Rotherhithe Tunnel

Continued Safe Operation

Approved by:

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Head of Asset Operations

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TRANSPORT FOR LONDON

EVERY JOURNEY MATTERS

Operational Safety Review

Introduction

This paper sets out the phased actions that will be implemented to support the continued safe operation of Rotherhithe Tunnel in accordance with As Low As Reasonably Practicable (ALARP) principles – this paper forms part of the overall Safety Case for the tunnel.

This paper describes the current tunnel restrictions, their compliance levels/requirements, and further actions that can be taken if compliance needs to be improved.

The plan detailed in this paper began on 14 September 2018 based on the findings from a ventilation study by Atkins and a risk assessment by Xanta.

Background

Rotherhithe Tunnel was built in 1908, is 1480m in length and comprises a single bore with single lane bi-directional flow and lane widths of 2.4m.

In March 2012 a width restriction of 2.0m (6’6”) was put into place to improve tunnel safety and ensure larger vehicles were unable to access the tunnel.

A physical width restriction was installed in March 2013 to reinforce the signed width prohibition. This was removed within two weeks due to the traffic impact on local roads.

Hazardous goods are restricted from being carried through the tunnel (ADR Category “E”), this does not preclude vehicles with alternative fuels that may have similar or greater fire loads (i.e. hybrid, electric, LPG or hydrogen) or goods vehicles carrying “Dangerous” loads within the ADR limits.

Refurbishment of Rotherhithe Tunnel forms part of the Major Asset Renewals Programme (MARP). MARP investigatory work commenced in September 2017, the subsequent timeline of events were:

1. September to November 2017 – desktop studies of existing Health & Safety files, Operational & Maintenance manuals and inspection reports;

2. Dec 2017 to May 2018 – site investigations including ventilation air flow and quality tests and monitoring;

3. July 2018 – draft ventilation capability report received from consultant;

4. July 2018 - steps are taken to reinforce the March 2013 tunnel restrictions, including, regular scheduled monitoring and increased police and TfL enforcement presence;

5. September 2018 – the consultants final ventilation capability report indicates that one of the eight fire zones was not working at the desired level.

6. September 2018 – a plan, described in the following sections of this report, enhancing the ventilation capability to a design fire load is put in place to support the continued safe operation of the tunnel with the current prohibitions.

Operational Safety Review

The following phased steps will be followed to support the continued safe operation of the tunnel:

- Phase 1: New vehicle restrictions and on-site manual enforcement
- Phase 2: CCTV enforcement of restrictions
- Phase 3: Additional physical measures (if required)
- Phase 4: Design and delivery of capital refurbishment

The traffic flow and levels of compliance will be monitored during Phases 1 and 2; this information will be used to assess the need for further physical actions in Stage 3. The following sections describe the specific actions that will be implemented under each phase.

Phase 1 –New Restrictions, Fan Rebalancing and Monitoring & Analysis (10 Sep – 9 Nov)

New restrictions were implemented at the entrances to the tunnel to remove all vehicles over 2m in height and any goods vehicles over 2 tonnes in weight.

The new restrictions were put in place at 0600 on 10 September following a decision to implement them on Thursday 7 September following a risk assessment received on Wednesday 6 September.

An initial Traffic Demand Management (TDM) plan was also put into place highlighting the changes in all available media from Friday 10 September over the weekend period.

The Compliance, Policing and On Street Services Directorate have confirmed with the Metropolitan Police Service and TfL Road Traffic Enforcement Officers (RTEO's) that they will be on site to enforce the new restrictions from Mon-Fri 0600-2000 and Sat/Sun 0800-2000. This covers the peak traffic periods at the tunnel and covers approx. 80 per cent of all vehicles and 90 per cent of wide LGV's.

Air quality and traffic count data indicates that the volume of traffic using the tunnel during the enforced periods is demonstrably lower than a similar period prior to the new prohibitions. However, the data re-aligns outside of the enforced periods,

indicating the enforcement is only effective when policed. This supports the case for 24/7 camera enforcement of prohibitions.

The composition of vehicle traffic traveling through the tunnel will be monitored by CPOS on street teams to check that motorists are complying with the new restrictions and distributed to TfL Surface Senior Management.

