



RUGBY FOOTBALL UNION

Draft Construction Management Plan

Twickenham Stadium – East Stand Extension

June 2016



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|--------------------------|----------------------------|
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1 Introduction

This Construction Management Plan (CMP) is intended to set out the procedures and measures that will be put in place ensure that there is no material impact on adjoining owners, neighbours and stakeholders during the and construction works.

The CMP has been based on current available information and will be updated and developed in greater detail once the Principal Contractor has been appointed.

The CMP considers analysis of the current scope of works, site and project constraints, how the critical construction activities will be undertaken, and specifically covers the environmental, public health and safety aspects of the proposed development.

2 Scope of Works

The general Scope of works is identified below:

- Service diversions
- Piling
- Pilecaps
- Demolition works / structural modifications
- Structural Frame prep works
- Structural frame
- Cladding
- Roofing
- New plant and services
- Blockwork to stair cores / escalators
- Form lift shafts
- Install new passenger and goods lifts
- Fit out and finishes
- Relocate turnstiles

3 Site Constraints

The new works are located on the east side of the Stadium which is the elevation that faces Rugby Road.

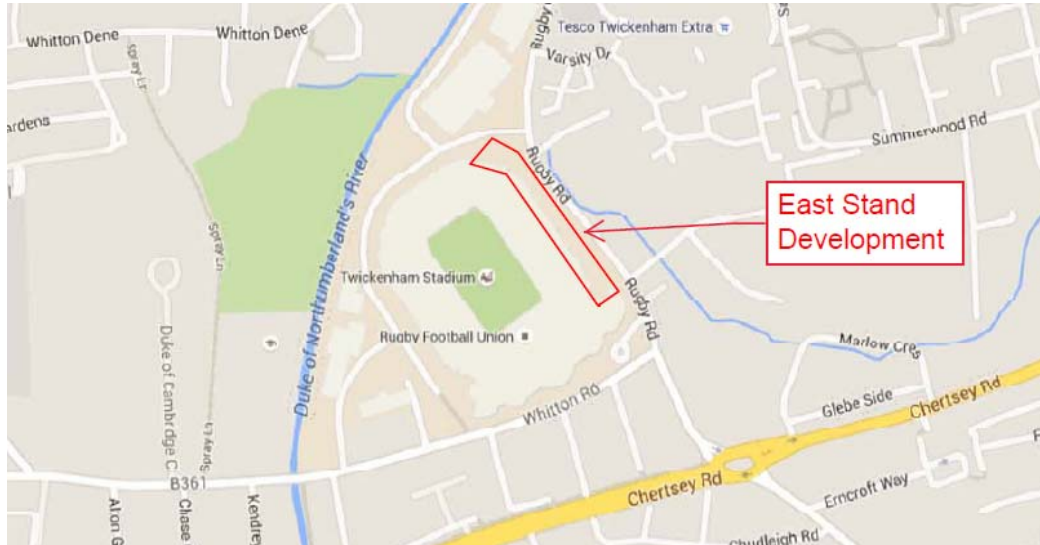
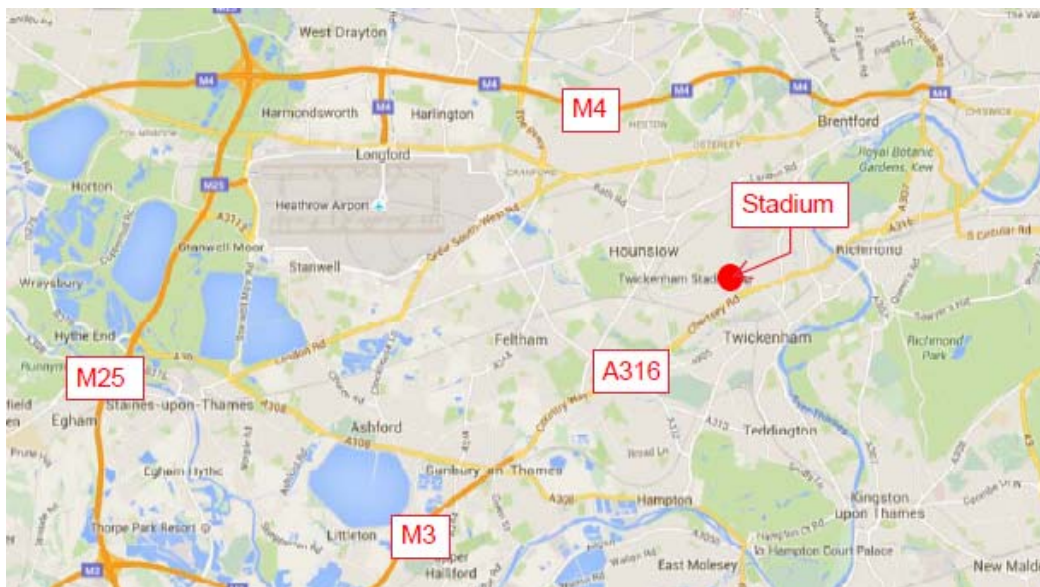


