

Twickenham Station Redevelopment

Demolition and Construction Method Statement

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Twickenham Station Redevelopment DCMS

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Written by Chris Woods Lead Design Manager Geoffrey Osborne Ltd	Date
	7/12/17
Checked by Daniel Richards, Project Manager, Mace Ltd,	Date
	8/12/17
Approved by Victoria Western Development Manager Solum	Date
	8/12/17

1.0 Introduction

This is a high level strategic description of the demolition and construction methodology - the Demolition and Construction Method Statement (DCMS) The purpose of the document is to describe in high level terms how the project will be constructed with particular focus on the interfaces with the public and local residents.

This document does not seek to duplicate information previously submitted to the authority to discharge planning conditions related to the construction phase of the project and as such these applications (to discharge these conditions) are cross referenced within the DCMS so the reader is able to obtain the document where this information is available via the authority's planning portal. A full schedule of applications to discharge conditions pertinent to this DCMS are detailed in section 8.

The proposed Twickenham Station scheme is a mixed-use (commercial and residential) development with rail enhancements including a new ticket office; concourse, platform stairs and platform lift access.

To facilitate the site development a 'podium' will be constructed above the operational railway forming a new public realm as well as enabling the site wide development. The works will be built in stages:

Early Works – minor enabling works that started in February 2015.

Mobilisation Works – preparing for the main works to commence March 20th 2017

Main Works – the podium, block A & B, new station concourse and public realm starting on 26th August 2017.

Final Works – Block C: 4th April 2019 until 1st May 2020.

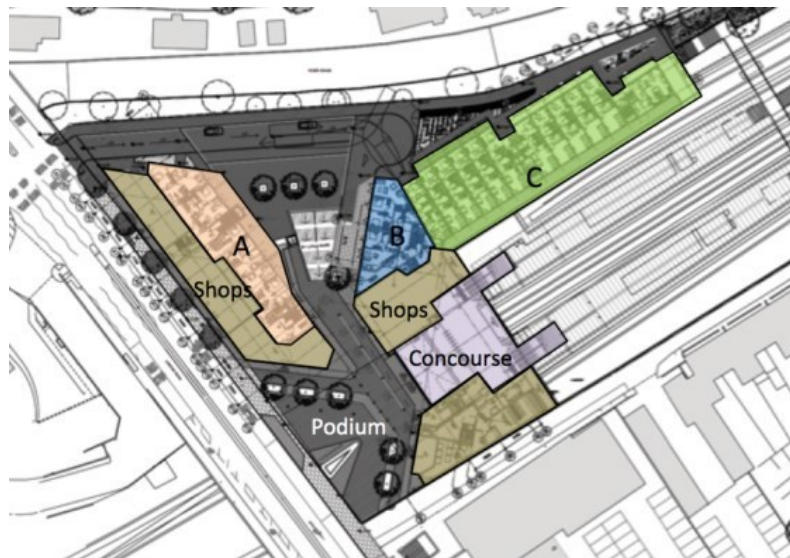


Figure 1: The Disposition of the Works

This Demolition and Construction Method Statement sets out to provide a high level overview of the entire works programme to be carried out at Twickenham Station.

2.0 Redevelopment Overview

Early Works – the initial works consisting of the start of the removal of Japanese knotweed, archaeological investigation, initial asbestos surveys, intrusive surveys of services and the construction of the first manhole and other minor associated works that started in February 2015.

Mobilisation Works - diversion of signals and telecom equipment and other trackside cables underneath London Road, the erection of a temporary ticket office (TTO), the amendment of the platform canopy to enable space for the construction of the temporary footbridge and site set up. The widening of Mary's Terrace junction with Beauchamp Road to facilitate the piling works at the other end of Mary's Terrace and moving of the bicycle racks and canopies.

The closure of the car park and the start of the erection of an acoustic hoarding surrounding the northern and eastern construction site boundary will also be done in this period.

Works adjacent and immediately over the railway will be carried out during booked T3 possessions, Rules of the Route (ROTR) access and during normal hours. Hoarding will be erected to separate the works site from the operational railway and the station facilities.

The trackside service works are further described in 5.4.4 are mainly electrical in nature and not inherently noisy they're necessary to relocate cable and signal equipment.

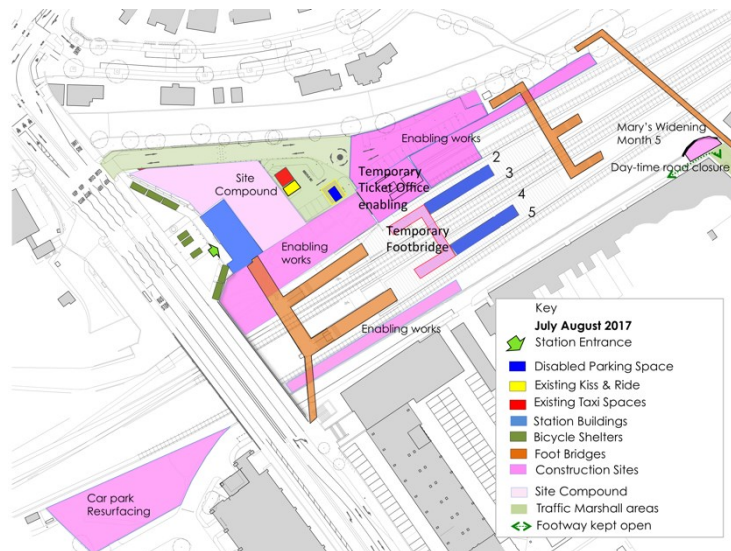


Figure 2: Mobilisation Works

Prior to the erection of the TTO, asbestos containing materials (ACMs) will be removed from the ground in strict accordance with the control of asbestos regulations, pad foundations for the TTO will be installed. Acoustic hoarding will be installed prior to demolition of the ticket hall, concrete retaining wall and piling works in Autumn 2017.

Main Works - Main Construction works for the project commence after 26th August 2017 once the temporary ticket office is complete and the existing building has had its incoming services terminated. The work involves: continuation of removal of ACMs, demolition of the existing station, works to the bridge abutment, a contiguous piled wall to London Road, the reduction in levels over the site, piling to block A & B.

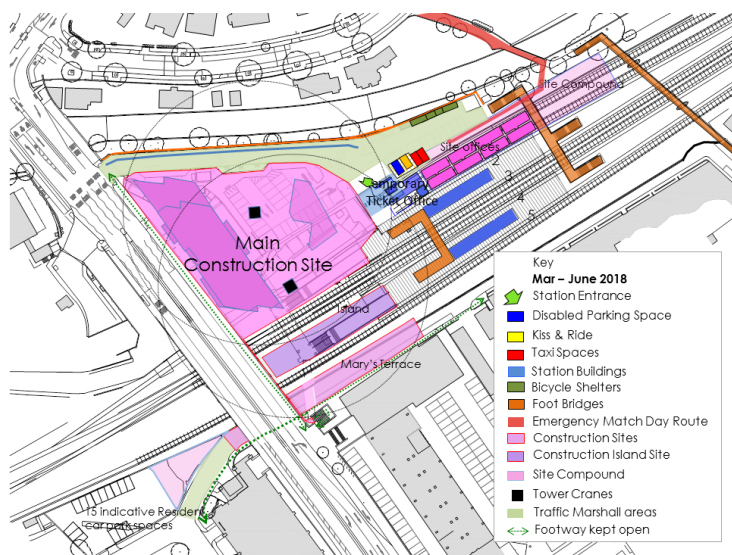


Figure 3: Main works

Piling to the areas adjacent to the operational railway lines (this latter work will require the temporary vehicular closure of a length of Mary's Terrace). Relocation of existing facilities and construction of the new public realm, Block A & B, 91 flats and six retail shell units, including the construction of the new station entrance and ticket hall.