The 'Broken Down Vehicle Recovery Plan' has also been amended to lower tunnel collision risk. If a vehicle breaks down in the tunnel the opposing lane of traffic will be stopped to lower any risk of head on collision until the break down has been removed.

Four additional temporary vehicle messaging signs have been installed on all key approaches. In addition 24 permanent approach signs have been updated including both primary signs at each entrance.

Phase 2 – Unattended Camera Enforcement (March 2018 – On Going)

New 24/7 weight enforcement Automatic Number Plate Recognition (ANPR) technology will be utilised to enforce any vehicle over 2.0m in height and then any 2T goods vehicles entering the tunnel. Network Management are currently engaging with CPOS to ensure these cameras can be legally enforced. A long term solution integrated within TfL's current enforcement systems will then be developed.

If non-compliance levels do not fall below levels that TfL consider reasonably practicable then additional measures will be utilised.

1) A further TDM plan will use targeted communications to raise users' awareness of the tunnel's height and width restrictions as well as our heightened enforcement operations. The aim will be to encourage compliance.
2) We will work to augment our social media and geo-targeted email by engaging partners at WAZE (Congestion app) and others who can help carry a targeted message directly to more users in the vicinity of the tunnel.
3) We shall engage local press to carry our message and raised with van rental sites in the areas north and south of the tunnel. We shall also issue updates via FORS (Heavy Goods Vehicle Safety Standards) to all registered firms to ensure maximum coverage.

   Items 1 & 2 above delivered positive behaviour change results during the closure of Tower Bridge Oct 2016 and more recently breakdowns at Blackwall Tunnel.

Following this if non compliance continues to be above the an acceptable trend level TfL will look to initiate phase 3.

It should be noted that TfL does not currently have unattended enforcement capabilities. Looking at information we have for the London Borough of Enfield this shows us that the use of an unattended camera is likely to achieve gradual improvement in compliance over time. Data for the enforcement of banned manoeuvres, bus lane and yellow box junction scenarios, on average after 1 month

non compliance could reduce by 50 per cent, increasing to 70 per cent by month 3 and by 6 months 80 per cent. Note that each offence type is different and we do not have a direct comparison with new weight or height restrictions.