Fig. 1 Site Location Plan

Directly opposite the development, across on the other side of Rugby Road is a large Access Self Storage unit along with a vacant office building. There are a few residential properties in the vicinity of the Stadium to the north east and south east corners of the site.

The site has direct links to the M25, M3 and M4 motorways via the A316 Chertsey Road which is located to the south of the Stadium.



The main vehicular entrance to the site is via Access Gate D which is located to the north of the Stadium.

There is a bus stop (for the 481 bus) directly adjacent to the Stadium fenceline along Rugby Road.



Fig. 2 Bus Stop on Rugby Road

There are 2 banks of turnstiles (Gate E & F) the east elevation that need to be maintained during the works for use during main Stadium events.



Fig. 3 Turnstiles to be maintained

The site working hours will be;

- 8.00am – 6.00pm Monday to Friday
- 8.00am – 1.00pm Saturday
- No working on Sunday

4 Logistics

4.1 General

The logistics plans included within Appendix A are draft at this stage and will be developed further with the appointed Principal Contractor.

4.2 Traffic Access and Egress

There are good road links to the site. The A316 which links with the M3, M4 and M25 motorways runs closely along the southern boundary of the site.

Where possible peak times (rush hour) will be avoided for deliveries.

The flow of vehicles and deliveries on site will be managed on site by utilising the North Car Park. It is proposed that part of the North Car Park is made available for construction purposes as shown in the Logistics drawings. The car park will be used as a holding point for all deliveries, thus ensuring that delivery vehicles do not cause disruption on Rugby Road.

All access into the Stadium will be maintained via Gate D.

The following measures will be implemented;

- Traffic marshalling of vehicles entering and exiting construction areas
- The setting of specific delivery and collection times
- Consolidation of deliveries wherever possible
- Prior authorisation to be scheduled with a logistics manager when visiting the site via vehicle
- Just in time delivery system

It is noted in Section 4.1 of the Construction Logistics Plan (CLP) (drafted by Momentum Transport Planning) which confirms that in the event that the Richmond College construction works are ongoing at the same time as the East Stand works the impact of the combined cumulative construction traffic has been assessed to ensure no significant impact on the local highway network.

4.3 Road / Pavement Closures

Road closures are not currently envisaged at this time but closure of the adjacent pavement may be necessary to provide access for cranes – when installing the services plant and equipment – and also for cherry pickers / scissor lifts when installing the cladding to the building façade. If any closure is required this will have to be by prior agreement with the relevant third parties.

4.4 Construction Logistics

Prior to commencement of works on site a period of pre-construction planning and activities are required to ensure works can commence.

- Production of a Site Environmental Management Plan and Construction Traffic Management Plan.
- 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.
- Surveys of existing services and structures to confirm demolition methodology.
- Highways condition surveys to be carried out prior to commencement on site.
- Services investigations/surveys for decommissioning purposes.
- CCTV surveys of existing drainage if desired.
- Neighbour liaison before the commencement on site to explain the nature of works.

