

Northern Line Extension

C1A: Construction Traffic, Parking & Pedestrian Impact Assessment

Report

August 2013

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Introduction

- 1.1 This report updates the information contained in Appendix C1 of the Environmental Statement to reflect the selection of Construction Option B.
- 1.2 Appendix C1 assessed the effects of both Construction Option A and B and this revised Appendix removes references to Construction Option A and presents the effects of Option B only.
- 1.3 This document also considers the access arrangements at an area of land north of Kennington Green that may potentially be acquired for the provision of accommodation works for the gin distillery at Montford Place and for additional NLE construction worksite accommodation.
- 1.4 Unless otherwise stated, all changes in this document relate to the selection of Construction Option B.

Changes to Appendix C1

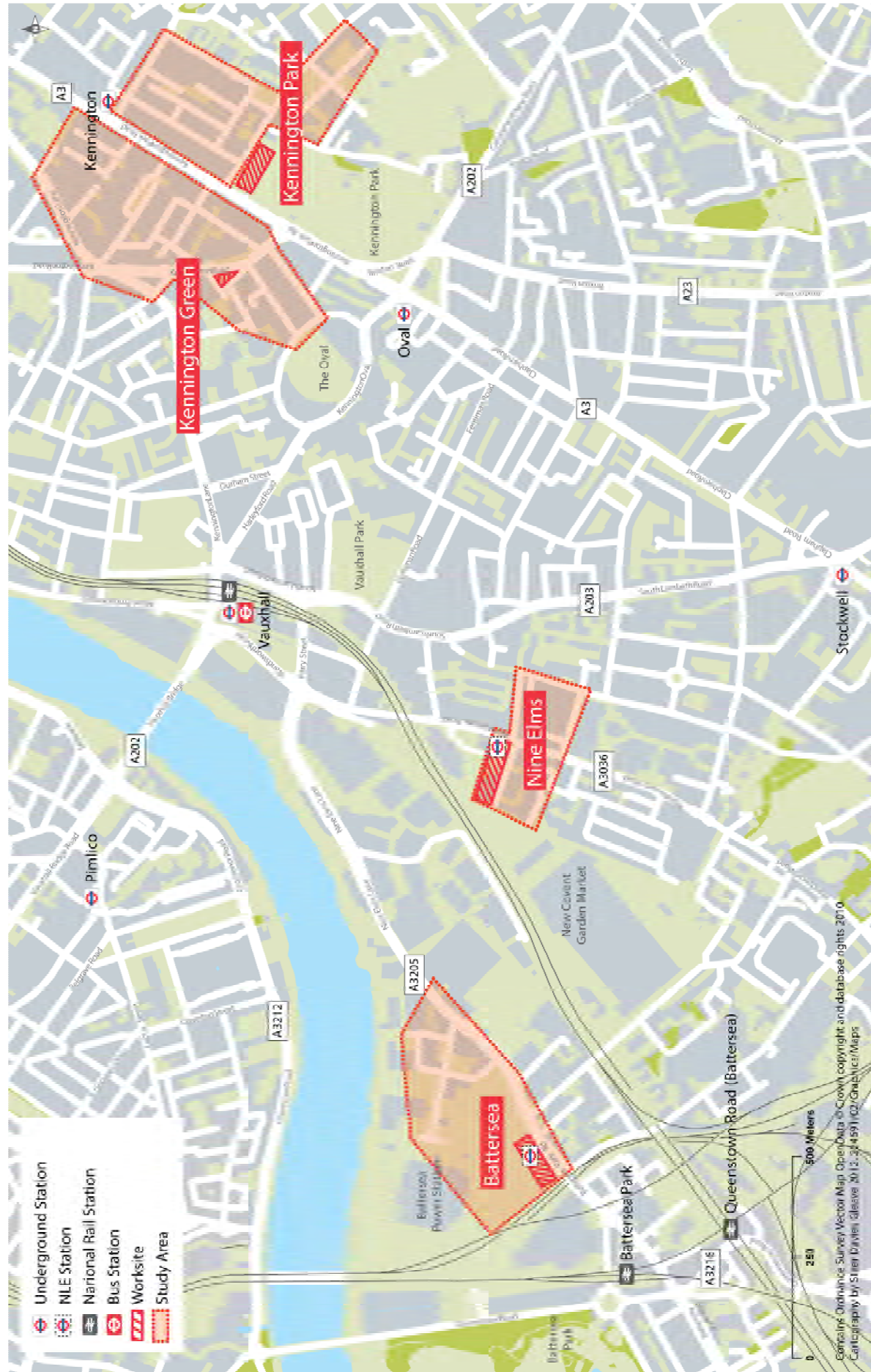
2 Study Area, Worksites and Access

Construction overview

- 1.5 Paragraph 2.3 of Appendix C1 of the ES has been modified as follows.

There will be ~~up to six~~ four worksites, as set out in Figure 2.1.
- 1.6 Figure 2.1 in Appendix C1 of the ES has been replaced with Figure 2.1A on the following page.

FIGURE 2.1A NLE WORKSITES



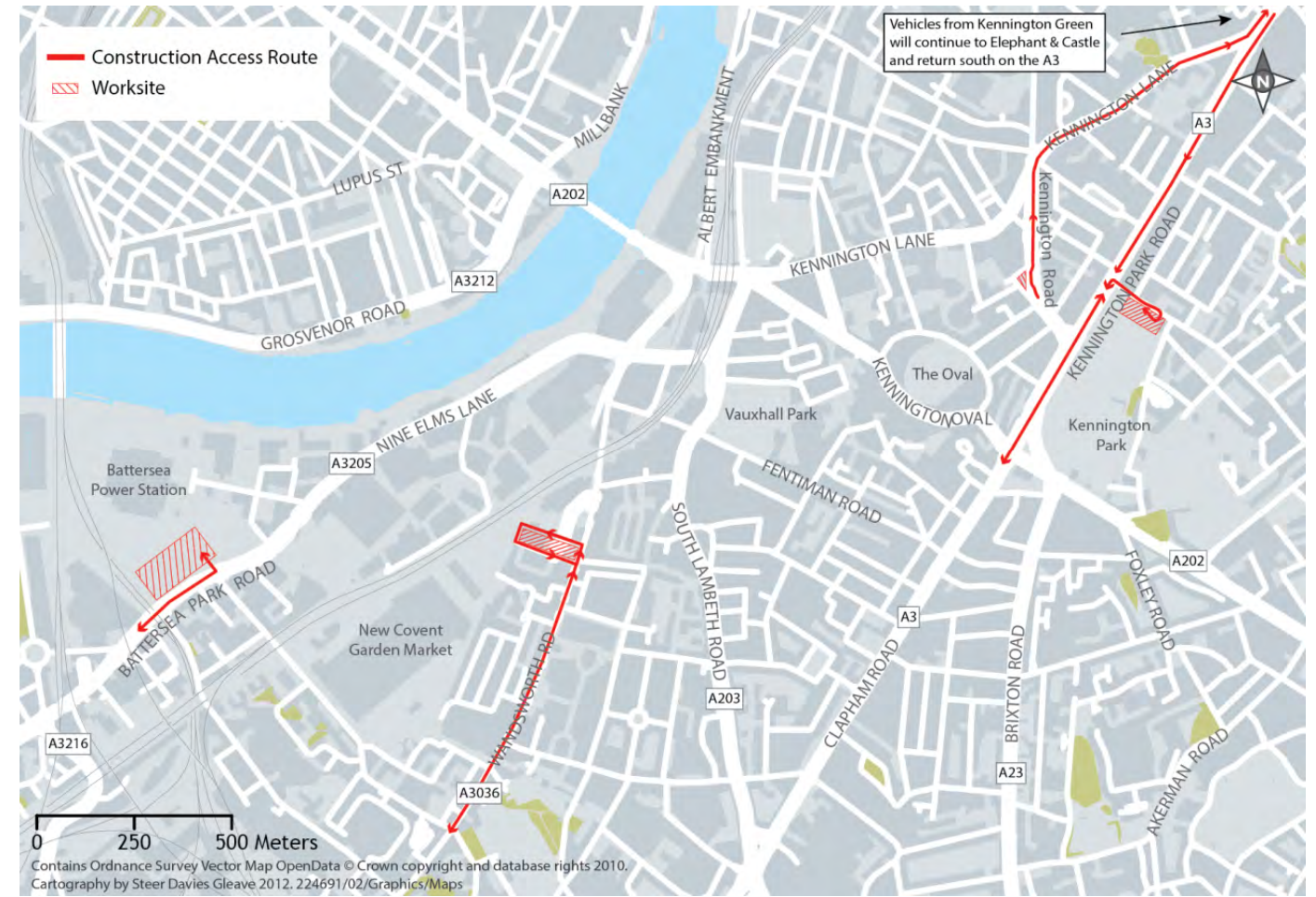
1.8 Table 2.1 in Appendix C1 of the ES has been replaced with Table 2.1A below.

TABLE 2.1A NLE WORKSITES

Worksite	Borough	Nearest strategic road corridor	Duration	Purpose
Kennington Green	Lambeth	Kennington Road	3 - 3.5 years	Permanent shaft
Kennington Park	Lambeth	Kennington Park Road	3.5 - 4 years	Permanent shaft
Nine Elms	Lambeth	Wandsworth Road	4 years	Underground station
Battersea	Wandsworth	Battersea Park Road	4 years	Underground station

1.9 Figure 2.2 in Appendix C1 of the ES has been replaced with Figure 2.2A below.

FIGURE 2.2A PROPOSED ACCESS TO WORKSITES



1.10 Paragraphs 2.11 to 2.24, including Figure 2.3, of Appendix C1 of the ES have been removed.

Kennington Green

1.11 The following paragraph has been added after paragraph 2.26 of Appendix C1 of the ES.

TfL is in discussion with a nearby landowner with a view to agreeing the purchase of additional land to be used as part of the construction site area. If this additional land is acquired, it would provide additional area for storage of materials and welfare and accommodation units for construction contractors. It would provide alternative access and operational land for the distillery. The land will also provide space for the distillery's proposed new water tank and associated pump house and a relocated ethanol filling station.

1.12 Paragraph 2.27 of Appendix C1 of the ES has been modified as follows to amend a typographical error.

The worksite will only require the suspension of parking around the Green; ~~and~~ no additional spaces will need to be suspended to facilitate the movement of construction vehicles. This is covered in more detail in Section 5.

Access

1.13 The following paragraphs have been added after paragraph 2.29 of Appendix C1 of the ES.

If the land is acquired and used as accommodation works for the gin distillery at Montford Place and for additional NLE construction worksite accommodation, access to the distillery would be from the north-south section of Montford Place. Vehicle tracking has been performed to show that vehicles of all expected sizes are able to access the distillery site with only a small increase required in the width of the site entrance (shown in Figure 3-14A in Appendix A). NLE construction vehicles will continue to access the NLE worksite from Kennington Road.