Phase 3 – Additional Physical Measures

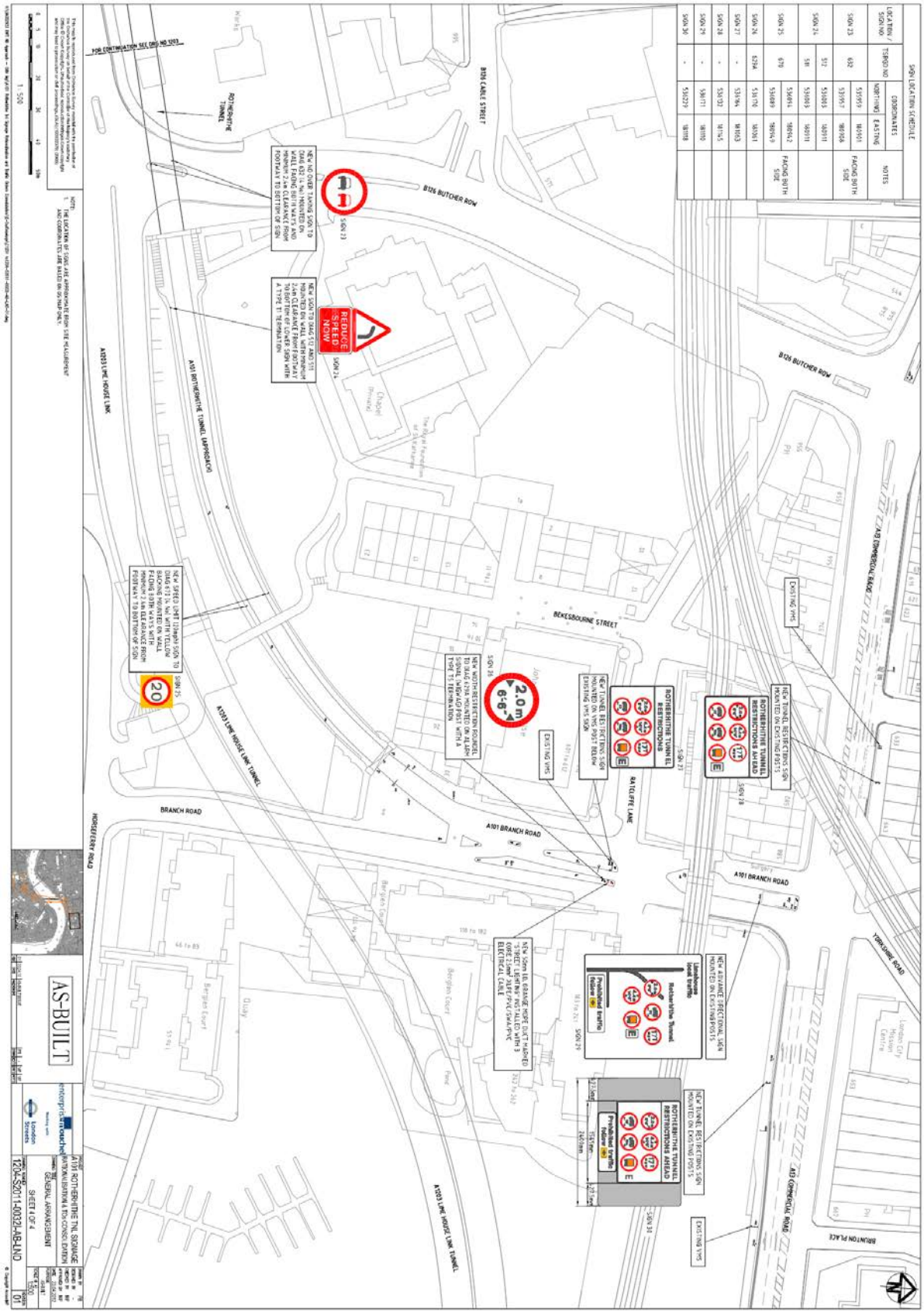
The composition of the vehicle traffic will continued to be monitored to check the impact of the enforcement and communications plan.

If vehicle compliance does not meet an agreed trend (currently in discussion) a decision will be made on the introduction of physical measures.