4.5 Plant and Equipment

Consideration has been given to the type of plant that is likely to be used during the construction works. The anticipated vehicle type and use, as well as the anticipated plant and equipment associated with the construction process are set out in the table below.

| Vehicle Type | Use | Distribution |
|----------------------------------|--|---|
| Rigid Heavy Goods Vehicle | Excavated material Removal | Strategic road network to motorway |
| Small Articulated Vehicle | Plant, steel bar, concrete and cladding panels | Strategic road network to motorway |
| Specialised Articulated HGV | Steel frame, Mechanical & electrical Plant, Cladding panels. Roofing materials | Strategic road network to motorway |
| Specialised Equipment Low loader | Occasional Delivery of Plant, including piling rigs, cherry pickers, etc... | Strategic road network to motorway |
| Vans | Plant service, materials, other Suppliers. | Distributed to local and strategic network |
| Cars | Site workers, occasional deliveries, Couriers etc... | Distributed to local and strategic road network |

Table 1 Summary of Vehicle Type, Use and Distribution

| Plant | Substructure | Superstructure | Fit out |
|--------------------------|--------------|----------------|---------|
| Rotary Bored piling rigs | ✓ | | |
| Excavators | ✓ | | |
| Compressors | ✓ | ✓ | ✓ |

| | | | |
|---------------------------|---------------------|-----------------------|----------------|
| Muck away lorries | ✓ | | |
| Goods hoist | | ✓ | ✓ |
| Plant | Substructure | Superstructure | Fit out |
| Mobile crane | | ✓ | |
| Mobile concrete pump | | ✓ | |
| General waste skips | ✓ | ✓ | ✓ |
| Power tools | ✓ | ✓ | ✓ |
| Delivery vehicles | ✓ | ✓ | ✓ |
| Forklifts | ✓ | ✓ | ✓ |
| Scaffold access platforms | | ✓ | ✓ |
| Mobile towers | | ✓ | ✓ |

Table 2 Estimated Types of Plant and Equipment for Construction

4.6 Potential Impacts during Construction

A review has been undertaken of the potential source of adverse impacts, which can be associated with carrying out demolition and construction works. The results of this are presented in the table below;

| Issue | Potential Impacts | Mitigation |
|------------------------------|--|--|
| Interface with Stadium staff | Certain areas will be out of bounds for staff. Access and egress routes for Stadium vehicles will be changed. | Detailed site logistics strategy to be implemented. Regular briefing meetings to be held for staff. Contractor to attend Stadium Interface meetings. |
| Noise | Increased road noise levels from vehicles. Increased noise levels from plant during excavation, piling and general construction works (e.g. from the use of air compressors and diamond cutters). | Vehicle routed to holding area. Engines switched off in holding area Defined working hours, baffles to certain plant, local acoustic screening. Beepers, radios etc. to be silenced. |

| | | |
|---|---|---|
| Vibration | <p>Increased vibration levels from vehicles.</p> <p>Increased vibration levels from plant during piling and general construction works.</p> | <p>Phased deliveries to minimise numbers of vehicles attending site,</p> <p>Engines to be switched off when vehicles are idle or on site</p> <p>Defined working hours.</p> <p>Selection of appropriate plant and work procedures.</p> |
| Dust / Air Quality | <p>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.</p> | <p>Cover all open backed vehicles, 'water down' structural modification activities; switch off vehicle engines when parked.</p> |
| Waste | <p>Waste generation and its disposal.</p> | <p>Instigate Site Waste Management Plan and re- cycling programme</p> |
| Water | <p>Increased sediment loadings to storm water system.</p> <p>Potentially contaminated storm-water runoff.</p> | <p>Do not allow direct discharge of water into sewerage collection system.</p> |
| Traffic | <p>Potential traffic congestion caused by site traffic.</p> <p>Increased vehicle movements mainly consisting of Heavy Goods Vehicles (HGVs).</p> <p>Nominal levels of transfer of mud and material from vehicles onto the public highway.</p> <p>Disruption from abnormal or hazardous loads.</p> <p>Exhaust emissions.</p> | <p>Phased deliveries to minimise numbers of vehicles attending site, switch off vehicle engines when parked, minimise abnormal loads.</p> <p>Wheel washing</p> |
| Storage of fuels and construction materials | <p>Accidental spills, discharges to drains/storm-water systems.</p> <p>Contamination to ground.</p> | <p>All fuel tanks etc. to be bunded, no discharge allowed into the sewerage collection system.</p> |
| Pedestrian access | <p>Restrictions on pedestrian access to walkways, footpaths and roads.</p> | <p>Clear demarcation signage and barriers.</p> |
| Hazardous and contaminated materials | <p>Exposure of the workforce to deleterious / hazardous materials and contaminated land, mobilisation of any source contaminants and creation of pathway from source to groundwater receptor.</p> | <p>Site investigation reports to indicate if any contaminated fill is present.</p> <p>COSHH assessments and careful implementation of associated working method statements to ensure that no hazardous materials find a path to groundwater source.</p> |