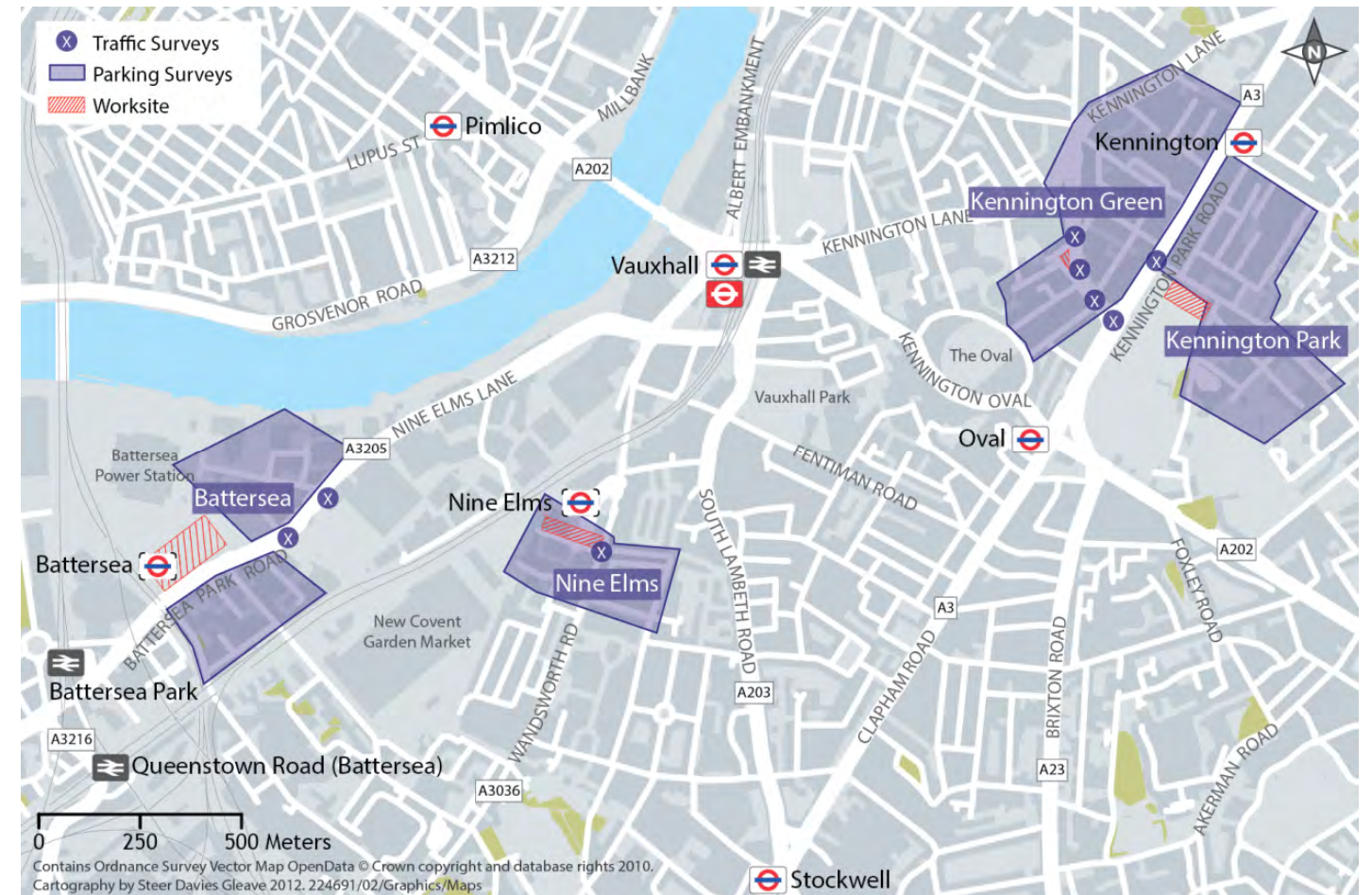
Vehicle tracking has also been performed for the entrance to the potential ancillary worksite and all vehicle types are able to access the site without requiring restrictions on parking or modifications to the highway network (shown in Figure 12A and 13A).

3 Existing Conditions

Existing Traffic Conditions and Surveys

1.14 Figure 3.1 in Appendix C1 of the ES has been replaced with Figure 3.1A below.

FIGURE 3.1A JUNCTION TRAFFIC COUNTS AND PARKING SURVEY AREAS



Source: TfL

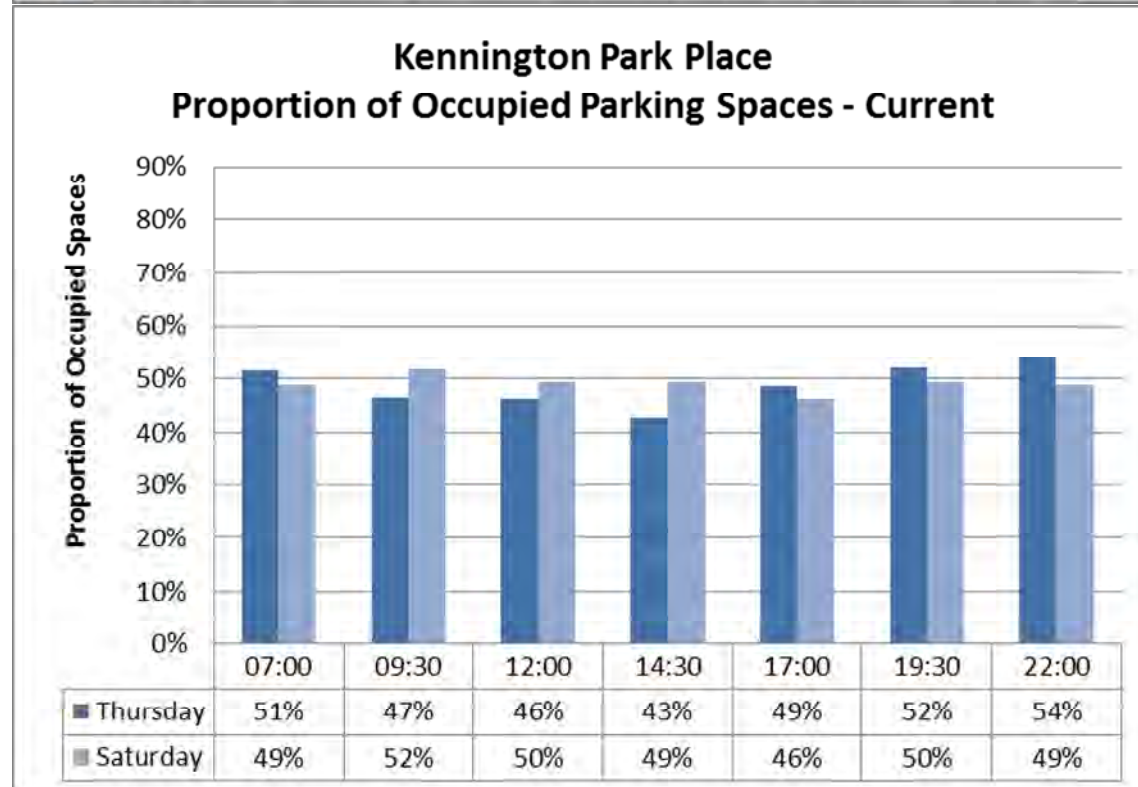
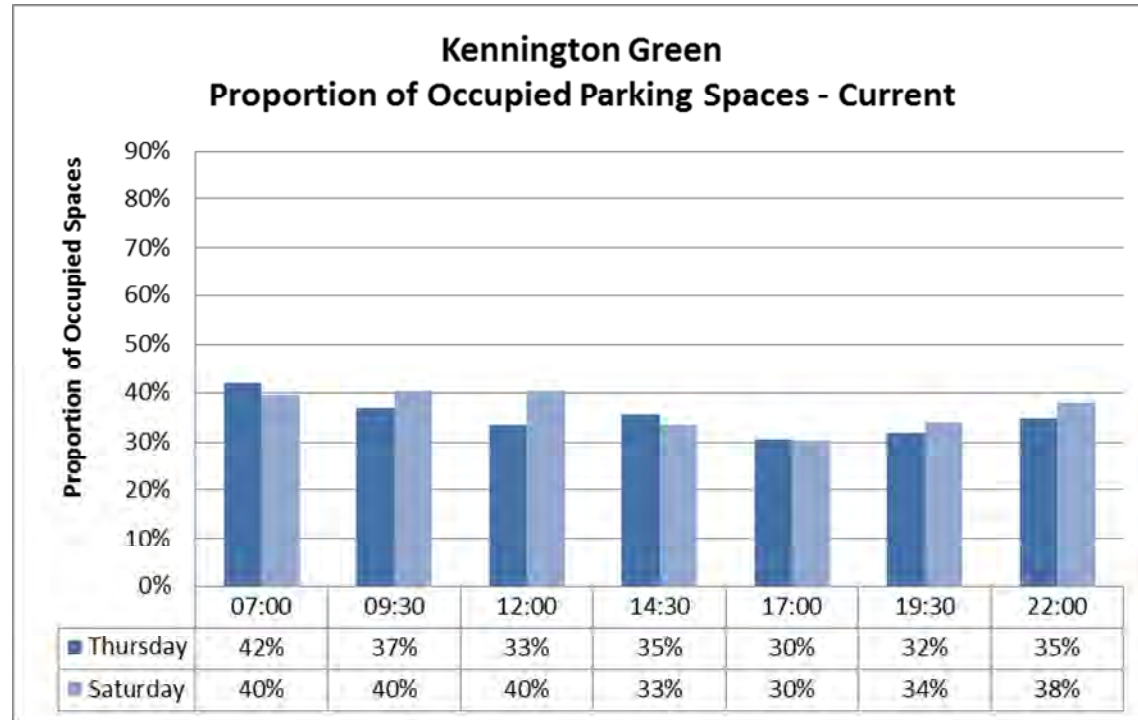
Existing Parking Conditions and Surveys

1.15 Paragraph 3.17 of Appendix C1 of the ES has been modified as follows.

Construction of the ~~temporary and~~ permanent shafts and stations will require some parking spaces to be temporarily suspended for the duration of the works. To understand the impact of this proposed change, the existing level of parking demand was surveyed using parking beat surveys on Thursday 13 September and Saturday 15 September 2012. During these surveys the number of vehicles parked on each street within the survey areas was recorded together with the type of space being used.

1.16 Figure 3.3 in Appendix C1 of the ES has been replaced with Figure 3.3A below.

FIGURE 3.3A EXISTING PARKING DEMAND-KENNINGTON AREA SITES



Pedestrian Conditions

Pedestrian Environmental Review System (PERS)

1.17 Paragraph 3.25 of Appendix C1 of the ES has been modified as follows.

The results of this audit show that the pedestrian environments around the worksites are generally good but with ~~four~~ six (15% of the total) very poor links that scored red.

Summary of PERS findings

Links

1.18 Paragraph 3.26 of Appendix C1 of the ES has been replaced as follows.

One red link was part of the 25 links assessed near the Kennington Green, Kennington Park and Nine Elms sites. The link is near the Kennington Green site, on the north side of Kennington Road, across from Kennington Green. It scored red due to its narrow width which was further reduced by vehicles parked in front of the adjacent buildings with their bumpers protruding, wheelie bins stored on the footway and vegetation growing into the footway.