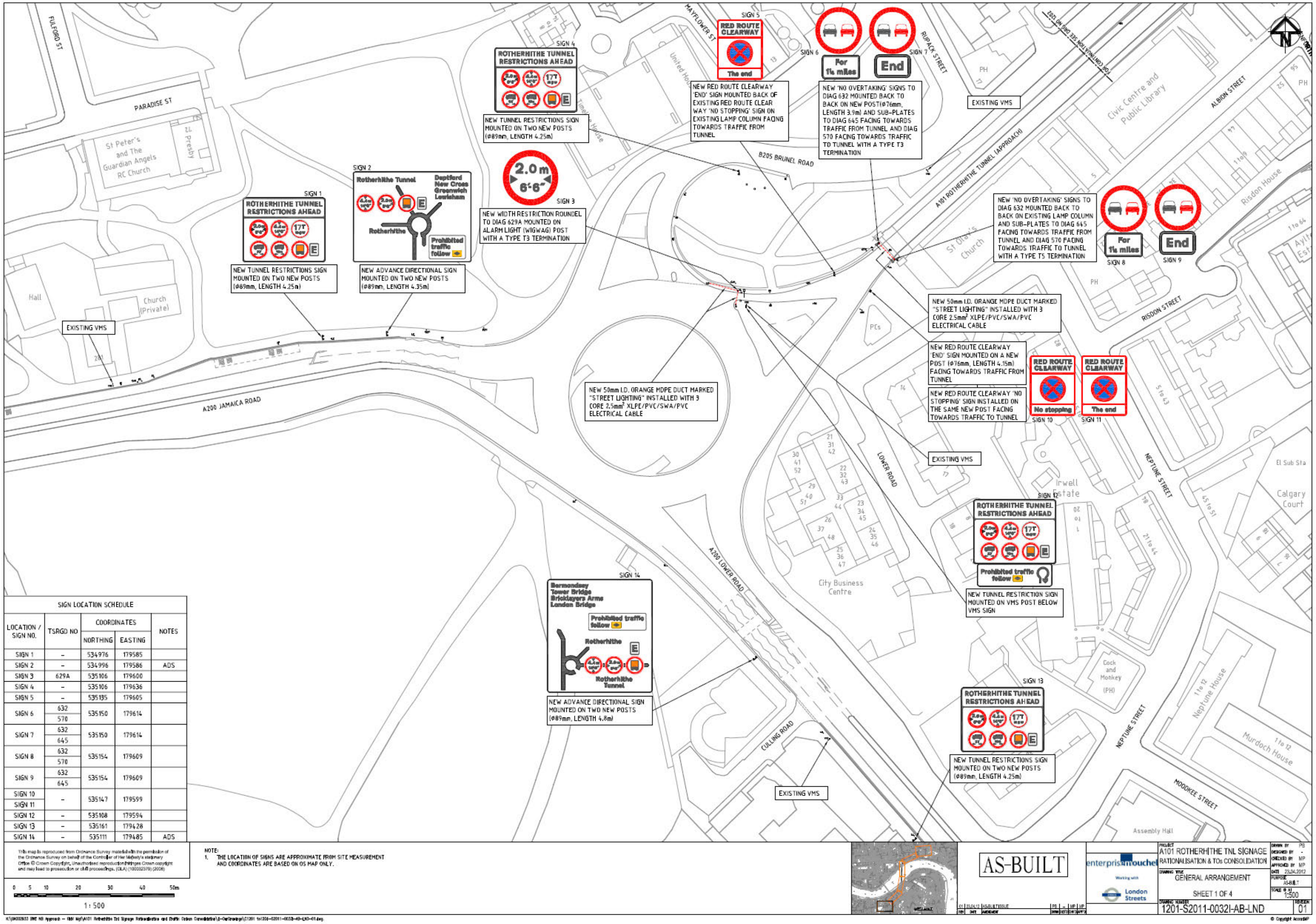
The current width restrictions at the tunnel can not be further restricted as this would prevent normal cars from using the tunnel. On the 03 October Engineering Services have been tasked with looking into a possible height restriction along the approach's that would allow a contingency route for emergency vehicles to be preserved. To improve traffic flows on the south (Jamaica Road / Lower Road Roundabout) lines and signs shall be revisited to provide clear direction to drivers approaching the entry point and one of the two entrances shall be stopped up.

Phase 4 – Design and Delivery of Capital Refurbishment

A tunnel capital refurbishment scheme is committed and currently in the feasibility stage. The concept design is programmed to start in Dec 2018/Jan 2019, with the works estimated to start in, 2020/21.



Appendix 1- Previous Restrictions



EXISTING VMS

NEW TUNNEL RESTRICTIONS SIGN MOUNTED ON TWO NEW POSTS (ø89mm, LENGTH 4.25m)

NEW ADVANCE DIRECTIONAL SIGN MOUNTED ON TWO NEW POSTS (ø89mm, LENGTH 4.35m)

NEW WIDTH RESTRICTION ROUNDEL TO DIAG 629A MOUNTED ON ALARM LIGHT (WIGWAG) POST WITH A TYPE T3 TERMINATION

NEW TUNNEL RESTRICTIONS SIGN MOUNTED ON TWO NEW POSTS (ø89mm, LENGTH 4.25m)

NEW RED ROUTE CLEARWAY 'END' SIGN MOUNTED BACK OF EXISTING RED ROUTE CLEAR WAY 'NO STOPPING' SIGN ON EXISTING LAMP COLUMN FACING TOWARDS TRAFFIC FROM TUNNEL

NEW 'NO OVERTAKING' SIGNS TO DIAG 632 MOUNTED BACK TO BACK ON NEW POST(ø76mm, LENGTH 3.9m) AND SUB-PLATES TO DIAG 645 FACING TOWARDS TRAFFIC FROM TUNNEL AND DIAG 570 FACING TOWARDS TRAFFIC TO TUNNEL WITH A TYPE T3 TERMINATION