| | | |
|--------------|---|--|
| Ecology | Water / mud run off into the drains. Existing trees River | Do not allow direct discharge of water into sewerage collection system, utilise interceptors where necessary. Tree protection measures to be implemented in line with the Ecology Report prior to undertaking any works. Note no construction hoardings will be sited within 15m of the Duke of Northumberland river bank and no works are to take place within the zone between the river and the hoarding. |
| Energy usage | Indirect impacts associated with energy consumption such as CO2 emissions, depletion of natural resources, air pollution etc. | Site environmental plan to be implemented. |

Table 3 Potential Impacts and Headline Mitigation Measures during Demolition and Construction

4.7 Mitigation Measures

- Industry accepted practical means of preventing, reducing and minimising noise generation, vibration and air pollution will be adopted in agreement with LBRuT and in compliance with the relevant regulations and guidance documents such as;
 - BS 5288 – 1 & 2 Code of practice for noise and vibration control on construction and open sites. Noise and Vibration
 - The control of dust and emissions from construction and demolition Sites Best Practice Guidance
 - AQ- GLA Guidance for Construction Logistics.
 - Control of Pollution Act 1974
 - Environmental Protection Act 1990
 - Health and Safety at Work Act 1974
- Appropriate procedures need to be followed in order to mitigate noise, vibration and air pollution (e.g. through dust and fume generation) impacts.
- Measures currently planned include:
- 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 relevant statutory regulations.
- 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.

- Plant will be certified to meet relevant current legislation and Noise and Vibration Control on Construction and Open Sites (BS 5228).
- 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.
- Noise complaints, or exceeding of agreed levels will be reported to the contractor and immediately investigated.
- Vehicles transporting materials capable of generating dust to and from site will be suitably sheeted on each journey to prevent the release of materials and particular matter.
- A formal and detailed Site Waste Management Plan will be produced by the successful 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
 - Waste Management Regulations 2006.

4.8 Site Security and biodiversity

The Principal Contractor will implement security procedures that complement and integrate with the Stadium Security.

Access for deliveries into the holding area and will be controlled by the contractor.

The contractor compound will be secured with a 2.4m high hoarding. Note no construction hoardings will be sited within 15m of the Duke of Northumberland river bank.

Tree protection measures to be implemented in line with the Ecology Report prior to undertaking any works.

4.9 Accommodation

The contractor's accommodation facilities will be located within the Stadium North Car Park. These facilities will stay insitu throughout the duration – even during Stadium events.

Facilities will include:

- Management offices
- Meeting Rooms
- Tea/coffee stations
- Canteen and cooking facilities
- Drying rooms and changing facilities
- Sub-Contractor accommodation
- Toilets
- Induction room

5 Good Neighbour Policy

A key aspect of the successful management of the project will be to establish and maintain good relationships with all site neighbours. Once a contractor has been appointed, a construction liaison group will need to be established with the closest neighbours and interested parties who would be affected by the demolition and construction works. Regular news letters will be distributed to all relevant parties advising of construction progress and future activities that may impact on the surrounding areas and neighbours.