1.19 Figure 3.6 in Appendix C1 of the ES has been replaced with Figure 3.6A below.

FIGURE 3.6A PERS RED LINKS



Source: TfL

1.20 Figure 3.7 (Photo of Pedestrian Environment - Stannary St) in Appendix C1 of the ES has been removed.

Pedestrian surveys

1.21 Paragraph 3.29 of Appendix C1 of the ES has been modified as follows to correct a typographical error.

Pedestrian surveys were undertaken at 19 locations near the proposed worksites. These surveys were undertaken from 13-15 January 2012 and the results are provided in Appendix C2.5.

1.22 The following paragraphs and table have been added following paragraph 3.30 of Appendix C1 of the ES. This analysis was used to inform the ES however the text and the table were omitted in error from Appendix C1.

Accident Analysis

Personal Injury Accident (PIA) data has been provided by the Metropolitan Police for a 36-month period to June 2012.

Table 3.3A shows the junctions or links with greater than 10 PIAs within the last three years.

TABLE 3.3A JUNCTIONS AND LINKS WITH GREATER THAN TEN PIAs IN THREE YEARS

Location	No. of Personal Injury Accidents
Elephant and Castle	23
Kennington Park Road @ Kennington Park Place	12
Clapham High Street @ Gauden Road	11
Elephant and Castle @ Elephant and Castle	11
Clapham high Street @ Aristotle Road	10

Source: TfL

Although there are five junctions with more than 10 PIAs in the last three years, none of these junctions are forecast to have an increase in traffic greater than 10% for longer than four weeks in a twelve month period.

Killed or Seriously Injured (KSI) data was also analysed over the 36-month period. Five fatal accidents were recorded in the OA and surrounding area. Four of those fatalities involved pedestrians while one of those involved a motorcycle/scooter. Most of these casualties were located on the main TLRN routes and junctions.

4 Construction Traffic Assessment

1.23 The following paragraph has been added at the beginning of section 4, before paragraph 4.1.

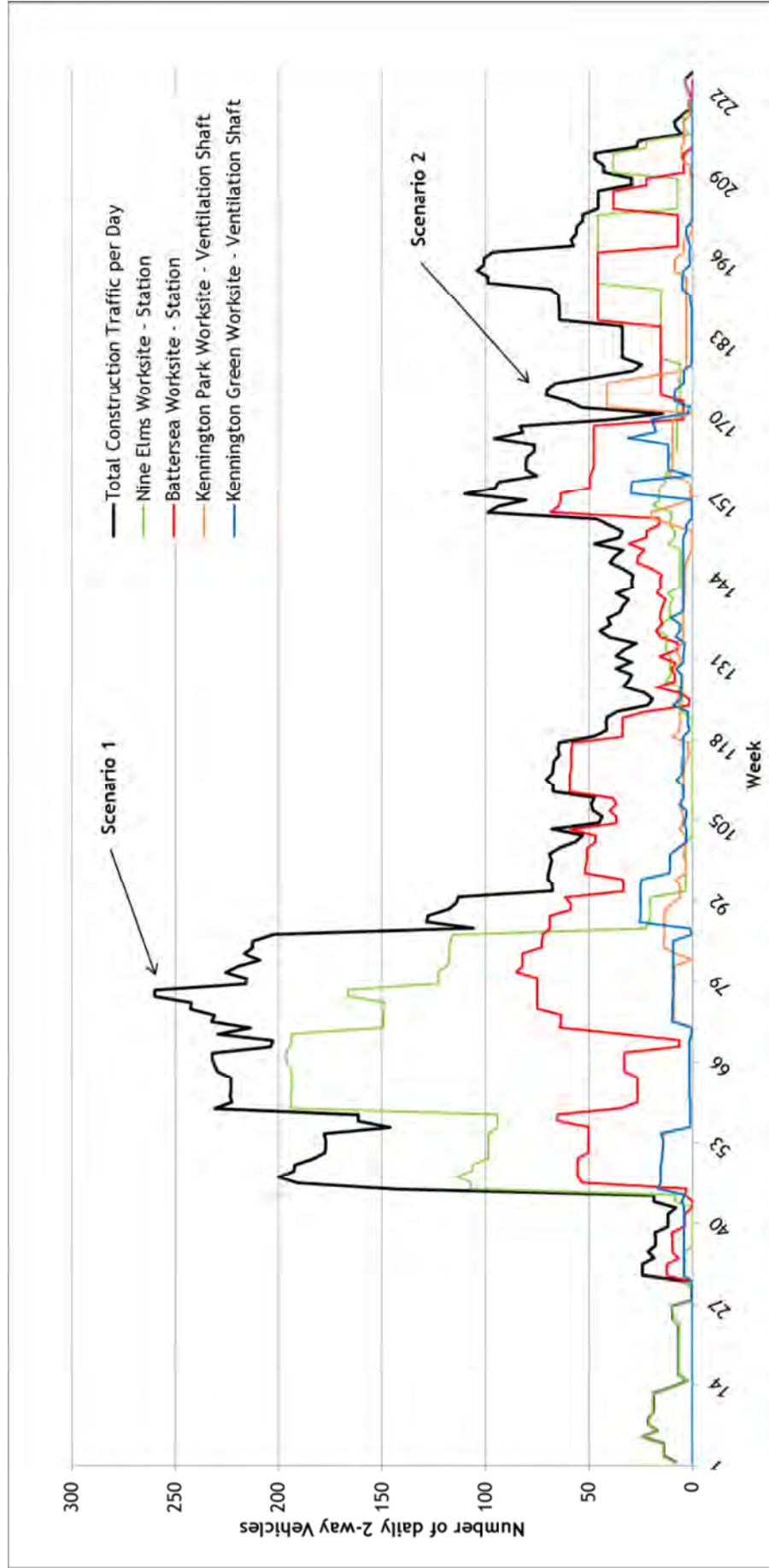
Activity at the four construction worksites will generate varying levels of vehicle activity. The station worksites will generate the majority of trips with the permanent shaft sites generating fewer trips. Figure 4.3A shows the total number of trips for all sites

Construction Options Gallery Tunnel Construction Traffic Assessment

1.24 Paragraphs 4.1 to 4.7 and Figures 4.1 and 4.2 of Appendix C1 of the ES have been removed.

1.25 Figure 4.3 in Appendix C1 of the ES has been replaced with Figure 4.3A below.

Figure 4.3A Daily Construction Trips All Sites



Source: TfL

- 1.26 Paragraph 4.8 of Appendix C1 of the ES has been removed.
- 1.27 Figure 4.4 in Appendix C1 of the ES has been removed.
- 1.28 Paragraphs 4.9 to 4.12 and Figures 4.5 and 4.6 of Appendix C1 of the ES have been removed.

Impact Assessment Assumptions

- 1.29 Paragraph 4.13 of Appendix C1 of the ES has been removed.
- 1.30 Paragraph 4.14 of Appendix C1 of the ES has been modified as follows.

Analysis of the trip generation data shows that the peak construction activity, in terms of traffic generation, will take place between week 58 and week 87 ~~Q2 2015 – Q1 2016~~. More than 200 two-way vehicle trips would be generated every day. Peak activity during this period is approximately ~~over 250~~ 260 two-way trips per day. This peak will be mainly generated by construction activity at the Battersea and Nine Elms Station worksites, as show in ~~Figure 4.4~~ Figure 4.3A previously.

- 1.31 Paragraph 4.15 of Appendix C1 of the ES has been modified as follows.

A ~~secondary~~ period of peak construction activity, concentrated at the Kennington worksites, is also shown in ~~Figure 4.4~~ Figure 4.3A. While it ~~is~~ smaller in terms of total trip generation and in duration than the previous peak, it generates the largest number of construction vehicle movements in the Kennington area. This peak will occur from ~~Q1 2018~~ week 171 to week 175 with a ~~total of 137~~ approximately 70 two-way trips per day.

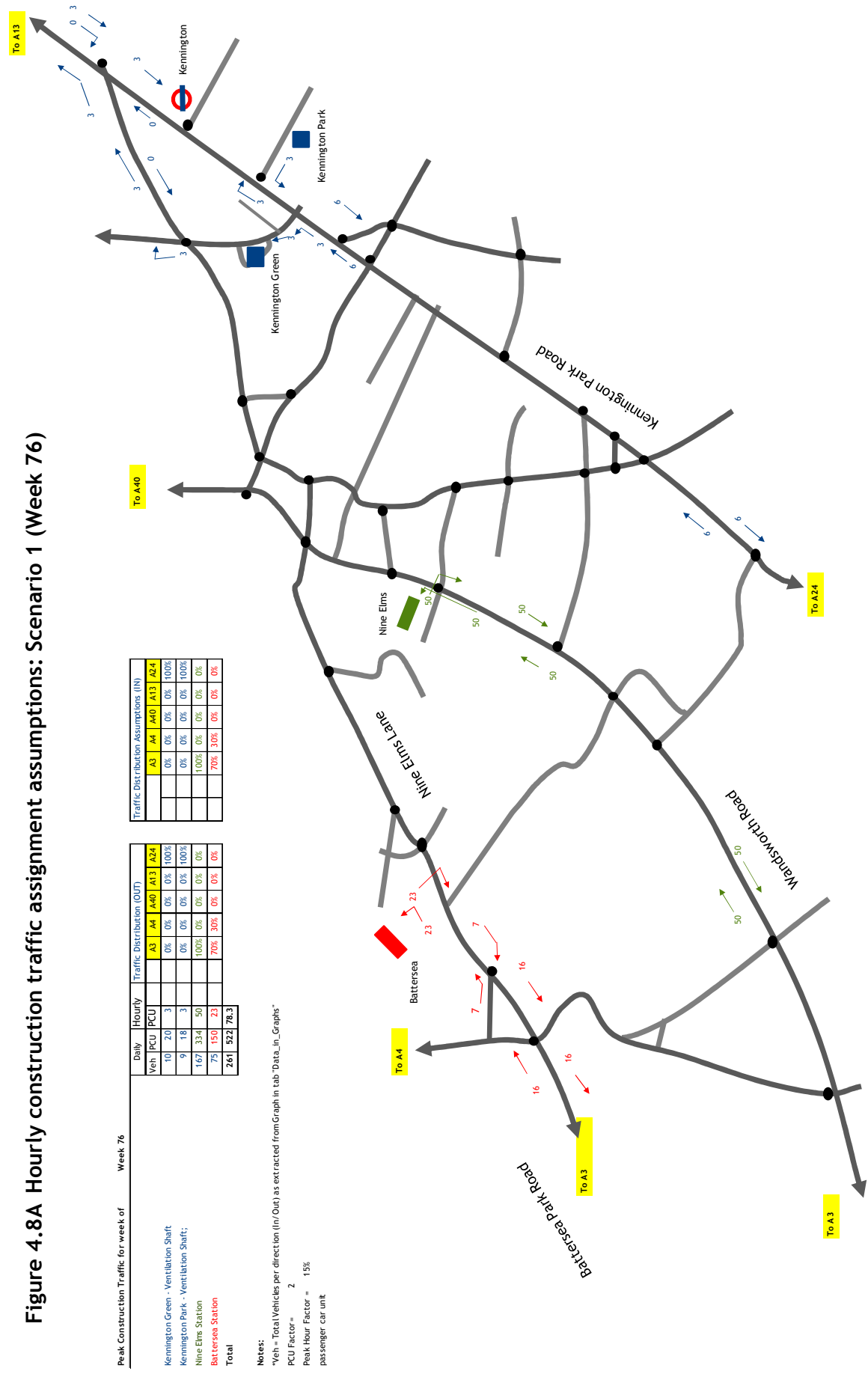
- 1.32 Paragraph 4.16 of Appendix C1 of the ES has been modified as follows.