Final Works - Block C; 24 flats commencing 4th April 2019 until 1st May 2020.

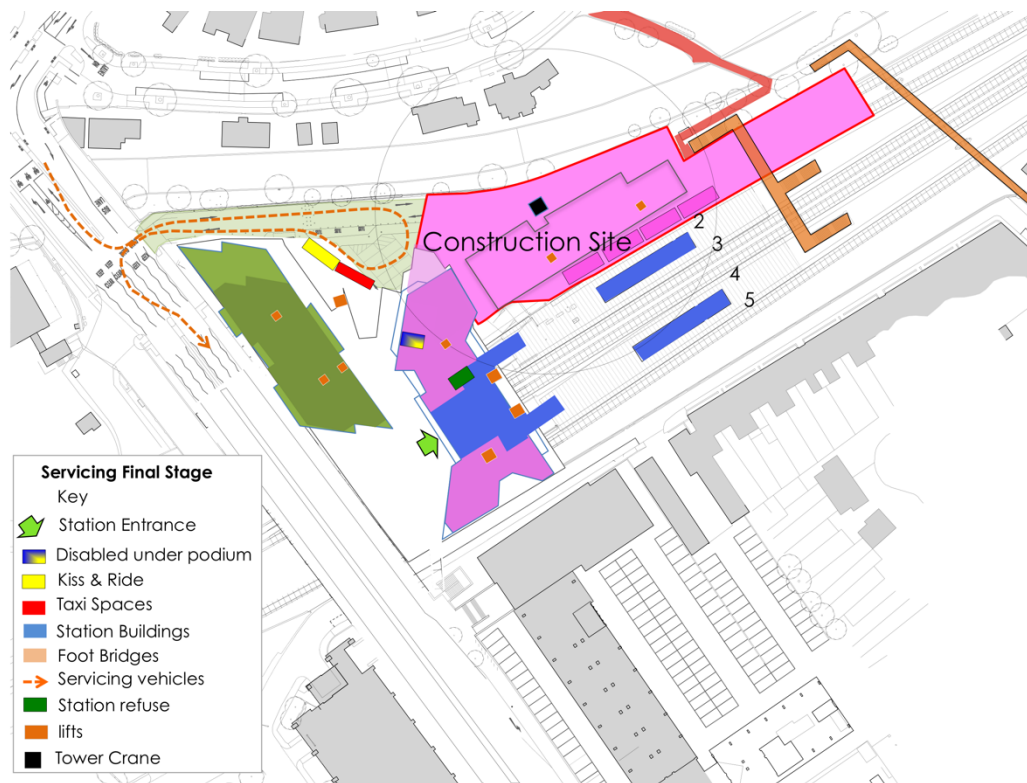


Figure 4: Final Works Stage

Section 8.0 references a document: Demolition Construction Logistics Planning Images V5

which shows diagrams showing the areas of work for each phase and outlines the alternative access arrangements during construction of the three main blocks, A, B and C, of the development.

3.0 Overview Programme and Phasing

The works have been programmed as per the document Summary Programme Revision P referenced in section 8.0

The works have been phased and programmed around the requirements of the station's train operating company (TOC); ensuring access is maintained throughout the works for station users.

No construction works will take place on Twickenham event days, as required by planning condition NS51 where crowd numbers exceed 30,000. As the contract

programme is developed it will incorporate all known event days and through liaison with the Rugby Football Union, will continue to incorporate future planned events.

The following represents a summary of the overview programme:

Early Works - started February 2015

1. Mobilise to site
2. Initial treatment of Japanese knotweed
3. Detailed surveys including tag and trace
4. Archaeological excavation
5. Construct manhole, including root barrier
6. Reinststate and leave site

Mobilisation Works - starting 20th March 2017

1. Mobilise to site
2. Relocation of bicycle shelters
3. Site accommodation and hoardings to site compound
4. Foul and surface water drains in access road
5. Closure to public use of station car park at the rear of station building
6. ACM removal from the area of block C and ticket office area
7. Construction of mass concrete pad foundations under the ticket office
8. Relocation of power supply from District Network Operator (DNO)
9. Installation of Temporary Ticket Office (TTO)
10. Statutory Utility diversions and connections associated with the TTO
11. Erection of temporary footbridge and stairs
12. Preparation of Parking area off Station Yard for Mary's Terrace and Beauchamp Road residents' use
13. Widening of Mary's Terrace/ Beauchamp Rd Junction
14. Diversion of Network Rail trackside services
15. Creation of under track crossing
16. Diversion of Level 3 fibre optic service
17. TTO goes live
18. Start of Erection of acoustic screening
19. Vacant possession of shops and cafe

Main Stage Works starting on 26th August 2017

1. Vacant possession of station ticket office,
2. Intrusive asbestos surveys
3. Soft strip of existing ticket hall
4. Asbestos containing material (ACM) removal from existing ticket office
5. Demolition of existing ticket office
6. Preparation for contiguous piling
7. Contiguous piling to London Road
8. ACM removal from pile arisings and other areas
9. Battering back & demolition of retaining wall
10. Dismantling of platform canopies for temporary bridge erection
11. Foundations for temporary bridge
12. Building an under track crossing to access the island area from the main site
13. Demolition and removal of existing station footbridge and out of hours gantry and making good of London Rd wall

14. Installation of Trackside hoarding island site
15. Continuation of Japanese knotweed treatment
16. Formation of piling mat to trackside
17. Sorting of ACM and reduced dig to main construction site
18. Temporary propping to contiguous piled walls
19. Formation of piling mat to areas A & B
20. Cutting back north bridge abutment
21. Tying in contiguous piling to abutment
22. Pile caps and drainage works
23. Start of concrete frame up to podium slab level block A & B
24. In-situ concrete slab deck to block A & B
25. Over pumping of station drainage
26. Piling adjacent to trackside
27. In-situ pile caps to trackside
28. Drainage works adjacent to trackside
29. Precast concrete wall panels, columns and beams for podium
30. Station lift shafts and stair foundations
31. First storey of Lift shaft and maintenance stairs for podium.
32. Brickwork wall to Mary's Terrace boundary
33. Removal of Mary's Terrace acoustic screen
34. Erection of first tower crane
35. Installation of bridge beams over track and completion of podium slab
36. Installation of new service connections
37. Scaffold erection to allow gantry construction
38. Erection of second tower crane and hoists
39. Superstructure construction for block A & B
40. Installation of steel framing to ticket hall
41. Construction of footpath for riverside walk to Moormead Park
42. Play area to riverside walk
43. Fit out of under podium drainage
44. Main plant room construction
45. Car park surfacing
46. Installation of rainspan panels
47. Façade installation block A & B
48. Roof installation block A & B
49. Fitting out flats block A & B
50. Return of Mary's Terrace resident on-street parking
51. Installation of new electrical intake and telecoms rooms for station
52. Installation of new staircases and lifts for station
53. Surfacing and landscaping to public realm round areas at podium level
54. Construction of steel mezzanine for bicycle stores
55. Fit out of new railway station concourse
56. Removal of temporary footbridge across the railway tracks
57. Relocation of acoustic hoarding and site enclosure
58. Opening of new station concourse
59. Fit out of commercial units
60. Underpass refurbishment
61. Works to Mary's Terrace Stairwell