Formal and informal meetings may be arranged to communicate to all relevant parties when specific high intensity or high risk activities are to be undertaken. Prior to commencement of works a single point of contact (usually the contractor's Construction or Logistics Manager) will be established as the neighbour's point of liaison. This person will be named at the site entrance with a telephone number for queries/complaints.

The Construction or Logistics Manager will keep accurate records of complaints received, which will be made available to LBRuT for inspection.

6 Programme

A copy of the Project Programme is included within Appendix B.

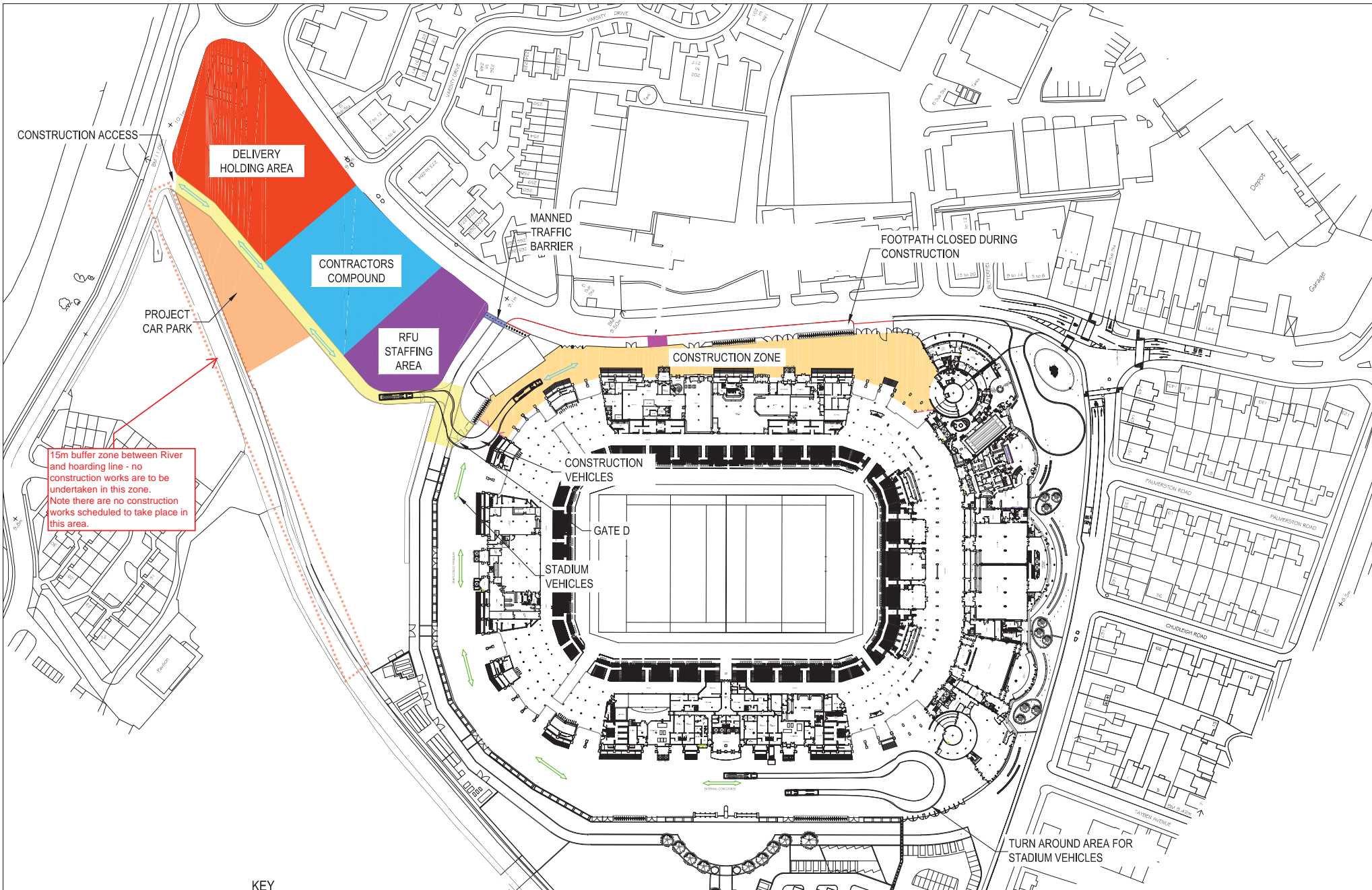
The programme shows that the construction activities will be split as follows;