These peak periods would have different impacts on the local road network around each construction site. Therefore, the following scenarios have been used to assess traffic impact:

- Scenario 1 - ~~2015~~ Week 76 NLE Construction Traffic Peak: majority of trips generated at Nine Elms and Battersea (~~occurs during Q4 2015~~); and
- Scenario 2 - ~~2018~~ Week 173 NLE Construction Traffic Peak: majority of trips generated at Kennington Park and Kennington Green sites ~~distribution of trips from many sites (occurs during Q1 2018)~~.

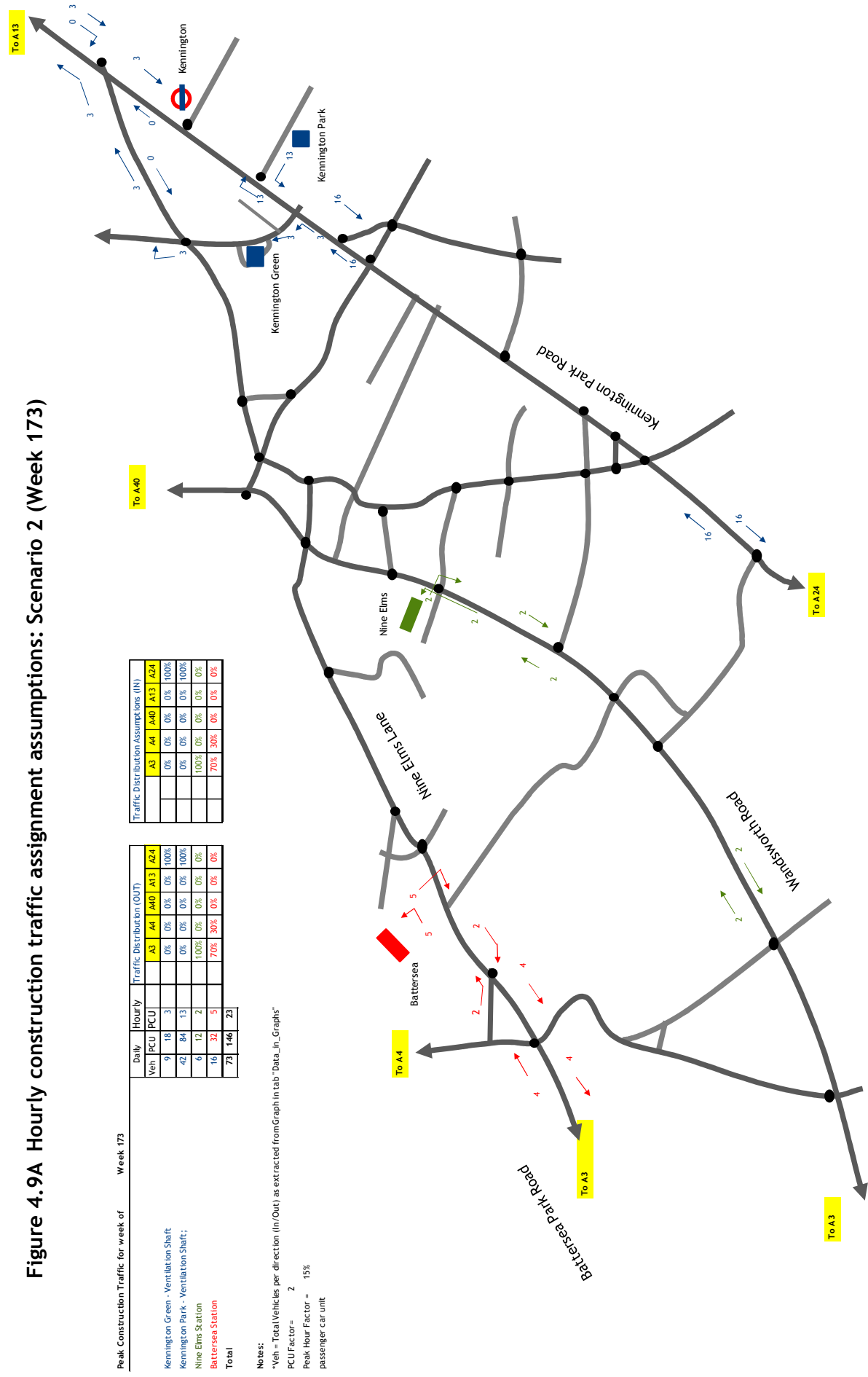
- 1.33 Paragraph 4.19 of Appendix C1 of the ES has been removed.
- 1.34 Figure 4.8 in Appendix C1 of the ES has been replaced with Figure 4.8A below.
- 1.35 Figure 4.9 in Appendix C1 of the ES has been replaced with Figure 4.9A below.

Figure 4.8A Hourly construction traffic assignment assumptions: Scenario 1 (Week 76)



Source: TfL

Figure 4.9A Hourly construction traffic assignment assumptions: Scenario 2 (Week 173)



Source: TfL

1.36 Paragraph 4.15 of Appendix C1 of the ES has been modified as follows.

Area Wide Traffic Assessment

Sub-regional SATURN model

1.37 Paragraph 4.32 of Appendix C1 of the ES has been modified as follows.

The base model for year 2009 has been recalibrated with the NLE study area in mind and as discussed previously, the following scenarios were assessed:

- Scenario 1 - Base 2009 Flows + 2015 Week 76 NLE Construction Peak Flows
- Scenario 2 - Base 2009 Flows + 2018 Week 173 NLE Construction Peak Flows

1.38 Table 4.1 in Appendix C1 of the ES has been replaced with Table 4.1A below.

1.39 Table 4.2 in Appendix C1 of the ES has been replaced with Table 4.2A below.

1.40 Table 4.3 in Appendix C1 of the ES has been replaced with Table 4.3A below.

1.41 Table 4.4 in Appendix C1 of the ES has been replaced with Table 4.4A below.

Local Traffic Assessment

Local Assessment Modelling

1.42 Figure 4.10 in Appendix C1 of the ES has been replaced with Figure 4.10A below.

TABLE 4.1A HOURLY CONSTRUCTION TRAFFIC FLOWS FOR SCENARIO 1 PEAK AND CLOHAM BASE 2009 TRAFFIC FLOWS

Location No.	Main Road Links	Construction Traffic				Hourly Traffic (PCU)				Percentage of Hourly Construction Traffic			
		SW		NE		CloHAM Base 2009 AM		CloHAM Base 2009 PM		AM Peak		PM Peak	
		Out	In	Out	In	Out	In	Out	In	Out	In	Out	In
1	Kennington Park Road (Between Kennington Road and Camberwell New Road)	6	6	6	6	942	1148	734	690	1%	0%	1%	1%
2	Kennington Park Road (Between Camberwell New Road and Stockwell Road)	6	6	6	6	371	753	635	599	2%	1%	1%	1%
3	Kennington Park Road (Between Stockwell Road and Union Road)	6	6	6	6	347	649	861	605	2%	1%	1%	1%
4	Battersea Park Road (Between Kirtling Street and Prince of Wales Drive)	23	23	23	23	472	417	423	430	5%	5%	5%	5%
5	Battersea Park Road (Between Prince of Wales Drive and Queenstown Road)	16	16	16	16	538	571	591	392	3%	3%	3%	4%
6	Battersea Park Road (Between Queenstown Road and Latchmere Road)	16	16	16	16	380	649	533	657	4%	2%	3%	2%
7	Wandsworth Road (Between Nine Elms Lane and Lansdowne Way)	50	50	50	50	238	676	480	482	21%	7%	10%	10%
8	Wandsworth Road (Between Lansdowne Way and Union Road)	50	50	50	50	260	662	421	470	19%	8%	12%	11%
9	Wandsworth Road (Between Union Road and Silverthorne Road)	50	50	50	50	539	585	533	560	9%	9%	9%	9%
10	Vauxhall Gyrotory (Wandsworth Road)	0	0	0	0	2658			2245	0%	0%	0%	0%
11	Vauxhall Gyrotory (Kennington Lane)	0	0	0	0	1652			2317	0%	0%	0%	0%
12	Vauxhall Gyrotory (Lambeth Road)	0	0	0	0	2098			1974	0%	0%	0%	0%
13	Vauxhall Gyrotory (Parry Street)	0	0	0	0	2395			1931	0%	0%	0%	0%

Location No.	Side Road Links	Construction Traffic				Hourly Vehicles				Percentage of Hourly Construction Traffic			
		SW		NE		Surveys 2012 (AM Peak)		Surveys 2012 (PM Peak)		AM Peak		PM Peak	
		Out	In	Out	In	Out	In	Out	In	Out	In	Out	In
1	Battersea Power Station Access	23	23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Pascal Street	50	0	99	10	201	8	51%	0%	25%	0%	0%	
3	Kennington Green (North Arm)	0	0	2	5	18	5	0%	0%	0%	0%	0%	
4	Kennington Green (South Arm)	0	0	50	29	68	12	0%	0%	0%	0%	0%	
5	Kennington Park Place*	3	3	303	109	143	160	1%	2%	2%	2%	2%	

Notes:
 * Flows obtained from TRANSYT Model for Region R363 provided by TfL
 AM Peak CloHAM = 08:00-09:00
 AM Peak Surveys = 08:00-09:00
 PM Peak CloHAM = 17:00-18:00
 PM Peak Surveys = 17:00-18:00