Final Stage works Block C Starting on 4th April 2019

1. Completion of pad footings to block C
2. Scaffold erection block C
3. Block C superstructure
4. Façade installation
5. Roof installation
6. Fitting out flats
7. Hard and soft landscaping to block C

4.0 Context & Preparation

4.1 Precondition Surveys

In advance of any works starting on site, precondition surveys will be carried out including full inspection and photographic records of the existing site areas and tie-ins.

In the case of work adjacent to highways, the London Borough of Richmond upon Thames, street scene inspector will be contacted to arrange a pre commencement photographic survey of the public highways adjacent to and within the vicinity of the site. In the event that damage is caused to the highway due to the construction or related activities, the damage will be repaired to return the highways to pre-existing conditions and if required (due to unsafe conditions) at 24hrs notice.

4.2 Site Establishment

The main contractor's site establishment during the development will be within the unused platform 1 & 2 area. Please see figure 5: Deliveries Spring 2018.

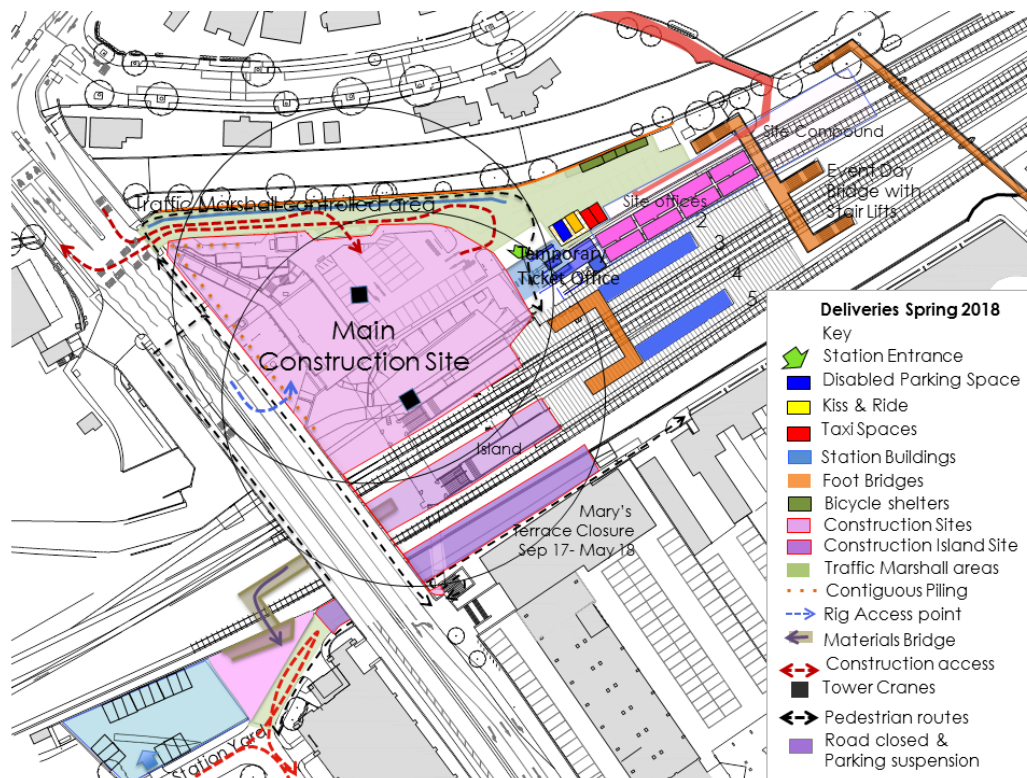


Figure 5: Site Establishment – Main Works

Safe pedestrian access to the Temporary Ticket office will be reviewed at each change to delivery protocols, this will be developed with the logistics Company and agreed with NR and the train operating company. Any changes will be communicated via local signage, station staff and the project website. See Figure 7D for the access layout from November 2017.

The site establishment will be constructed using double stacked cabin units to allow easy removal at the end of the project. The site establishment will include offices, welfare (including toilets and wash facilities for operatives) and storage facilities for the duration of the project (see figure 5 for Contractors' welfare).

No provision for contractor parking will be allowed on the project. Project staff will be encouraged to use public transport to come to site each day.

Network Rail owned land off Station Yard, which is currently used as a car park, will be made available to provide 15 parking spaces for residents of Mary's Terrace and Beauchamp Road from late August 2017 whilst Mary's Terrace parking spaces are suspended and for the Train Operating Company (TOC) after the opening of the new station facility. Residents will need to display identification to park in this location. The car park will be lit to highways standards.

Two residents parking bays will be created (by Richmond Highways Authority) adjacent to the site hoarding about half way along Mary's Terrace. Refuse vehicles currently do not enter Mary's Terrace they reverse down Beauchamp Road and stop at the northern end the road. With the widened junction they would be able to reverse round the widened junction to collect refuse. London Fire Brigade have confirmed they will be able to reverse their tenders if they bring an engine into Mary's Terrace – refer to planning application ref. 11/1443/DD19 for copies of the tracking drawings.

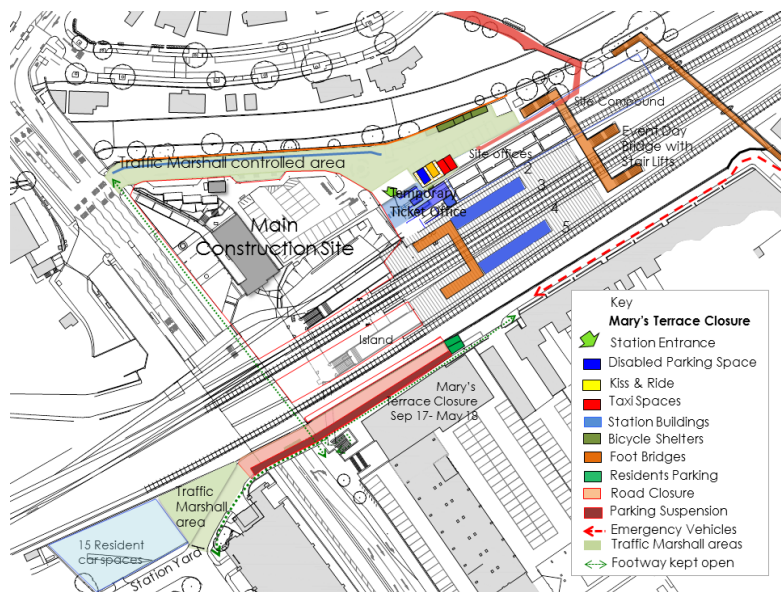


Figure 6: Parking off Station Yard during Road Closure

At the start of the main construction works the existing station car park area will be cleared and connections made to the existing water supply/drainage outfalls. Foundations will be constructed to accommodate the single storey temporary structure. The perimeter of this site establishment area will be secured with 2.4m high hoarding. A secure double gate of similar height will be installed to provide vehicular access to the laydown area or site compound that will receive bulk deliveries.