- Shell and Core works
- Fit Out works

The transport logistics associated with this are covered within the Transport Assessment accompanying this planning application.

The construction will commence, subject to receipt of planning permission, in March 2017, immediately after the Six Nations matches. Completion of the works will be before the 2018 Autumn International events.

7 Appendix A – Logistics Plans



KEY

CONSTRUCTION VEHICLES
STADIUM VEHICLES



| Rev. | Date | Description |
|------|------|----------------------|
| 00 | --- | Revision Description |
| | | |
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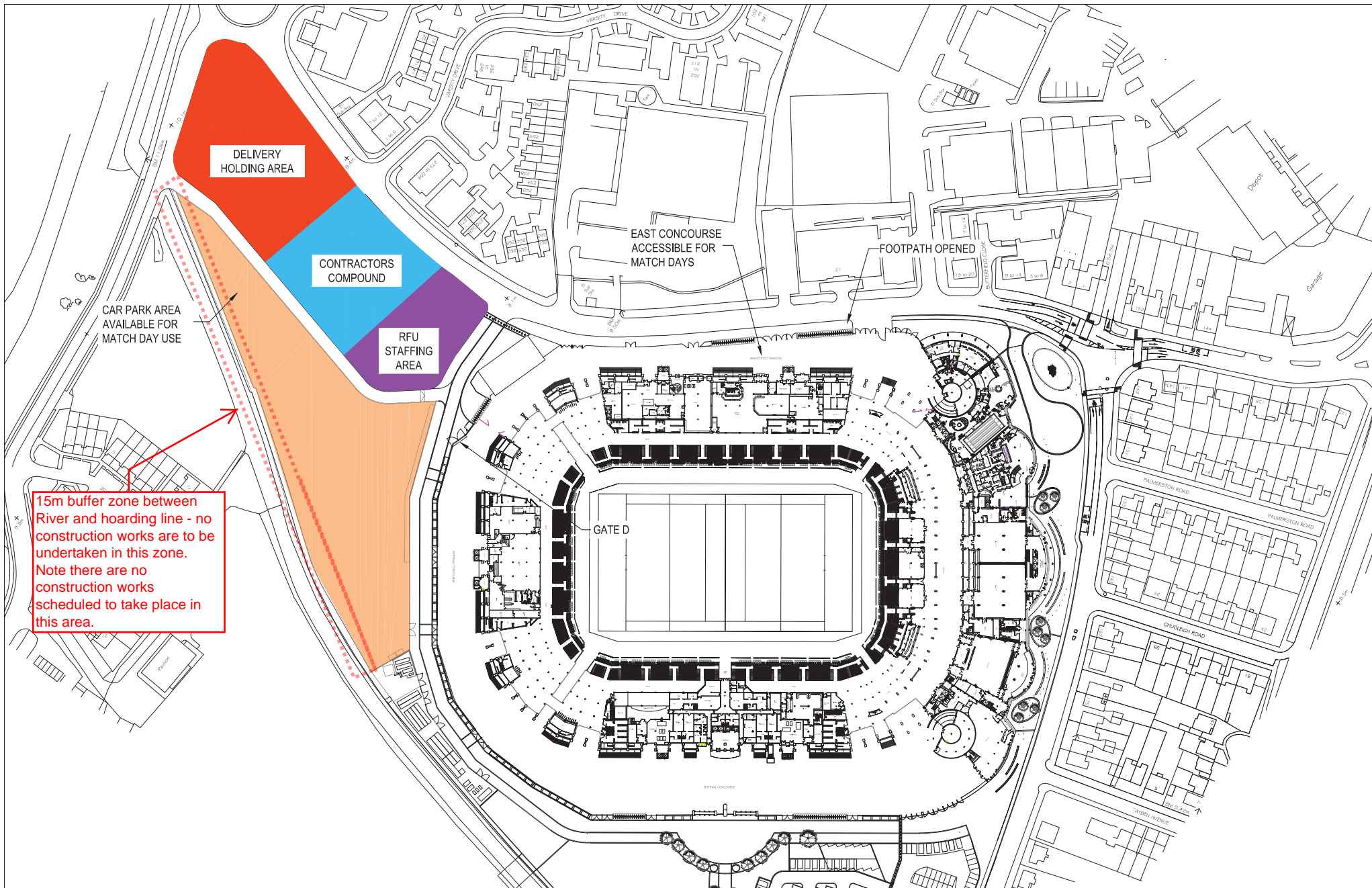
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| Project | Twickenham |
| Drawing Title | Logistics Drawing |