EXISTING VMS

NEW 'NO OVERTAKING' SIGNS TO DIAG 632 MOUNTED BACK TO BACK ON EXISTING LAMP COLUMN AND SUB-PLATES TO DIAG 645 FACING TOWARDS TRAFFIC FROM TUNNEL AND DIAG 570 FACING TOWARDS TRAFFIC TO TUNNEL WITH A TYPE T5 TERMINATION

NEW 50mm I.D. ORANGE MDPE DUCT MARKED "STREET LIGHTING" INSTALLED WITH 3 CORE 2.5mm² XLPE/PVC/SWA/PVC ELECTRICAL CABLE

NEW 50mm I.D. ORANGE MDPE DUCT MARKED "STREET LIGHTING" INSTALLED WITH 3 CORE 2.5mm² XLPE/PVC/SWA/PVC ELECTRICAL CABLE

NEW RED ROUTE CLEARWAY 'END' SIGN MOUNTED ON A NEW POST (ø76mm, LENGTH 4.15m) FACING TOWARDS TRAFFIC FROM TUNNEL

NEW RED ROUTE CLEARWAY 'NO STOPPING' SIGN INSTALLED ON THE SAME NEW POST FACING TOWARDS TRAFFIC TO TUNNEL

EXISTING VMS

NEW TUNNEL RESTRICTION SIGN MOUNTED ON VMS POST BELOW VMS SIGN

NEW ADVANCE DIRECTIONAL SIGN MOUNTED ON TWO NEW POSTS (ø89mm, LENGTH 4.8m)

NEW TUNNEL RESTRICTIONS SIGN MOUNTED ON TWO NEW POSTS (ø89mm, LENGTH 4.25m)

EXISTING VMS

SIGN LOCATION SCHEDULE

LOCATION / SIGN NO.	TSRGD NO	COORDINATES		NOTES
		NORTHING	EASTING	
SIGN 1	–	534976	179585	
SIGN 2	–	534996	179586	ADS
SIGN 3	629A	535106	179600	
SIGN 4	–	535106	179636	
SIGN 5	–	535135	179605	
SIGN 6	632 570	535150	179614	
SIGN 7	632 645	535150	179614	
SIGN 8	632 570	535154	179609	
SIGN 9	632 645	535154	179609	
SIGN 10 SIGN 11	–	535147	179599	
SIGN 12	–	535108	179594	
SIGN 13	–	535161	179428	
SIGN 14	–	535111	179485	ADS

0 5 10 20 30 40 50m
1 : 500

NOTE:
1. THE LOCATION OF SIGNS ARE APPROXIMATE FROM SITE MEASUREMENT AND COORDINATES ARE BASED ON OS MAP ONLY.