Source: TfL

TABLE 4.2A HOURLY CONSTRUCTION TRAFFIC FLOWS FOR SCENARIO 2 COMPARED WITH CLOHAM BASE 2009 TRAFFIC FLOWS

Location No.	Main Road Links	Hourly Traffic (PCU)															
		Construction Traffic				CloHAM Base 2009 AM				CloHAM Base 2009 PM				Percentage of Hourly Construction Traffic			
		SW	NE	SW	NE	SW	NE	SW	NE	SW	NE	SW	NE	SW	NE		
1	Kennington Park Road (Between Kennington Road and Camberwell New Road)	16	16	942	1148	734	690	2%	1%	2%	2%	2%	2%	2%	2%		
2	Kennington Park Road (Between Camberwell New Road and Stockwell Road)	16	16	371	753	635	599	4%	2%	3%	3%	3%	3%	3%	3%		
3	Kennington Park Road (Between Stockwell Road and Union Road)	16	16	347	649	861	605	5%	2%	2%	2%	2%	2%	2%	2%		
4	Battersea Park Road (Between Kirtling Street and Prince of Wales Drive)	5	5	472	417	423	430	1%	1%	1%	1%	1%	1%	1%	1%		
5	Battersea Park Road (Between Prince of Wales Drive and Queenstown Road)	4	4	538	571	591	392	1%	1%	1%	1%	1%	1%	1%	1%		
6	Battersea Park Road (Between Queenstown Road and Latchmere Road)	4	4	380	649	533	657	1%	1%	1%	1%	1%	1%	1%	1%		
7	Wandsworth Road (Between Nine Elms Lane and Lansdowne Way)	2	2	238	676	480	482	1%	0%	0%	0%	0%	0%	0%	0%		
8	Wandsworth Road (Between Lansdowne Way and Union Road)	2	2	260	662	421	470	1%	0%	0%	0%	0%	0%	0%	0%		
9	Wandsworth Road (Between Union Road and Silverthorne Road)	2	2	539	585	533	560	0%	0%	0%	0%	0%	0%	0%	0%		
10	Vauxhall Gyrotory (Wandsworth Road)	0	0		2658		2245										
11	Vauxhall Gyrotory (Kennington Lane)	0	0		1652		2317										
12	Vauxhall Gyrotory (Lambeth Road)	0	0		2098		1974										
13	Vauxhall Gyrotory (Parry Street)	0	0		2395		1931										

Location No.	Side Road Links	Hourly Vehicles															
		Construction Traffic				Surveys 2012 (AM Peak)				Surveys 2012 (PM Peak)				Percentage of Hourly Construction Traffic			
		Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In		
1	Battersea Power Station Access	5	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
2	Pascal Street	2	0	99	10	201	8	2%	0%	1%	0%	1%	0%	0%			
3	Kennington Green (North Arm)	0	0	2	5	18	5	0%	0%	0%	0%	0%	0%	0%			
4	Kennington Green (South Arm)	0	0	50	29	68	12	0%	0%	0%	0%	0%	0%	0%			
5	Kennington Park Place*	13	13	303	109	143	160	4%	12%	9%	8%	9%	8%	8%			

Notes:
 * Flows obtained from TRANSYT Model for Region R363 provided by TfL
 AM Peak CloHAM = 08:00-09:00
 AM Peak Surveys = 08:00-09:00
 PM Peak CloHAM = 17:00-18:00
 PM Peak Surveys = 17:00-18:00

Source: TfL

TABLE 4.3A COMPARISON OF CLOHAM BASE (2009) AND SCENARIO

Ref.	Main Road Links	Hourly Traffic (PCU)												Diff. B-A				
		Link References				Construction Traffic				CloHAM Base 2009 AM (A)					CloHAM + Constr. - 2015 AM (B)			
		ABLink SW	ABLink NE	SW	NE	SW	NE	SW	NE	SW	NE	SW	NE		SW	NE		
1	Kennington Park Road (Between Kennington Road and Camberwell New Road)	28346-28247	28247-28346	0	6	942	1148	945	1172	3	24							
2	Kennington Park Road (Between Camberwell New Road and Stockwell Road)	28417-28418	28418-28417	6	6	371	753	379	774	7	20							
3	Kennington Park Road (Between Stockwell Road and Union Road)	28403-28116	28116-28403	6	6	347	649	355	675	8	26							
4	Battersea Park Road (Between Kirtling Street and Prince of Wales Drive)	30353-30354	30354-30353	0	0	472	417	450	413	-23	-4							
5	Battersea Park Road (Between Prince of Wales Drive and Queenstown Road)	90924-30124	30124-90924	16	16	538	571	549	556	11	-15							
6	Battersea Park Road (Between Queenstown Road and Latchmere Road)	30382-30116	30116-30382	16	16	380	649	410	653	29	4							
7	Wandsworth Road (Between Nine Elms Lane and Lansdowne Way)	28309-28533	28533-28309	0	0	238	676	242	671	4	-4							
8	Wandsworth Road (Between Lansdowne Way and Union Road)	28121-28310	28310-28121	50	50	260	662	315	706	55	44							
9	Wandsworth Road (Between Union Road and Silverthorne Road)	28315-28316	28316-28315	50	50	539	585	591	614	52	29							
10	Vauxhall Gyrotory (Wandsworth Road)	28130-28509	28509-28130	0	0		2658		2676		18							
11	Vauxhall Gyrotory (Kennington Lane)	28471-28134	28134-28471	0	0		1652		1675		23							
12	Vauxhall Gyrotory (Lambeth Road)	28529-28463	28463-28529	0	0		2098		2116		18							
13	Vauxhall Gyrotory (Parry Street)	28488-28489	28489-28488	0	0		2395		2409		14							

PM PEAK

Ref.	Main Road Links	Hourly Traffic (PCU)												Diff. B-A	
		Construction Traffic				CloHAM Base 2009 PM				CloHAM + Constr. - 2015 PM					
		ABLink SW	ABLink NE	SW	NE	SW	NE	SW	NE	SW	NE	SW	NE		
1	Kennington Park Road (Between Kennington Road and Camberwell New Road)	28346-28247	28247-28346	0	6	734	690	735	697	25	0				
2	Kennington Park Road (Between Camberwell New Road and Stockwell Road)	28417-28418	28418-28417	6	6	635	599	646	607	28	5				
3	Kennington Park Road (Between Stockwell Road and Union Road)	28403-28116	28116-28403	6	6	861	605	871	616	5	3				
4	Battersea Park Road (Between Kirtling Street and Prince of Wales Drive)	30353-30354	30354-30353	0	0	423	430	383	413	12	3				
5	Battersea Park Road (Between Prince of Wales Drive and Queenstown Road)	90924-30124	30124-90924	16	16	591	392	581	397	27	11				
6	Battersea Park Road (Between Queenstown Road and Latchmere Road)	30382-30116	30116-30382	16	16	533	657	521	666	2	24				
7	Wandsworth Road (Between Nine Elms Lane and Lansdowne Way)	28309-28533	28533-28309	0	0	480	482	491	471	-2	-20				
8	Wandsworth Road (Between Lansdowne Way and Union Road)	28121-28310	28310-28121	50	50	421	470	483	504	20	42				
9	Wandsworth Road (Between Union Road and Silverthorne Road)	28315-28316	28316-28315	50	50	533	560	596	595	33	31				
10	Vauxhall Gyrotory (Wandsworth Road)	28130-28509	28509-28130	0	0		2245		2244		-2				
11	Vauxhall Gyrotory (Kennington Lane)	28471-28134	28134-28471	0	0		2317		2301		-16				
12	Vauxhall Gyrotory (Lambeth Road)	28529-28463	28463-28529	0	0		1974		1967		-7				
13	Vauxhall Gyrotory (Parry Street)	28488-28489	28489-28488	0	0		1931		1918		-12				

HGV to PCU Factor = 2.0

Source: TfL

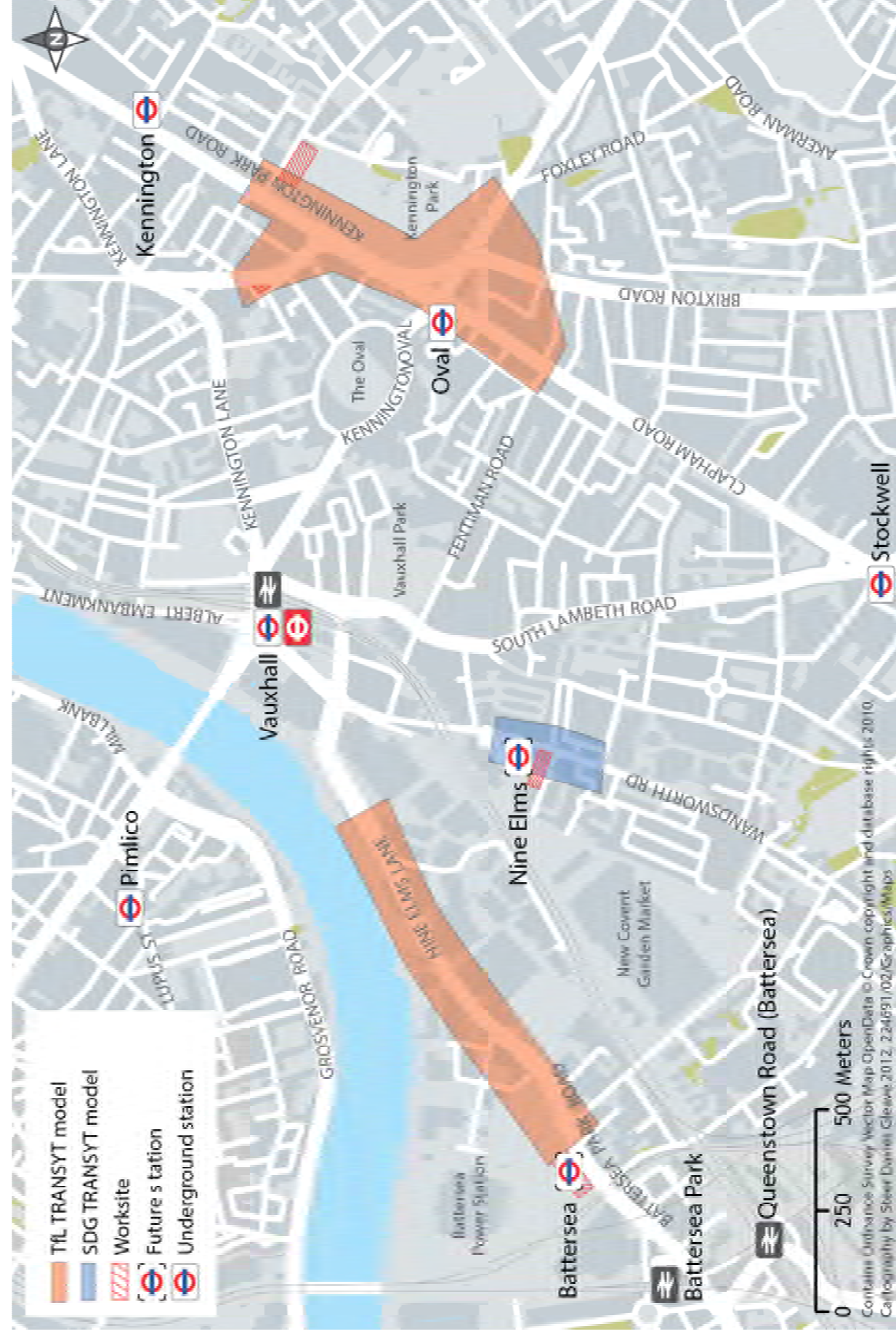
TABLE 4.4A COMPARISON OF CLOHAM BASE (2009) AND SCENARIO 2

AM Peak Flows	Main Road Links	Hourly Traffic (PCU)									
		Construction Traffic		CloHAM Base 2009 AM (A)		CloHAM + Construction 2018 AM (B)		Difference B-A			
		SW	NE	SW	NE	SW	NE	SW	NE		
1	Kennington Park Road (Between Kennington Road and Camberwell New Road)	0	16	942	1148	943	1166	1	18		
2	Kennington Park Road (Between Camberwell New Road and Stockwell Road)	16	16	371	753	391	781	19	27		
3	Kennington Park Road (Between Stockwell Road and Union Road)	16	16	347	649	363	677	17	28		
4	Battersea Park Road (Between Kirtling Street and Prince of Wales Drive)	0	0	472	417	456	408	-17	-9		
5	Battersea Park Road (Between Prince of Wales Drive and Queenstown Road)	4	4	538	571	535	559	-3	-12		
6	Battersea Park Road (Between Queenstown Road and Latchmere Road)	4	4	380	649	394	637	14	-12		
7	Wandsworth Road (Between Nine Elms Lane and Lansdowne Way)	0	0	238	676	243	680	5	5		
8	Wandsworth Road (Between Lansdowne Way and Union Road)	2	2	260	662	269	674	9	12		
9	Wandsworth Road (Between Union Road and Silverthorne Road)	2	2	539	585	548	593	9	8		
10	Vauxhall Gyratory (Wandsworth Road)	0	0	2658		2673		15			
11	Vauxhall Gyratory (Kennington Lane)	0	0	1652		1686		33			
12	Vauxhall Gyratory (Lambeth Road)	0	0	2098		2115		16			
13	Vauxhall Gyratory (Parry Street)	0	0	2395		2401		5			