The construction site and office set-up, will be fed via a mains electrical supply to reduce the noise impact of using generators. It may however be necessary in the short term to use a super silenced generator to provide power until the mains connection is finalised. Pedestrian access for the workforce and visitors to the site will be via the entrance at the site offices. After completing a safety site induction, operatives will access the main works area using stairs over the temporary ticket office to avoid disruption to commuters using the station. The operatives working at Mary's Terrace will register at the pedestrian entrance to the works and then proceed to London road and the stair to Mary's Terrace. Operatives will not have need to cross London Road to access the site at any time.

An emergency procedure plan will be in place to ensure the safe evacuation of the site and station in the event of an incident (requiring an evacuation of either the construction site or station). For full details of this plan, please refer to planning application ref. 11/1443/DD25 to discharge planning condition NS26 – Emergency procedure plan.

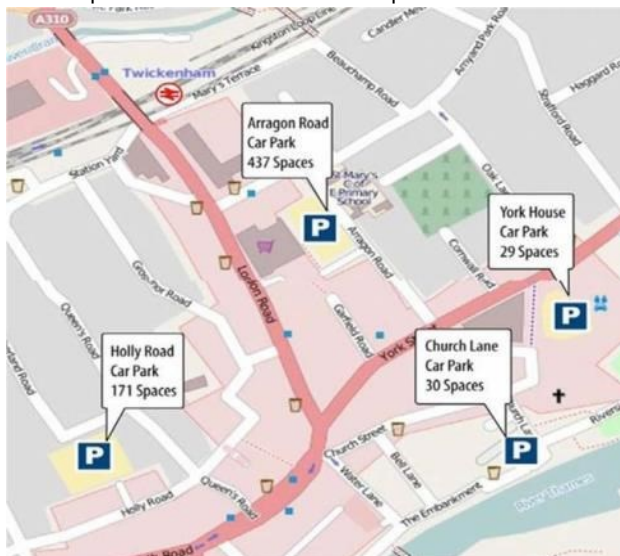
4.3 Access

4.3.1 Site Parking

The existing station car park is within the main site area of the proposed Twickenham station redevelopment. It will cease to be available for public use at the start of the project. Public parking will be available again after the new station concourse has been opened.

4.3.2 Site Personnel & Travel

Project staff will use public transport to come to site each day where possible. The bus stop C will be closed and instead bus stop A (further down London Rd) will be utilised whilst work is carried out to develop Block A. Train travel, cycling and the use of alternative public transport will be encouraged through the travel plan. Facilities will be made available to incentivise the use of such alternatives, for example within the compound a shower facility and cycle storage will be provided.



All operatives, subcontractors and visitors will be informed of the site restrictions before their works commence on site. The project travel plan will also be communicated to all members of the team. The Travel Plan for the Twickenham project will support London Borough of Richmond upon Thames' sustainable transport objectives and will focus on those areas that have the highest influence and impact including staff, subcontractors/ suppliers and visitors.

Figure 7: Car Park Location Map

The Travel Plan will be structured to align with the Department for Transport's (DfT) 'The Essential Guide to Travel Planning' (2008). Full details of the project travel plan are available in section 8.4 of the planning application (ref. 11/1443/DD25) previously approved by the authority to discharge planning condition. NS50 – Construction Logistics Plan.

Where it is not possible to avoid the use of car (for examples when there are possessions), personnel who have to drive to site will need to use one of the many recognised car parks in Twickenham. The requirement to park in recognised parking areas will be included within all subcontractor negotiations and contract documents. This will be reinforced in the induction process. A Map will be provided showing where the local car parking is located which will including the parking rates.

4.3.3 Parking for Station Staff and Rail Users

When the works commence the existing public parking provision in the station car park will be closed. No provision has been made to replace this parking during the works until the parking area off Station Yard via Railway Approach becomes available in July 2019 (once parking for residents on Mary's Terrace is reinstated, Mary's Terrace widening work is reinstated to it's original condition and the parking is no longer required as a temporary car park for residents). Therefore, commuters will need to make alternative arrangements to park in either nearby car parks or be encouraged to use alternative stations at Richmond or Whitton. This will be communicated and promoted through posters, leaflets and on South Western Railways website in advance and during the works.

The only exception will be the provision of a single parking bay for use by wheelchair users, a single drop-off parking bay and two taxi rank parking bays.

There is no current parking provision for station staff and as such no loss of parking will befall these users.

4.3.4 Taxi Rank Parking

A lay-by for two taxis will be provided – refer to figures 5 and 6. Full details are included within planning application ref. 11/1443/DD25 to discharge planning condition NS25 – Taxi Parking Management.

4.3.5 Resident's Parking- Mary's Terrace and Beauchamp Road Residents

Throughout the closure of Mary's Terrace at the Station Yard (west) end it will be necessary to provide alternative parking for the residents this will be provided on the parking site off Station Yard as identified in Figure 6.

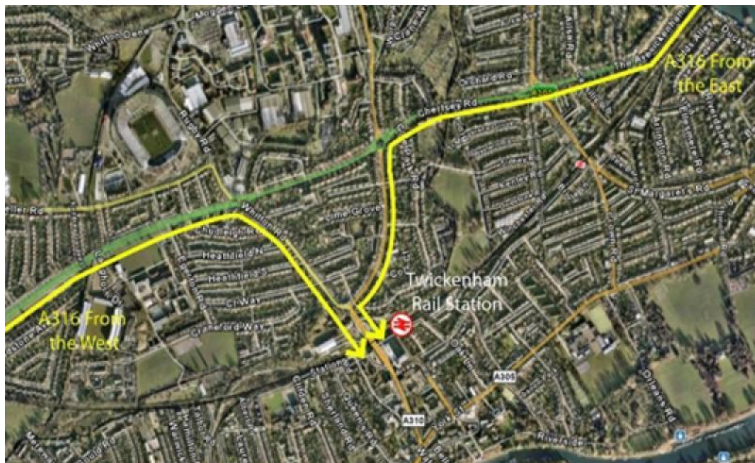
Pedestrian access to Mary's Terrace and to the public stairs at London Road Bridge will be maintained throughout the construction period, with segregation from the construction works using suitable fencing and hoardings, except for the day when the diagonal bridge is removed when an alternative route will be agreed.

4.4 Material Management, Deliveries, Signs and Access to TTO

A Traffic Marshall will control access to the main site and the area outside the construction site up to London Road. Only vehicles booked with the Vehicle Movement Booking System (VMBS) organised by the logistics management company will be able to gain entry to the vehicle site gate. Deliveries will be restricted to avoid peak time pedestrian and cycle movements in accordance with Construction Logistics and Community Safety (CLOCS) best practice. In addition, as far as reasonably practicable all hauliers and suppliers will comply with the TfL London Freight Plan and will utilise best practice and will be members of The Fleet Operators Scheme (FORS).