AS-BUILT

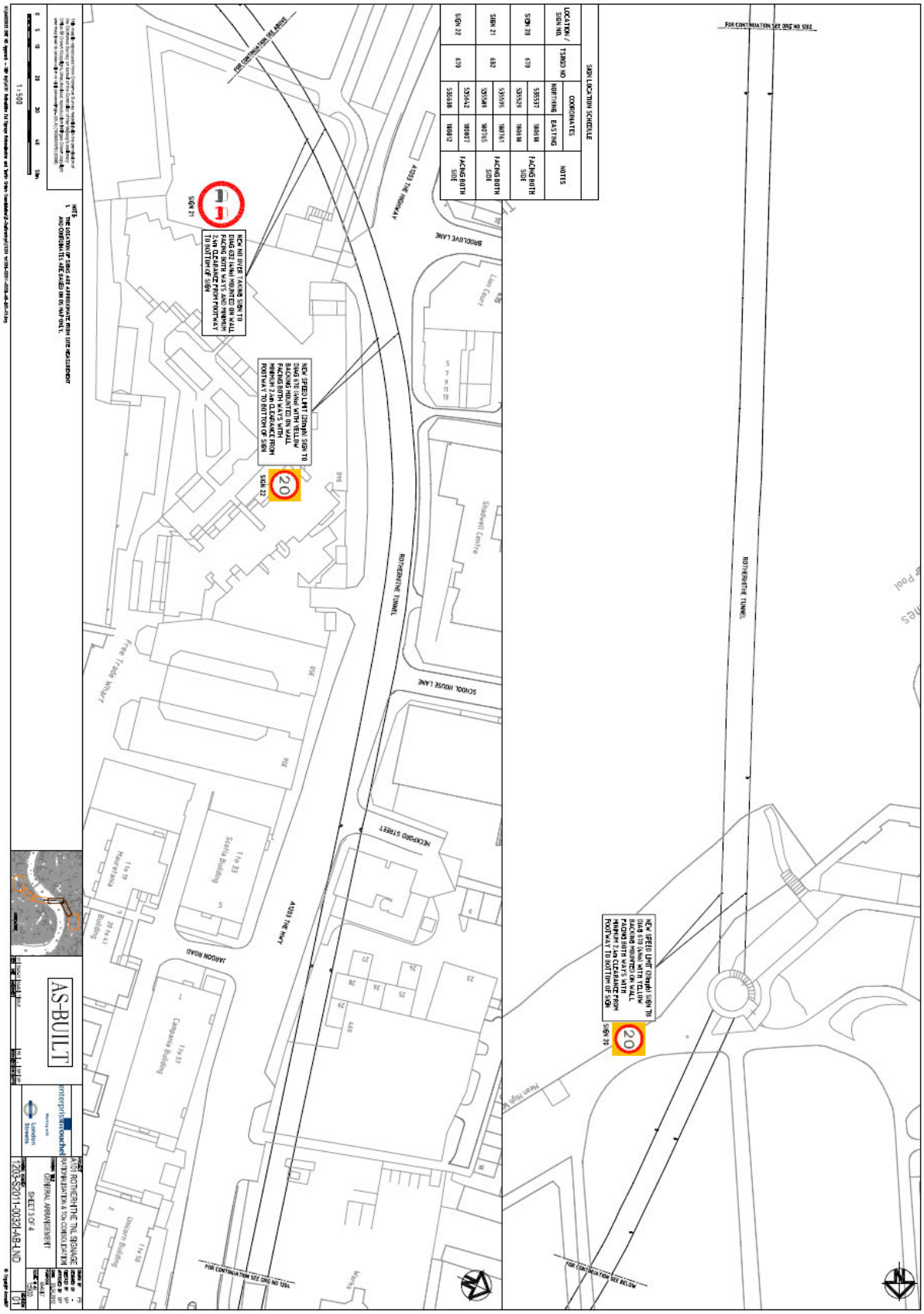
REV	DATE	AMENDMENT	DRWN	DSGD	CHKD	APPD
01	23.04.12	AS-BUILT ISSUE	PB	–	MP	MP

enterprisemouchel
Working with
London Streets

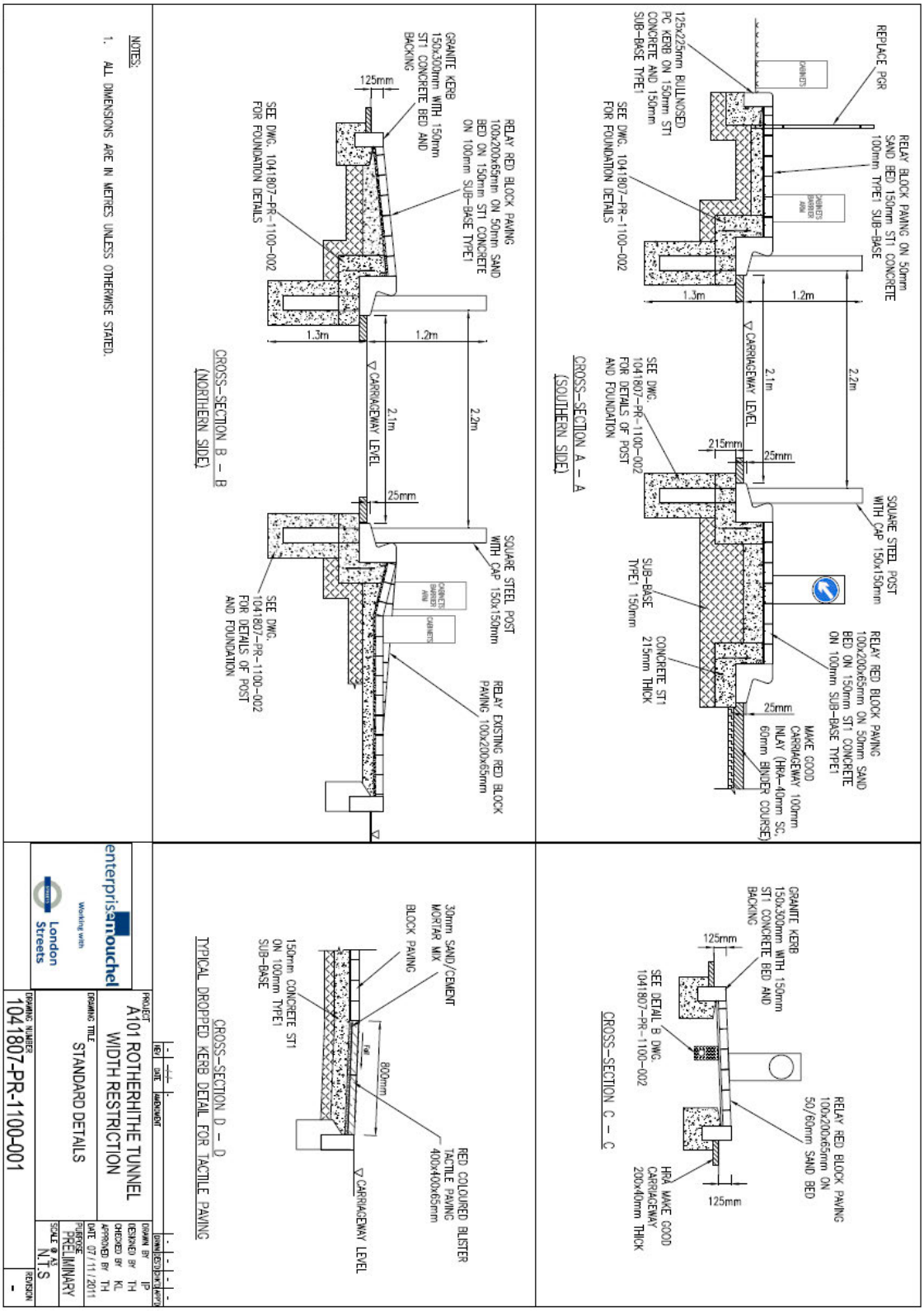
PROJECT
A101 ROTHERHITHE TNL SIGNAGE RATIONALISATION & TOs CONSOLIDATION
DRAWING TITLE
GENERAL ARRANGEMENT
SHEET 1 OF 4
DRAWN BY PB
DESIGNED BY -
CHECKED BY MP
APPROVED BY MP
DATE 23.04.2012
PURPOSE AS-BUILT
SCALE @ A1 1:500
DRAWING NUMBER 1201-S2011-0032I-AB-LND
REVISION 01

K:\UA002833 BNT NB Approach – OHV Mgt\A101 Rotherhithe Tnl Signage Rationalisation and Traffic Orders Consolidation\E-OurDrawings\C1201 to1201-S2011-0032I-AB-LND-01.dwg