PM Peak Flows	Main Road Links	Hourly Traffic (PCU)									
		Construction Traffic		CloHAM Base 2009 PM (A)		CloHAM + Construction 2018 PM (B)		Difference B-A			
		SW	NE	SW	NE	SW	NE	SW	NE		
1	Kennington Park Road (Between Kennington Road and Camberwell New Road)	0	16	734	690	729	704	25	0		
2	Kennington Park Road (Between Camberwell New Road and Stockwell Road)	16	16	635	599	652	613	28	5		
3	Kennington Park Road (Between Stockwell Road and Union Road)	16	16	861	605	879	615	5	3		
4	Battersea Park Road (Between Kirtling Street and Prince of Wales Drive)	0	0	423	430	377	403	12	3		
5	Battersea Park Road (Between Prince of Wales Drive and Queenstown Road)	4	4	591	392	568	386	27	11		
6	Battersea Park Road (Between Queenstown Road and Latchmere Road)	4	4	533	657	510	644	2	24		
7	Wandsworth Road (Between Nine Elms Lane and Lansdowne Way)	0	0	480	482	501	493	-2	-20		
8	Wandsworth Road (Between Lansdowne Way and Union Road)	2	2	421	470	445	485	20	42		
9	Wandsworth Road (Between Union Road and Silverthorne Road)	2	2	533	560	556	578	33	31		
10	Vauxhall Gyratory (Wandsworth Road)	0	0	2245		2254		9			
11	Vauxhall Gyratory (Kennington Lane)	0	0	2317		2305		-12			
12	Vauxhall Gyratory (Lambeth Road)	0	0	1974		1969		-5			
13	Vauxhall Gyratory (Parry Street)	0	0	1931		1909		-21			

Source: TfL

FIGURE 4.10A JUNCTIONS ASSESSED IN TRANSYT



TRANSYT Modelling: R294 - Kirtling Street / Nine Elms Lane Junction and Battersea Park Road / Battersea Station Proposed Site Access Junction

1.43 Table 4.5 in Appendix C1 of the ES has been replaced with Table 4.5A below.

TABLE 4.5A BATTERSEA PARK ROAD / BATTERSEA STATION SITE ACCESS JUNCTION TRANSYT RESULTS

Scenario	Degree of Saturation (%)			Mean Delay (secs)			Mean Max Queue (PCU)		
	Base	1	2	Base	1	2	Base	1	2
AM Peak									
Battersea Park Road Northbound	53	47	46	2.6	14.3	14.2	2	15	15
Battersea Park Road Southbound	60	49	49	10.6	4.9	4.9	22	14	14
BPS Site Access	-	13	6	-	48.2	47.2	-	1	0
PM Peak									
Battersea Park Road Northbound	43	43	42	1.8	13.1	13.1	1	12	12
Battersea Park Road Southbound	52	48	48	6.3	7.3	7.3	18	19	19
BPS Site Access	-	12	5	-	43.9	43.1	-	1	0

1.44 Paragraph 4.54 of Appendix C1 of the ES has been modified as follows.

In both time periods, the Degree of Saturation (DoS) remains the same or decreases.

TRANSYT Modelling: R294 - Pascal Street / Wandsworth Road Junction

1.45 Table 4.6 in Appendix C1 of the ES has been replaced with Table 4.6A below.

TABLE 4.6A PASCAL STREET / WANDSWORTH ROAD JUNCTION TRANSYT RESULTS

Scenario	Degree of Saturation (%)			Mean Delay (secs)			Mean Max Queue (PCU)		
	Base	1	2	Base	1	2	Base	1	2
AM Peak									
Wandsworth Road (Southbound)	35	35	35	14.6	14.6	14.6	5	5	5
Wilcox Street	5	5	5	44.3	44.3	44.3	0	0	0
Wandsworth Road (Northbound)	91	94	88	46.0	55.4	43.5	20	23	18
Pascal Street	60	62	32	65.7	66.6	53.7	3	3	1
PM Peak									
Wandsworth Road (Southbound)	62	62	59	22.5	22.5	20.4	10	10	10
Wilcox Street	3	3	4	36.8	36.8	39.4	0	0	0
Wandsworth Road (Northbound)	71	75	64	33.0	35.0	28.6	11	12	10
Pascal Street	76	77	69	62.9	63.7	62.2	6	6	5

TRANSYT Modelling: R363 - Kennington Park Road / Kennington Park Place Junction

1.46 Table 4.7 in Appendix C1 of the ES has been replaced with Table 4.7A below.

TABLE 4.7A KENNINGTON PARK PLACE / KENNINGTON PARK ROAD JUNCTION TRANSYT RESULTS

Scenario	Degree of Saturation (%)			Mean Delay (secs)			Mean Max Queue (PCU)		
	Base	1	2	Base	1	2	Base	1	2
AM Peak									
Kennington Park Road Northbound	66	66	67	17.8	17.9	18.4	13	13	13
Kennington Park Place	80	80	83	58.3	58.3	61.6	9	9	10
Kennington Park Road Southbound	77	77	77	30.7	30.9	30.9	16	16	16
PM Peak									
Kennington Park Road Northbound	90	90	92	48.3	49.0	52.1	17	17	18
Kennington Park Place	66	68	72	60.7	61.7	65.8	4	4	5
Kennington Park Road Southbound	83	83	83	31.7	32.0	32.0	18	18	18

TRANSYT Modelling: R363 – Kennington Road / Stannary Street

- 1.47 Paragraphs 4.61 and 4.62 and Table 4.8 in Appendix C1 of the ES have been removed.
- 1.48 Table 4.9 in Appendix C1 of the ES has been replaced with Table 4.9A below.

TABLE 4.9A KENNINGTON ROAD / KENNINGTON GREEN (SOUTH) JUNCTION TRANSYT RESULTS

Scenario	Degree of Saturation (%)			Mean Delay (secs)			Mean Max Queue (PCU)		
	Base	1	2	Base	1	2	Base	1	2
AM Peak									
Kennington Green (south)	15	15	15	13.9	14.0	14.1	1	1	1
Kennington Road Northbound	41	41	41	1.5	1.5	1.5	0	0	0
Kennington Road Southbound	19	19	19	1.1	1.1	1.1	0	0	0
PM Peak									
Kennington Green (south)	20	20	20	7.2	7.2	7.2	0	0	0
Kennington Road Northbound	28	28	28	1.2	1.2	1.2	0	0	0
Kennington Road Southbound	39	39	39	1.5	1.5	1.5	0	0	0

5 Parking Impact Assessment

Introduction

- 1.49 Table 5.1 in Appendix C1 of the ES has been replaced with Table 5.1A below.

TABLE 5.1A SUMMARY OF PARKING IMPACT

Worksite	Duration (years)	Parking spaces temporarily suspended throughout construction period			Periodic Suspension
		Construction site	10m rigid & Large tipper	Total	Low loader
Kennington Green Phase 1	3 - 3.5	10	0	10	0
Kennington Green Phase 2 (additional)	3 months	2	0	2	0
Kennington Park	3.5 - 4	13	0	13	3
Nine Elms	4	4 (Car) 5 (Motorcycle)	9	13 (Car) 5 (Motorcycle)	0
Battersea	4	0	0	0	0
Total		29	9	38 (Car)	3

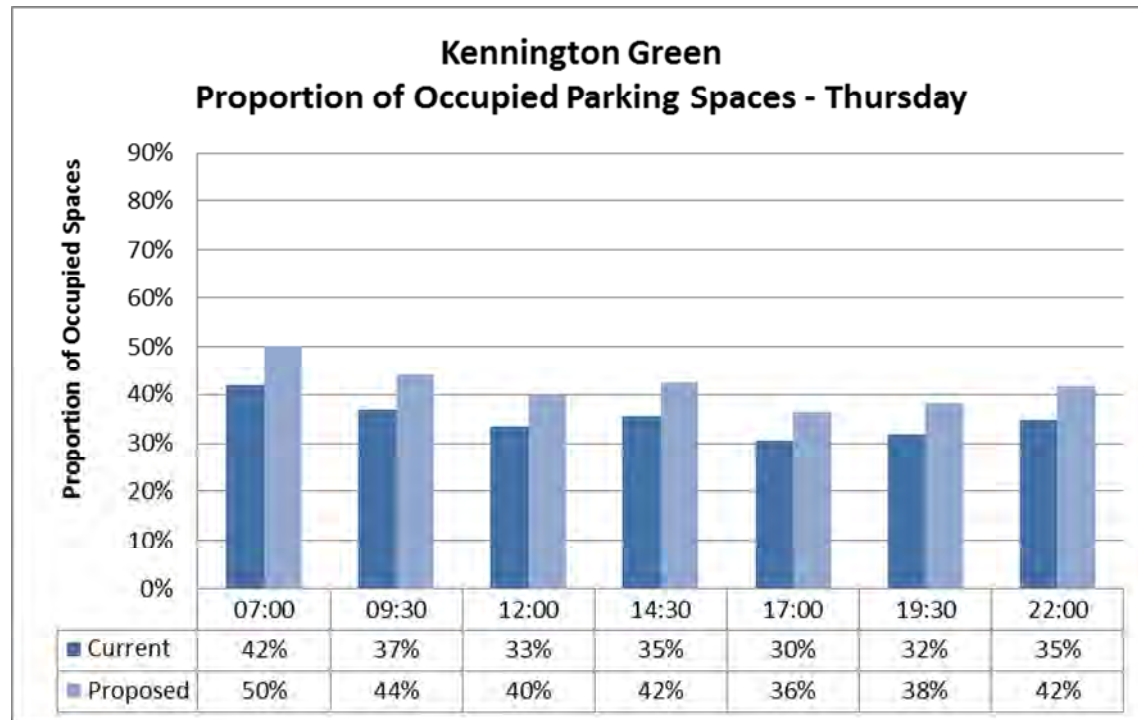
- 1.50 Paragraph 5.4 of Appendix C1 of the ES has been modified as follows.