For details on how deliveries and servicing of the existing station and facilities will continue through the construction phase please refer to planning application ref.

11/1443/DD25 to discharge planning condition NS23 – Service management plan.



All traffic movements to and from the site will be planned in advance to minimise the number of movements whenever possible. All deliveries will be directed to site using the Strategic Road Network, via the A316 (see Figure 7A).

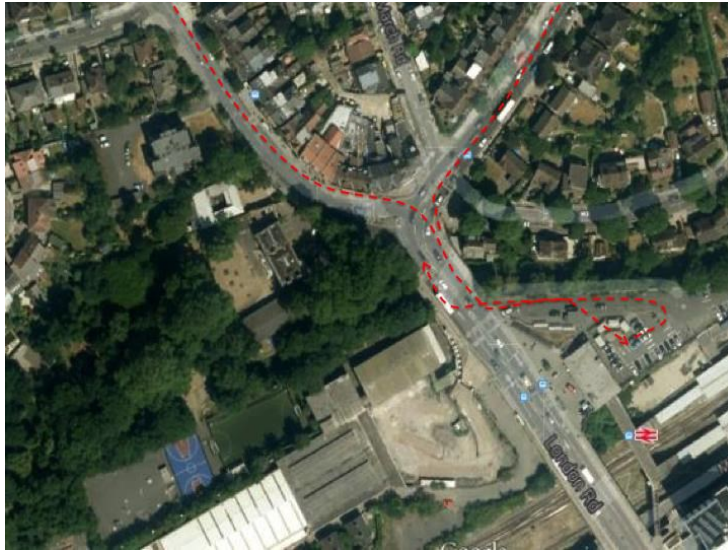
Figure 7A: Strategic Delivery Route to Site



There will then be two delivery routes to the site used during construction: London Road to Station Yard/Mary's Terrace (figure 7B) and London road to the main site (figure 7C). Swept Path analysis has been carried out on these access routes.

See the appendix document Solum Twickenham swept path diagrams for detail of vehicle manoeuvres

Figure 7B: Access to Station Yard and Mary's Terrace.



For further details on construction delivery routes please refer to approved planning application ref. 11/1443/DD19 to discharge planning condition NS27 – Traffic and Pedestrian Management.

Figure 7C: Access to the main site.

The road down to the temporary ticket office and the car park area up to the event day bridge will have a Traffic Marshall, whilst the construction site is in operation. On event days this area will be amended to provide an extended pedestrian management and queuing area footprint similar to pre-existing arrangements. A larger version of figure 7D is in the document Swept Path Diagrams & Access.

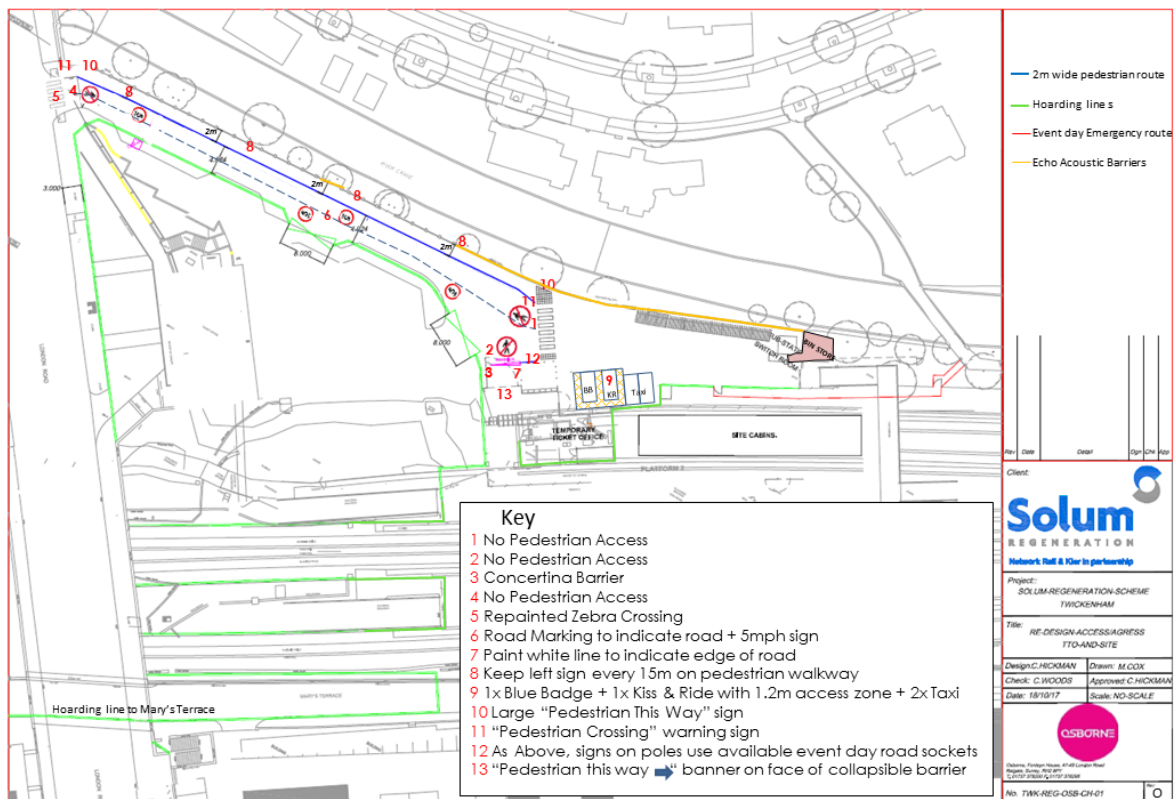


Figure 7D Access road and Signs to the TTO

The size of vehicles entering the site will vary throughout the project and will be commensurate to specific deliveries, loads and activities. Given the spatial constraints of the site and access points, deliveries by large vehicles such as articulated lorries will be severely limited as there is inadequate space for these vehicles to turn except at the start of the project when the construction site is not built on. Day to day vehicle movements will be by vehicles of a similar size of the cement lorry as shown in the swept path diagrams included in the document 'Solum Twickenham Swept Path Diagrams & Access' appended to this DCMS. Irregular deliveries (once or twice a week) will be by vehicles of the size of the artic lorry/the elongated flatbed lorry as shown in the swept path drawings (the only exception to this would be during possessions when these movements would be more frequent although the station would be closed to passengers at these times). All construction vehicles accessing and egressing London Rd from the site will be managed by banks men.

There is also limited space for on site for the storage of large quantities of materials. Where there are deliveries of abnormal loads (for example the mobile cranes, tower cranes and low loaders for piling rigs), these will be strictly managed and controlled and will be outside of peak hours or during station closure. Apart from these exceptional occasions all attempts will be made to ensure vehicles re-enter London Road in forward gear and away from the town centre. Size of delivery vehicles will be limited where possible and deliveries will only occur through prior agreement and consultation with the logistics company.

4.4.1 Site Compound

The majority of construction materials will be delivered directly to the construction site however rarely some materials may be stored in the site compound area. Deliveries to the compound will be relatively infrequent, once or twice a month. See Figures 6.

