logistics and Cyclist Safety (CLOCS) safety Schemes whilst working on site at Stag Brewery.

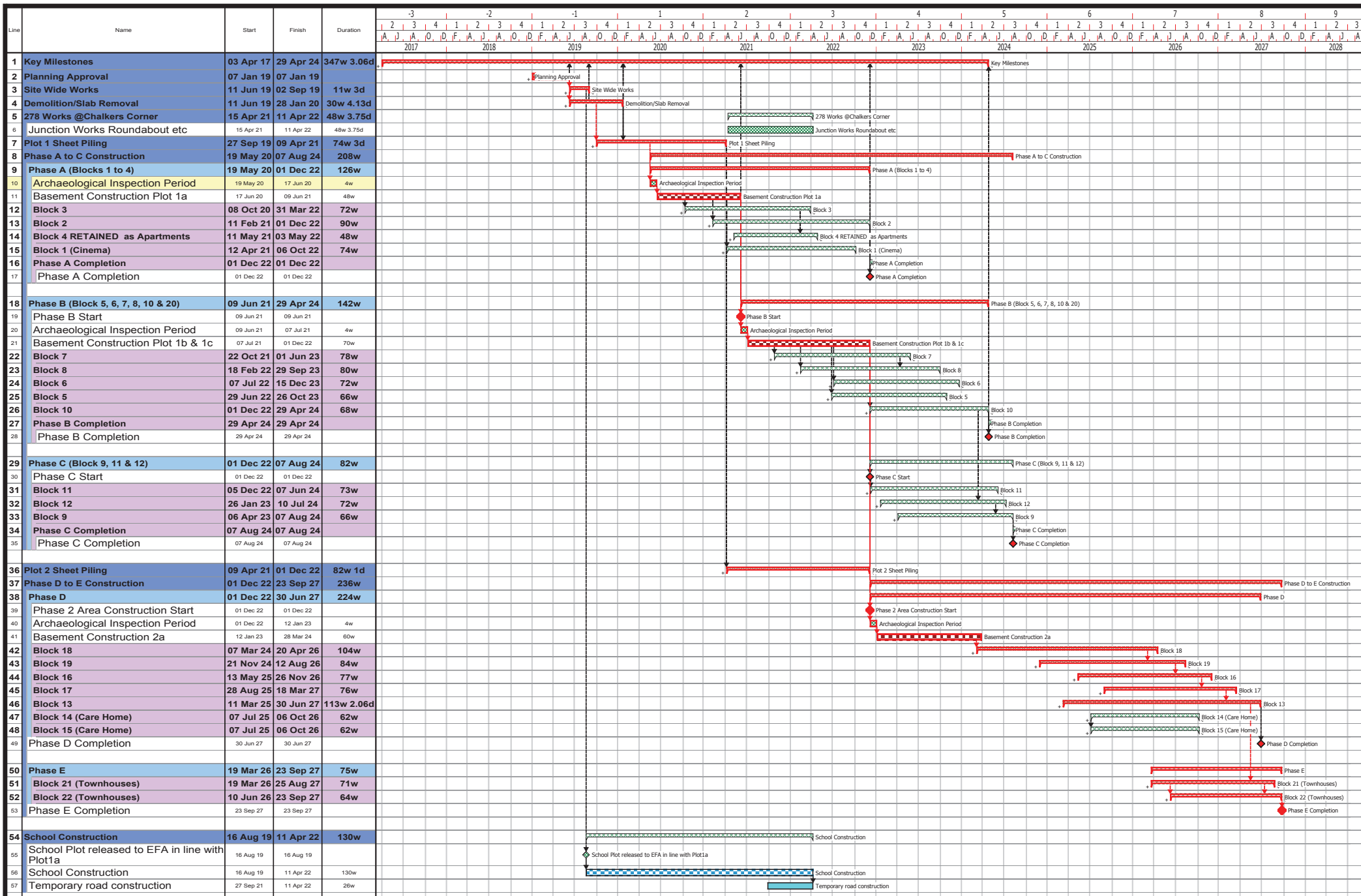
9.5 Rodents and Vermin

The existing Stag Brewery buildings will be assessed for the presence of rodents and vermin prior to demolition.

Should any rodent or vermin issues be present, an external contractor will be appointed to eradicate these.

Appendix

- A. High Level Summary Programme
- B. High Level Phasing Plans



AMC Code Library: ■ Basement Construction ■ Milestones ■ School Construction ■ External Roads

Project: **STAG Programme** Title: **Draft Stag Demolition and Construction Programme** View: **Bar Chart View** Prog No: **AC/SB/ST03** **AECOM**

24/01/2018 Rev 2