This analysis shows that ~~five of the six~~ three of the four worksites require the suspension of parking spaces to enable construction to occur. ~~66~~ 38 car spaces will be removed during the construction period for all worksites.

Impact of Reduced Parking Capacity

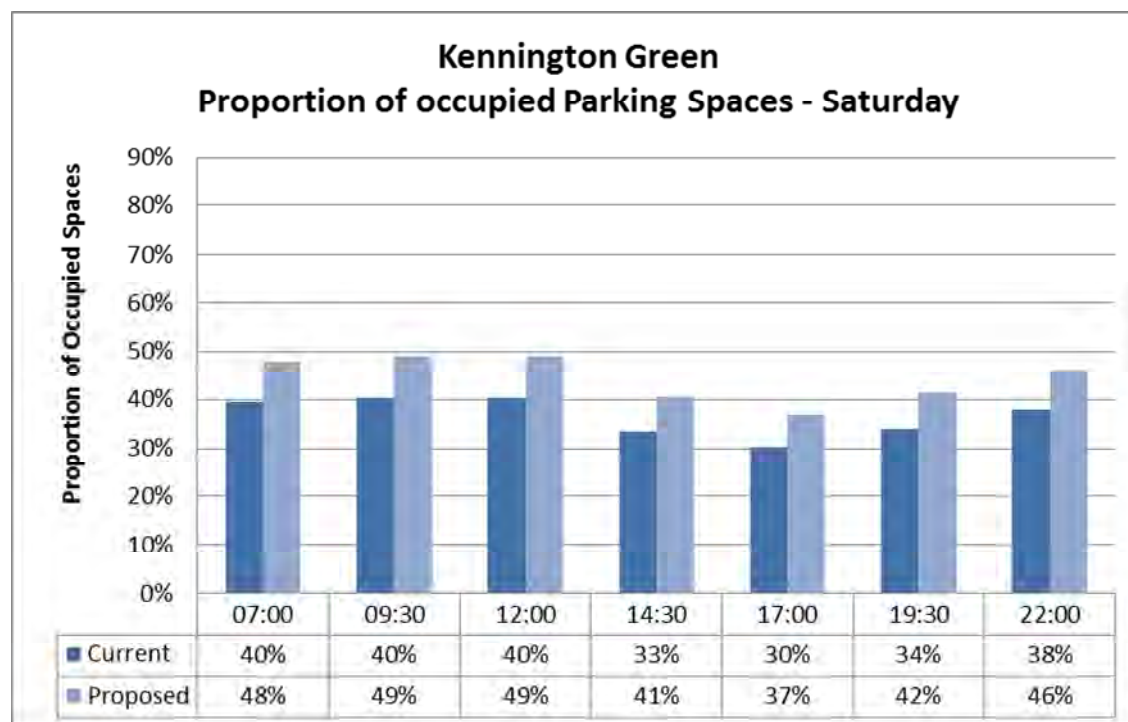
1.51 Figure 5.1 in Appendix C1 of the ES has been replaced with Figure 5.1A below.

FIGURE 5.1A PARKING DEMAND FOLLOWING SPACES SUSPENDED DUE TO CONSTRUCTION - KENNINGTON GREEN



1.52 Figure 5.2 in Appendix C1 of the ES has been replaced with Figure 5.2A below.

FIGURE 5.2A PARKING DEMAND FOLLOWING SPACES SUSPENDED DUE TO CONSTRUCTION - KENNINGTON PARK PLACE



~~Radcot Street~~

1.53 Paragraph 5.11 of Appendix C1 of the ES has been removed.

1.54 Paragraph 5.12 of Appendix C1 of the ES has been modified as follows.

The suspension of parking spaces at Kennington Park Place ~~and Harmsworth Street~~ should be expected to have little effect on the parking supply in the surrounding areas. There is sufficient supply on Kennington Park Place and Harmsworth Street to absorb any displaced demand from the spaces suspended by the worksites.

Paragraph 5.14 of Appendix C1 of the ES has been removed.

6 Pedestrian Impacts & Mitigation Measures

~~Radcot Street~~

1.55 Paragraphs 6.2 to 6.6 of Appendix C1 of the ES have been removed.

1.56 The following paragraph has been modified and relocated after paragraph 6.14 of Appendix C1 of the ES.

Keyworth Primary School is located north of the ~~Harmsworth Street~~ Kennington Park worksite. As students will live in close proximity to the site and could use some of the same roads as the construction vehicles, extra care must be taken in this area. The construction firm contracted to construct the NLE will be required, through the Construction Logistics Plan, to liaise with the school to ensure students, teachers and parents know of the construction and are aware of the alternative pedestrian routes to the school, avoiding the construction routes and sites.

APPENDIX AA

1.57 Figures 1-1 to 1-12, 1.2-13, and 2-1 to 2-10 in Appendix A of Appendix C1 of the ES have been removed.

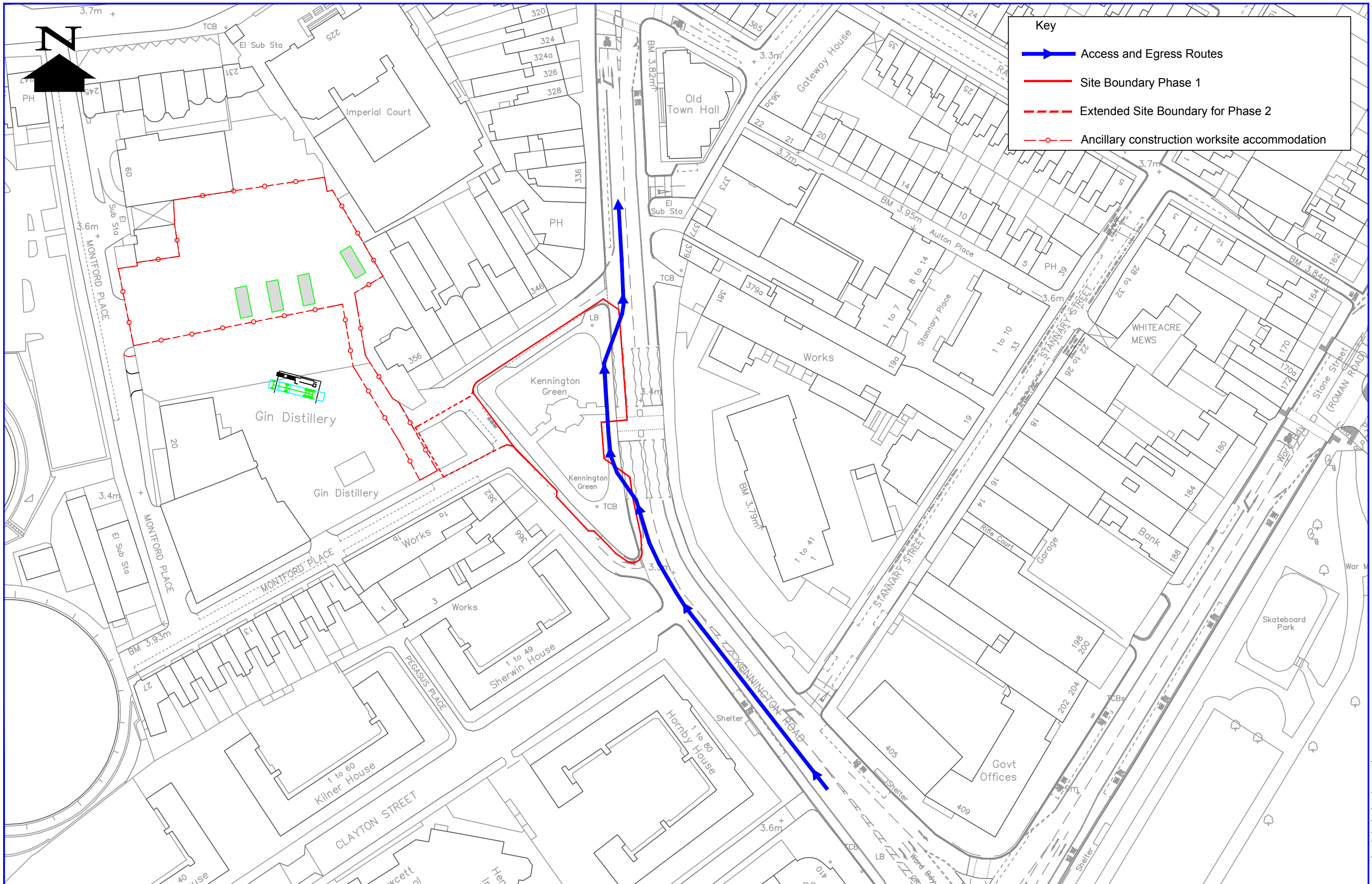
1.58 Figures 3-1 to 3-11 in Appendix A of Appendix C1 of the ES have been replaced by the Figures 3-1A to 3-11A.

1.59 Figure 3-12 to 3-15 have been added to Appendix A of Appendix C1 of the ES following Figure 3-11.





1.60 Figure 5-8 has been replaced with Figure 5-8A.

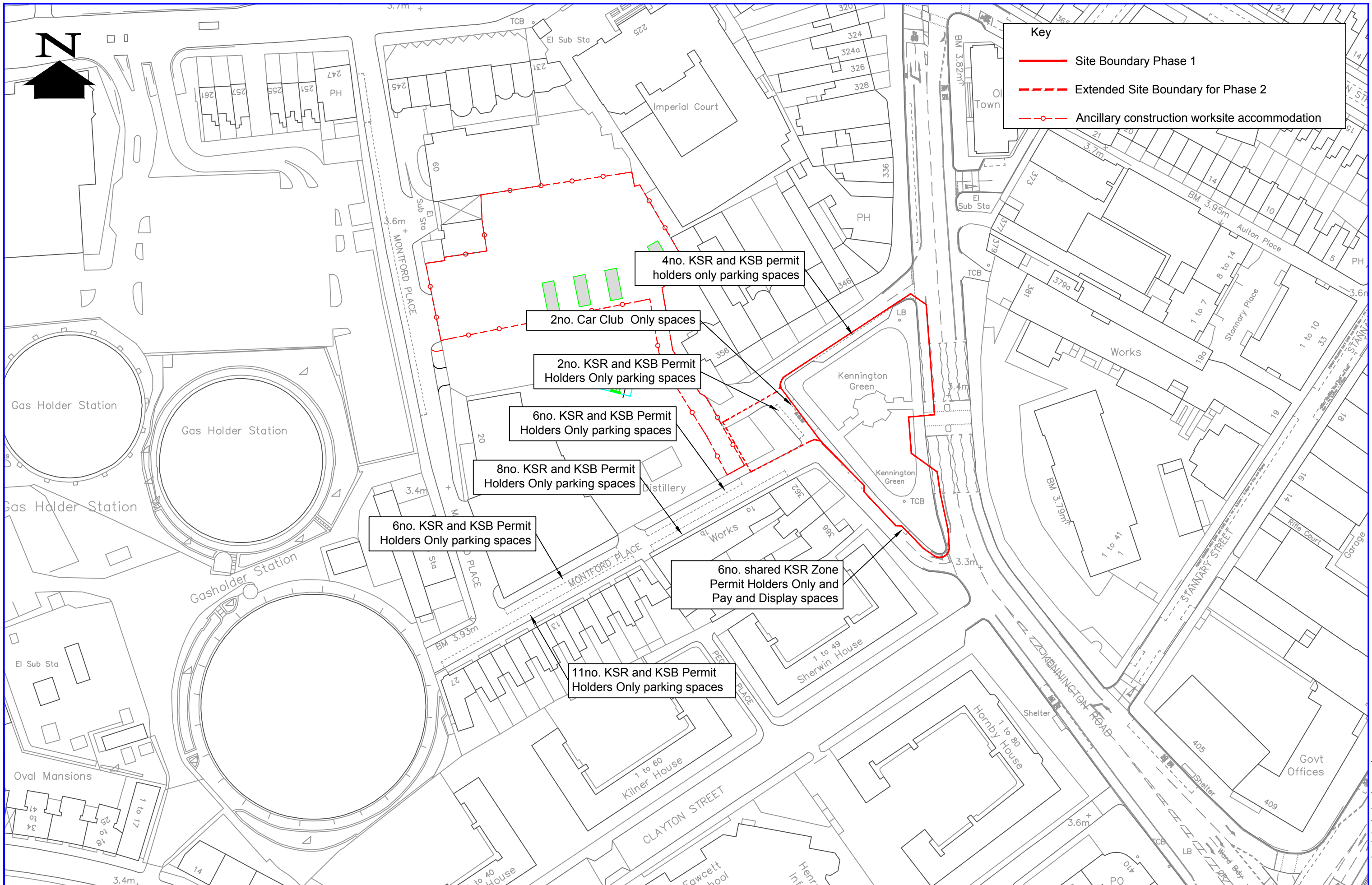
1.61 Figure 5-9 was omitted in error from Appendix A of Appendix C1 of the ES. Figure 5-9A has been included in appendix AA and should follow Figure 5-8 in Appendix C1.