| | | | |
|---------|----------------------|------------|----|
| Date | 06.06.2016 | Drawn by | DW |
| Scale | 1:1700 @ A3 | Checked by | XX |
| Sheet | A3 | | |
| Dwg No. | 33288_TWST_LOG-01-01 | Rev. | 00 |

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Note: Do not scale this drawing. work from figured dimensions only



15m buffer zone between River and hoarding line - no construction works are to be undertaken in this zone. Note there are no construction works scheduled to take place in this area.

| Rev. | Date | Description |
|------|------|----------------------|
| 00 | --- | Revision Description |
| | | |
| | | |

| | |
|---------------|--|
| Project | Twickenham |
| Drawing Title | Logistics Drawing Match Day Arrangements |

| | | | |
|---------|----------------------|------------|----|
| Date | 08.06.2016 | Drawn by | DW |
| Scale | 1:1700 @ A3 | Checked by | XX |
| Sheet | A3 | | |
| Dwg No. | 33288_TWST_LOG-01-03 | Rev. | 00 |



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BM
9.50m

PROPOSED
BUILDING
EXTENTS

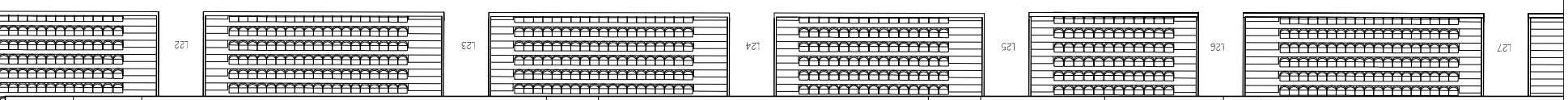
EXTERNAL CONCOURSE

Generic Low Loader with Trailer Steering (18.0m)


Large Mobile Crane

| VEHICLE DIMENSIONS IN METERS | |
|---------------------------------|-------------------------|
| CRANE | DELIVERY VEHICLE |
| BODY WIDTH : 2.43 M | OVERALL WIDTH : 2.54 M |
| BODY LENGTH : 12.3 M | OVERALL LENGTH : 17.9 M |
| (WITH OUTRIGGERS) | |
| OVERALL WIDTH : 8.49 M | |
| OVERALL LENGTH : 12.3 M | |

Note: Do not scale this drawing,
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| Rev. | Date | Description | Project | Date | Drawn by |
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| 00 | --- | Revision Description | Twickenham | 06.06.2016 | DW |
| | | | Drawing Title | Scale | Checked by |
| | | | Logistics Drawing Mobile Crane Position | 1:300 @ A3 | XX |
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| | | | | A3 | |
| | | | Dwg.No. | Rev. | |
| | | | 33288_TWST_LOG-01-02 | 00 | |



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8 Appendix B - Programme



Twickenham Stadium - East Stand Development

Strategic Programme Rev 02