We have identified the following materials for delivery to the main compound:

- Drainage materials
- Cabling and ducting materials
- Temporary rail crossing materials
- Mechanical and electrical equipment (lights, cables, panels etc.)

Due to the constrained nature of the site, it will not be possible to have large stockpiles of materials. Therefore materials will only be brought to site as and when they are needed in accordance with the Vehicle Movement Booking System (VMBS). Materials will be unloaded (within the site boundaries) using the mechanical equipment on site and self-unloading vehicles. Materials will ideally be delivered directly to locations adjacent to where they will be used by the tower crane to avoid multiple handling of materials.

Materials that need to be delivered to the site compound will subsequently be re-distributed using a telescopic handler to the work face or via the tower cranes. Once distributed, materials will be loaded directly on to gantries around the development. The tower cranes (and the mobile cranes utilised during the project) will be used for material unloading and distribution subject to the Network Rail

standards for work adjacent to an operational railway, and in accordance with a lifting plan prepared and approved by Network Rail. Lifting over the operational rail and over public areas will not be permitted and control measures will be implemented to prevent this. Material deliveries, compound layout and storage required for the final stage of the works (block C) and landscaping works to the Riverside Walk will be detailed in an updated revision of this method statement six months prior to the start of block C. Where appropriate the project will seek to source materials locally.

Artificial lighting associated with the development will be provided although will be subject to change and review throughout the construction phases; this lighting will be required to ensure a safe working environment for operatives working within the construction site. Lighting will also be provided to Network Rail standards to enable safe passage for patrons using the station. Care will be taken where possible to ensure that the task lighting shall be positioned and angled to prevent light spillage or glare beyond the site boundary and adverse impact to nearby residents, however due to operational safety requirements some light spillage may occur. See section 4.7

Appropriate directional signage will be installed to direct construction vehicles and personnel to the site and workface, segregating the access for construction operatives from passengers where possible. In addition hazard signage will be set out as required to notify the public of the construction works and construction traffic access points. See figure 7D for the signage to be implemented for the temporary station access arrangements.

4.4.2 Mary's Terrace Hoarded Area

As this area is isolated from the main site, it is planned to deliver and store materials within the fenced off zone (see Figures 5 and 6) off the traffic marshalled area via the junction with Station Yard and Railway Approach. Deliveries and spoil removal will only occur during the daytime.

The following materials have been identified as required for delivery via Station Yard / Railway Approach:

- Temporary retaining elements
- Piling mat and fill materials
- Piling reinforcement
- Fill materials
- Shuttering materials
- Reinforcement and accessories
- Surfacing materials
- Scaffolding
- Bricks
- Fuel for plant to a double banded location

Materials will only be brought to site as and when they are required, in order to reduce the amount of space required for material storage. Materials will be secured after being unloaded using site mechanical equipment or self-

unloading delivery vehicles. No heavy commercial vehicles associated with the setting up and dismantling of a construction crane shall enter or leave Mary's Terrace without prior written approval of the LPA.

4.5 Plant & Equipment

The following plant will typically be used to undertake the main construction works:

- 2 number WK 3220 BF/355B 45m luffing jib tower cranes
- 360 degree tracked excavators (7.5 ton – 25 ton) with attachments
- Road & Site materials transportation plant
- Conveyor belt to sort ground material
- Klemm KR 709 reduced height piling rigs adjacent to the track
- Hydraulic rotary rig SR80 or SR65 piling rigs for contiguous and other piles
- Machine mounted hydraulic breakers and compactor plates
- Cutting equipment to saw the concrete abutment
- Hydraulic crunching equipment for demolition
- Proof rollers for piling mat
- Road / rail mounted elevated working platforms
- Scaffolding
- Ground water pumps
- Other mobile cranes and hiabs
- Lighting towers
- Compressors and small tools
- Concrete pump
- Concrete mixers
- Telescopic handler
- Hoists
- Road surfacing plant
- Generators, if mains power is not available

It should be noted that not all of these items of plant will be on site at the same time. Due to the constrained nature of the site, once the substructure works are completed, the amount of plant required on site will be reduced. All of these items of plant will be secured on the site at all times when not in use.

In accordance with Planning Condition NS36, (ref. 11/1443/DD28) no construction equipment (including cranes and hoists), construction cabins or materials will be stored within 4m of the southern bank of the River Crane.

4.6 Working Times

The majority of the construction work will be carried out between 8:00am and 6:00pm on Mondays to Fridays. Some Saturday work between 8:00am and 1pm may be carried out except on days where there are Twickenham events.

Deliveries to the main construction site will be restricted to off-peak hours: after 9.15am and prior to 5pm. During deliveries the logistics company will provide Traffic Marshals and Gate Supervision. See Figure 8a & 8b

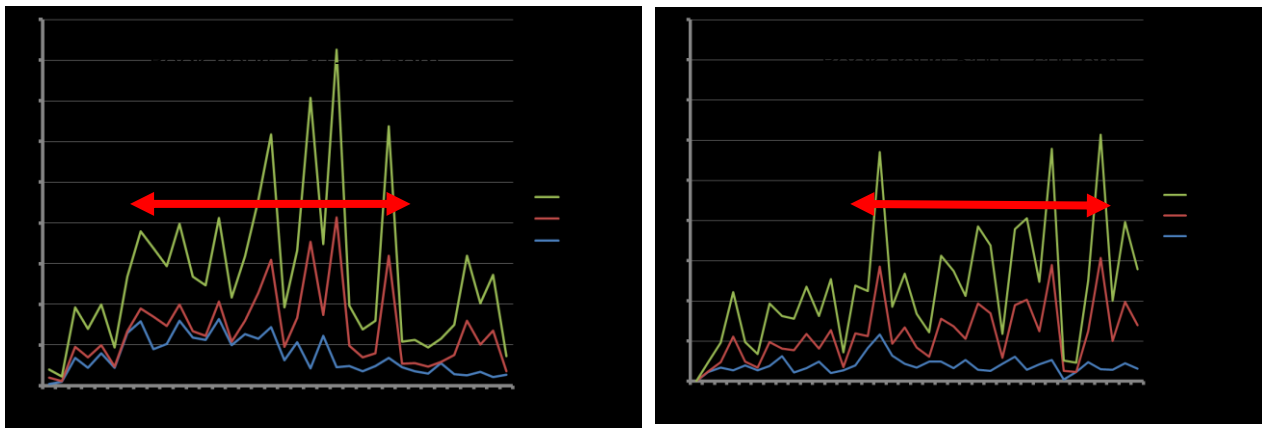


Figure 8a & 8b Daily Peak Commuter Movements

For safety reasons some work associated with the railway can only be carried out during times that the railway is not operating and the constructor has possession of the track. Effectively there are two types of possession; T3 Possessions and 'Rules Of The Route' ROTR. No heavy commercial vehicles associated with the setting up and dismantling of a construction crane shall enter or leave Mary's Terrace without prior written approval of the LPA.