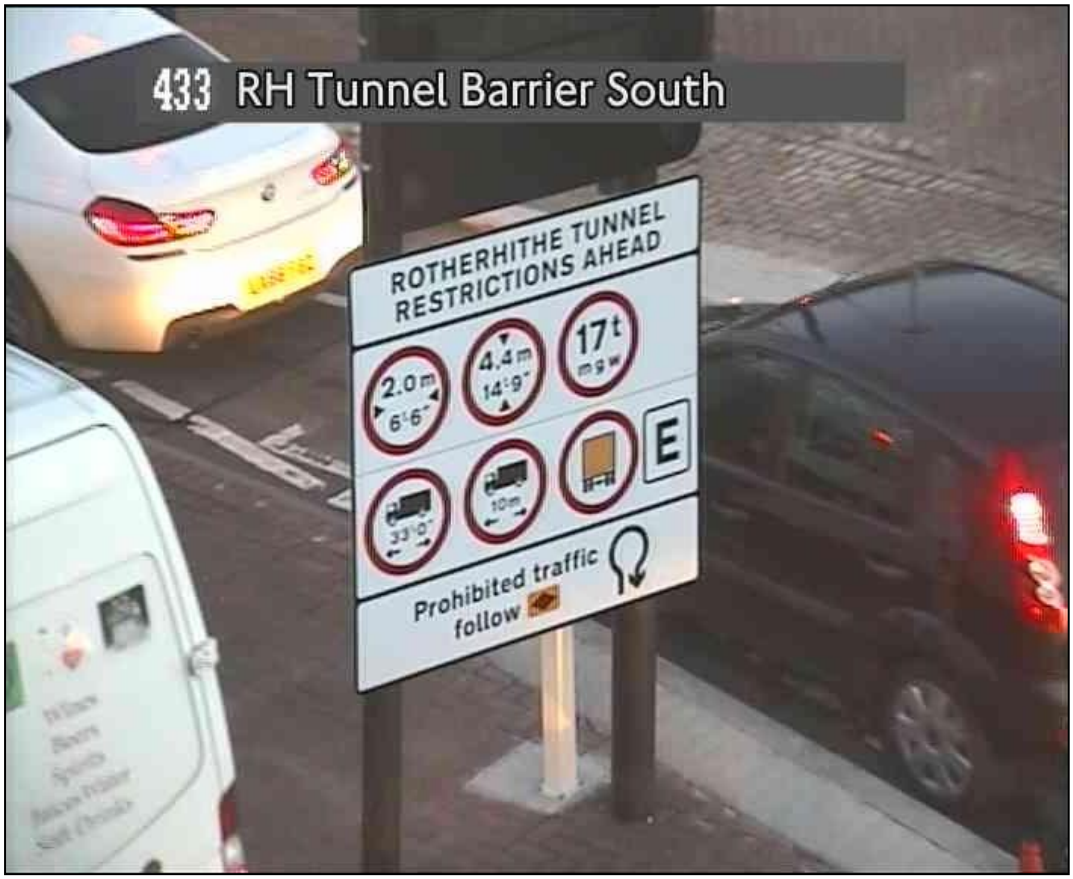
Appendix 2- Previous Restrictions


SIGN LOCATION SCHEDULE
LOCATION / SIGN NO.
TSRGD NO
COORDINATES
NORTHING
EASTING
NOTES
SIGN 20
619
535537
180598
535529
180598
FACING BOTH SIDE
SIGN 21
632
535505
180761
535495
180761
FACING BOTH SIDE
SIGN 22
619
535642
180807
535638
180812
FACING BOTH SIDE
NEW SPEED LIMIT (30mph) SIGN TO DIAGRAM 670.1 WITH YELLOW BACKING MOUNTED ON WALL FACING BOTH WAYS WITH MINIMUM 2.5m CLEARANCE FROM FOOTWAY TO BOTTOM OF SIGN
SIGN 20
NEW SPEED LIMIT (30mph) SIGN TO DIAGRAM 670.1 WITH YELLOW BACKING MOUNTED ON WALL FACING BOTH WAYS WITH MINIMUM 2.5m CLEARANCE FROM FOOTWAY TO BOTTOM OF SIGN
SIGN 20
NEW SPEED LIMIT (30mph) SIGN TO DIAGRAM 670.1 WITH YELLOW BACKING MOUNTED ON WALL FACING BOTH WAYS WITH MINIMUM 2.5m CLEARANCE FROM FOOTWAY TO BOTTOM OF SIGN
SIGN 21
FOR CONTINUATION SEE DRG NO 1202
FOR CONTINUATION SEE DRG NO 1201
ROTHERHITHE TUNNEL
A200 THE MOUNT
BARDOLVE LANE
SCHOOL HOUSE LANE
NEWPORD STREET
JAMAICA ROAD
Shadwell Centre
Stone Building
Maintenance Building
Caretaker Building
Unicorn Building
Moore
AS-BUILT
enterprise smartchoices
London Streets
A200 ROTHERHITHE TNL SIGNAGE
ROTHERHITHE TUNNEL
GENERAL ARRANGEMENT
SHEET 3 OF 4
1201-S2011-0032/-AB-LND
1:500
01

Appendix 3



Appendix 4 – Removed Physical Restrictions (removed 2012)



Appendix 5 – Previous Restrictions

Appendix 6 – Previous Restrictions