4.7 Lighting for the Works

The construction site will only be lit when work is being carried out during period of insufficient daylight. Light spill will be restricted from the construction site in accordance with table 2 in the document from the 'Institution of Lighting Professionals "Guidance Notes for the Reduction of Obtrusive Light GN01: 2011 for zone 3', a copy of which can be downloaded from <https://www.theilp.org.uk/documents/obtrusive-light/> . As described in the guidance, the lux level on a vertical plane at the centre of a window shall be no more than 10 lux before 11pm and 2 lux post 11pm (above normal background levels). There are four nights during the possessions 14 & 15 (see section 4.6.1) where due to the need to use task lighting at elevated positions (in order to safely undertake the works planned for these possessions) there is potential for higher lux levels (than those stipulated in the guidance) to occur. However this will be by exception and best endeavours will be used to keep light spill to a minimum during these events. Refer to figure 9 for further details on construction lighting controls.

We will keep glare to a minimum by ensuring that the main beam angle of lights directed to the Mary's Terrace boundary is not more than 70 degrees.

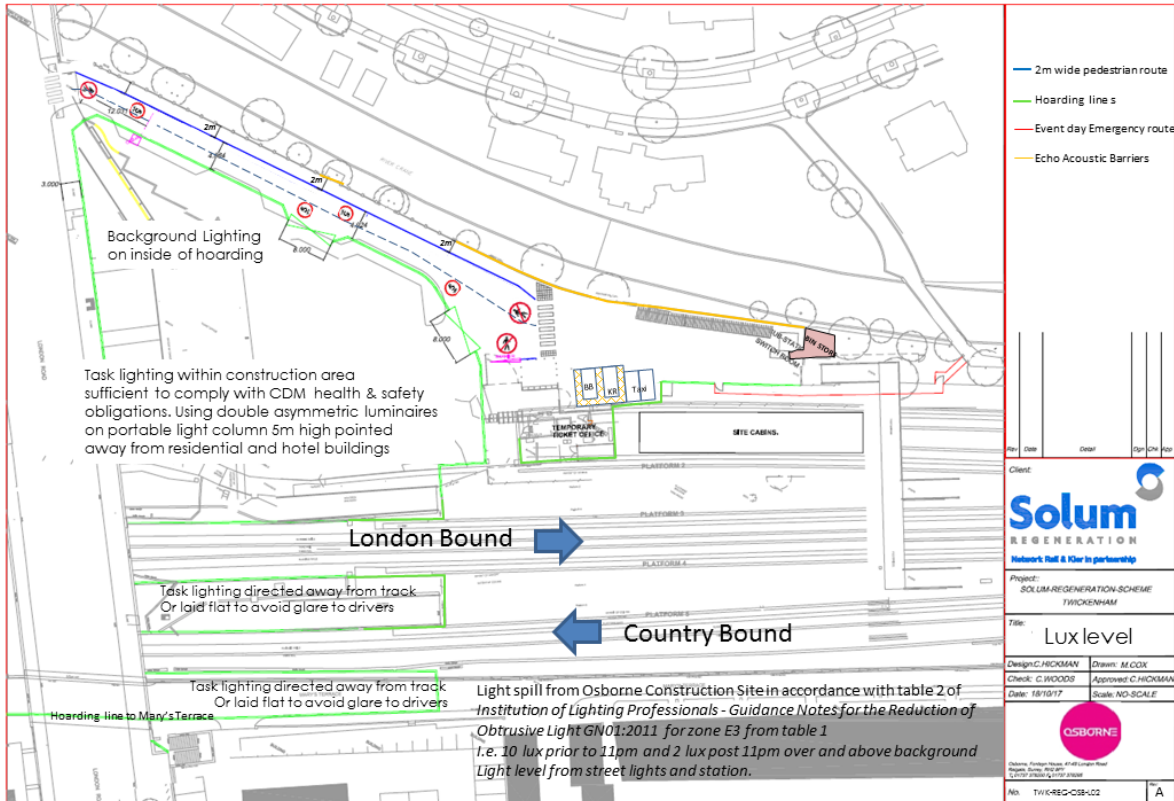


Figure 9 Construction Site Lighting

4.6.1 T3 Possessions

The T3 possessions available for works at Twickenham station are described below.

#	Hrs	Date	Activity
1	28	Sun 9 April 2017	1) Excavate and Install troughing routes for S&T and op comms scope 2) Excavate and Install base slab for S&T LOC cabinets
2	76	Fri, Sat & Sun 14 to 16 April 2017 Easter 2017	1) Install S&T LOCs and cables infrastructure 2) Migration of S&T Cabling for all 8 LOC's 3) Removal of redundant S&T LOCs and cabling
3	52	Sat & Sun 10 & 11 June 2017	1) Points heating cable migration works and de commissioning of old points heating cubicle 2) HV feeder cable diversion 3) Install op comms cabling and associated LOCs 4) NWR Op Comm Cables - Connect & Switch Cables 5) Slew Global Crossing 96F Fibre Cable 6) Remove platform canopy soffit sections on platform 2/3 7) Remove platform canopy soffit sections on platform 4/5 8) Complete canopy column support removals including installation of temporary works and reinstatement of platform 2/3 and 4/5 9) Grid Line B7 - Erect Track Protection Hoarding
4	52	Sat & Sun 17 & 18 June 2017	1) Temporary Footbridge - Erect Support & Stairs - Platform 2/3 2) Temporary Footbridge - Erect Support & Stairs - Platform 4/5 3) Temporary Footbridge - Complete Supports & Erect Main Span - Platform 2/3 to 4/5 4) Island site - Erect Trackside Protection Fence 5) Mary's Terrace - Erect Trackside Protection Fence
5	28	Sun 2 July 2017	Additional capacity
6	28	Sun 10 September 2017	1) Existing High Level Walkway -Remove External Cladding & Roof and Commence Structural Dismantling of platform 3 to 4 span 2) Dismantle Low Level Walkway - Platform 2/3
7	28	Sun 17 September 2017	1) Remove foundations Platform 2/3 Walkway & Supports 2) Existing High Level Walkway -Remove External Cladding & Roof and Commence Structural Dismantling of night bridge span
8	52	Sat & Sun 30 September & 1 October 2017	1) Install Drainage Under Track Crossings 2) Dismantle Low Level Walkway - Platform 4/5 3) Remove foundations for above 4) Import material for Pile mat for Island 5) Install UTX for concrete supply
9	52	Mon & Tues 25 & 26 Dec 2017	1) Erect Tower Crane (TC1)
10	28	Sun 14 January 2018	1) Erect Tower Crane (TC1) back Up OR 2) Erect Tower Crane (TC2) 3) Erect scaffold screen (Grid B7) 4) Erect scaffold screen (Marys Terrace)
11	52	Week 43 - 52hr (Sat & Sun 20 & 21 January 2018). In plan	1) Erect Tower Crane (TC2) Back Up 2) Erect scaffold screen (4/5 Island)
12	28	Sun 18 February 2018	Additional capacity
13	28	Sun 11 March 2018	Additional capacity
14	52	Sat & Sun 28 & 29 April 2018	1) Podium Deck Construction - Install P.C.C. Beams #1
15	52	Sat & Sun 9 & 10 June 2018	1) Podium Deck Construction - Install P.C.C. Beams #2 2) Install underslung shuttering and cast infills 3) Platform riser wall construction platform 2/3 4) Platform riser wall construction platform 4/5
16	28	Sun 1 July 2018	1) Podium Deck Construction - Install Permanent Stairs
17	52	Sat & Sun 29 & 30 September 2018	1) Remove temporary Footbridge
18	52	Sat & Sun 6 & 7 October 2018	1) Reinstatement platform 2/3 & 4/5 canopies
19	52	Sat & Sun 23 & 24 March 2019	1) Remove Tower Crane (TC2)
20	52	Sat & Sun 29 & 30 June 2019	1) Remove Tower Crane (TC1) 2) Block B frame screen removal

The duration of these possessions on this project are 28 hours, 52 hours or 76 hours long. The 28 hour possessions start at 1:00am on Sunday mornings and end at 5:00am on Monday mornings. The 52 hour possessions start at 1:00am on Saturday mornings and end at 5:00am on Monday mornings. The 76hr possession starts at 1:00am Friday until 5:00am Monday.

Works related to the supply and removal of construction materials over track 5 will occur to the western side of London Road during the period when works to the island site between tracks 4 and 5 are being carried out. As the island site is larger on the west side of the tracks it will avoid nightly removal of material such as pile arisings, these materials can be bagged up during the day and removed every three to four days. NB Local acoustic barriers will be utilised to ensure night time noise stays below 55db.

Work has been programmed during these possessions that cannot occur at any other time due to the complexity and length of time required to carry out specific works. Out of preference during these possessions, work will be carried out in daylight hours and some work such as crane erection can only be carried out in daylight hours. However as it is an absolute requirement to hand the railway back fully tested and in working order before the Monday morning, therefore work on some of the possession days will need to be carried out throughout the duration of the possession.

During T3 possessions a bus replacement service will be provided by the Train Operating Company (with the exception of any possessions over Christmas when the railway is closed). The bus replacement service will collect and drop off passengers on London Rd. Station staff will be available to direct passengers to and from these pick up and drop off points and to sell tickets.

4.6.2 Rules of the Route (ROTR)

The other kind of possession is a night time possession - referred to as Rules of the Route (ROTR), it is the period when the trains are not running. The kind of work which is done during these possessions is work which for safety's sake can't be carried out whilst the trains are running. As the train system has to be made safe prior to the works and the system needs to be made ready after the works for trains to be run the amount of work that can be achieved is between two and two and half hours.

The work for which we would use ROTR methodology is normally for work of a shorter duration, compared to a T3 possession. ROTR will also be used if work has not been able to be completed during the T3 possession. This work includes:

- Removal of the spoil arisings from the piling work in the island area; the spoil will be bagged up during the day and lifted out at night to minimise noise levels during October, November and December 2017
- Moving materials and equipment to the island site between rail lines 4 & 5 from the main construction site which must be carried out when the trains are not running – During April 2017 and October 2017

- The routing of cables and trunking for the temporary ticket office that is between the platforms; pre-cutting of trunking during normal hours to reduce night time machine noise will be used where possible During July, August 2017
- Erection of island hoarding adjacent to the tracks August 2017
- The lifting in of temporary retaining structure adjacent to the tracks to Mary's Terrace during August 2017
- Erection of high track protection to enable the side wall supports to the podium to be constructed during day time during January to April 2018

Once protective hoarding lines are erected during night-time possessions, other work can then be carried out safely within these hoarded areas during the day.

All other work, besides the T3 possessions and the ROTR possessions, has been programmed to be carried out during normal construction hours.

Planned times and dates and details of the work involved will be communicated to the council and immediately local residents by letter drop two weeks immediately prior to work occurring however due to the inherent uncertainty of line blocks enabling ROTR work these may be cancelled at short notice. The work will be included in the Section 61 noise profiles for each period of section 61. Under Section 61 of the Control of Pollution Act 1974 a developer may apply to the local authority for prior consent to carry out construction or demolition works. A Section 61 application will contain details of the work to be carried out, the time of the works and also details of any measures to reduce the noise from the works. It is projected that there will be 7 section 61s. The first Section 61 will cover the first nine weeks of ancillary works that starts outside of the construction site in March 2017 and six subsequent ones for 6 month periods commencing on 22nd May 2017 until the end of the project on 1st May 2020.

4.6.3 Twickenham Events

The programme of works takes into account of the confirmed Twickenham events programme as updated in January 2017.

No construction work will take place during event days where the crowd exceeds 30,000, except on the possession day 27th December 2017 where work will be completed prior to the first train running at 5.30 am. The area outside of the construction hoardings will be kept clear and free of obstructions. Kiss and Ride and taxi bays outside the temporary ticket office will be suspended. All plant and materials within be stored safely within the site boundary so as not to affect the event day management regime Cranes and hoists will be safely positioned so as not to pose a hazard.

#	Day	Date	Event
1	Sat	4/02/2017	RBS Six Nations - England v France
2	Sat	26/02/2017	RBS Six Nations - England v Italy
3	Sat	11/03/2017	RBS Six Nations - England v Scotland
4	Wed	29/03/2017	Nat West Schools Cup
5	Sat	8/04/2017	Aviva Premiership Bath v Leicester Tigers
6	Sat	29/04/2017	Army v Navy Babcock Trophy
7	Sat	6/05/2017	RFU Cup Finals & National U20's Final
8	Sat	20/05/2017	HSBC London Sevens
9	Sun	21/05/2017	HSBC London Sevens
10	Sat	27/05/2017	Aviva Premiership Final
11	Sun	28/05/2017	Old Mutual Wealth Cup England v Barbarians
12	Sat	03/06/2017	Twickenham Events
13	Sat	17/06/2017	Twickenham Events
14	Sat	8/07/2017	U2
15	Sun	9/07/2017	U2
16	Sat	02/09/2017	Aviva Premiership London Double Header
17	Sun	01/10/2017	Twickenham Events (Possible NFL)
18	Sat	07/10/2017	Twickenham Events (Possible NFL)
19	Sun	08/10/2017	Twickenham Events (Possible NFL)
20	Sat	14/10/2017	Twickenham Events (Possible NFL)
21	Sun	15/10/2017	Twickenham Events (Possible NFL)
22	Sat	21/10/2017	Twickenham Events (Possible NFL)
23	Sun	22/10/2017	Cleveland Browns
24	Sat	28/10/2017	Twickenham Events (Possible NFL)
25	Sun	29/10/2017	Los Angeles Rams
26	Sat	04/11/2017	England v Barbarians TBC
27	Sat	11/11/2017	Old Mutual Wealth Series England v Argentina
28	Sat	18/11/2017	Old Mutual Wealth Series England v Australia
29	Sat	25/11/2017	Old Mutual Wealth Series England v Samoa
30	Sat	02/12/2017	Old Mutual Wealth Series Barbarians v Australia

For full details on passenger access and the management of event day crowds please refer to application ref. 11/1443/DD19 to discharge planning condition NS27 – Traffic and Pedestrian Management.

For full details on how existing station services and deliveries are managed on event days please refer to planning application ref. 11/1443/DD25 to discharge planning condition NS23 – Service management plan.

For full details of disabled access on event days and non-event days please refer to planning application ref. 11/1443/DD25 to discharge planning condition NS48 – Details of disabled access.