Appendix AA to Appendix C1A



Key

-  Access and Egress Routes
-  Site Boundary Phase 1
-  Extended Site Boundary for Phase 2
-  Ancillary construction worksite accommodation



Key

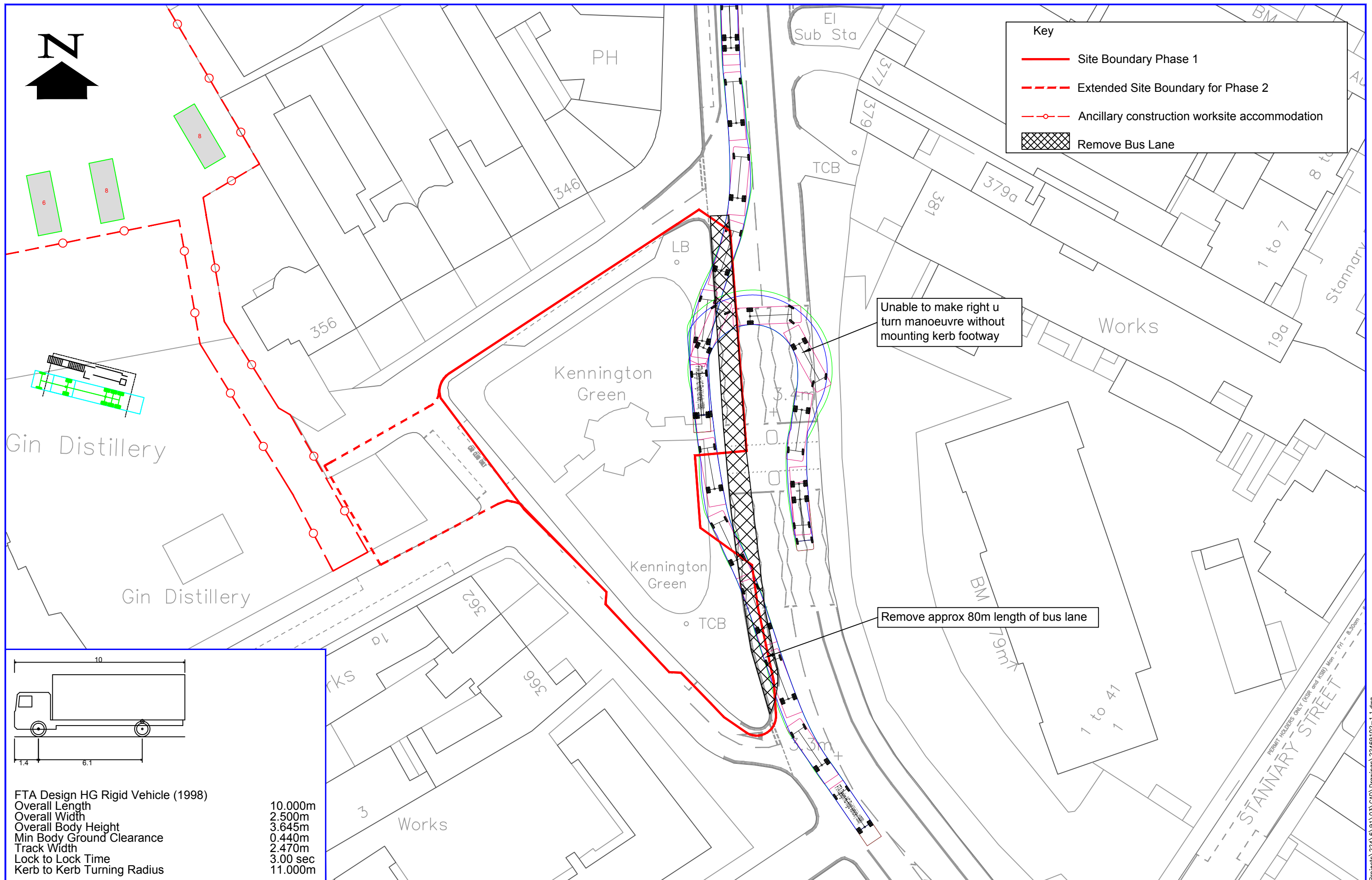
- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- Ancillary construction worksite accommodation

- 4no. KSR and KSB permit holders only parking spaces
- 2no. Car Club Only spaces
- 2no. KSR and KSB Permit Holders Only parking spaces
- 6no. KSR and KSB Permit Holders Only parking spaces
- 8no. KSR and KSB Permit Holders Only parking spaces
- 6no. KSR and KSB Permit Holders Only parking spaces
- 6no. shared KSR Zone Permit Holders Only and Pay and Display spaces
- 11no. KSR and KSB Permit Holders Only parking spaces



Key

- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- Ancillary construction worksite accommodation
- Remove Bus Lane



FTA Design HG Rigid Vehicle (1998)

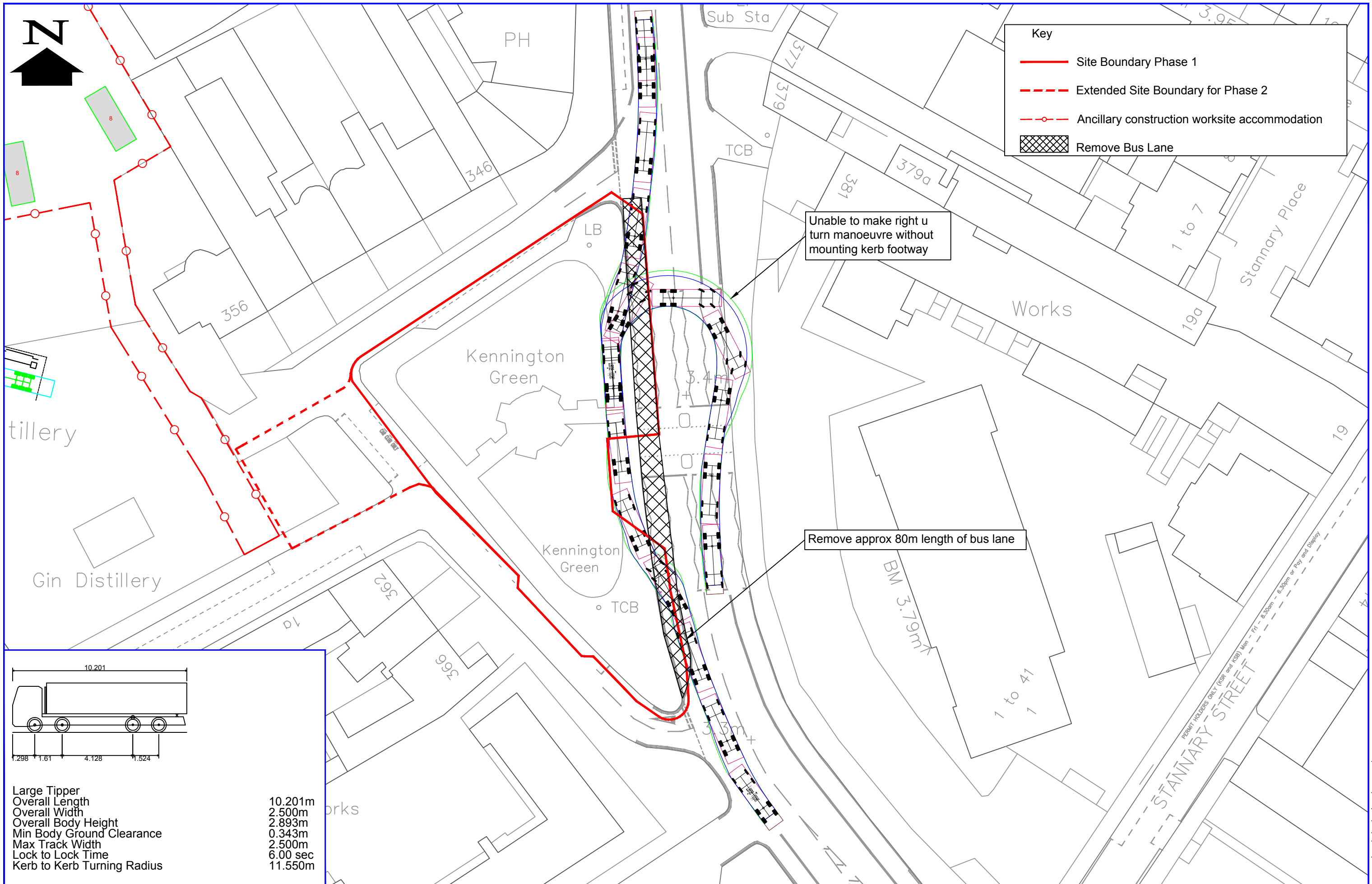
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to Lock Time	3.00 sec
Kerb to Kerb Turning Radius	11.000m

Northern Line Extension
Kennington Green - 10m Rigid Track Analysis



Drawn: CJP	Date: 15/0/13	Scale: 1:500	Figure No: 3-3A
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CAD REFERENCE: P:\Projects\224\6\91\03\CAD\Drawings\22469102-1.1.dwg



Key

- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- Ancillary construction worksite accommodation
- Remove Bus Lane

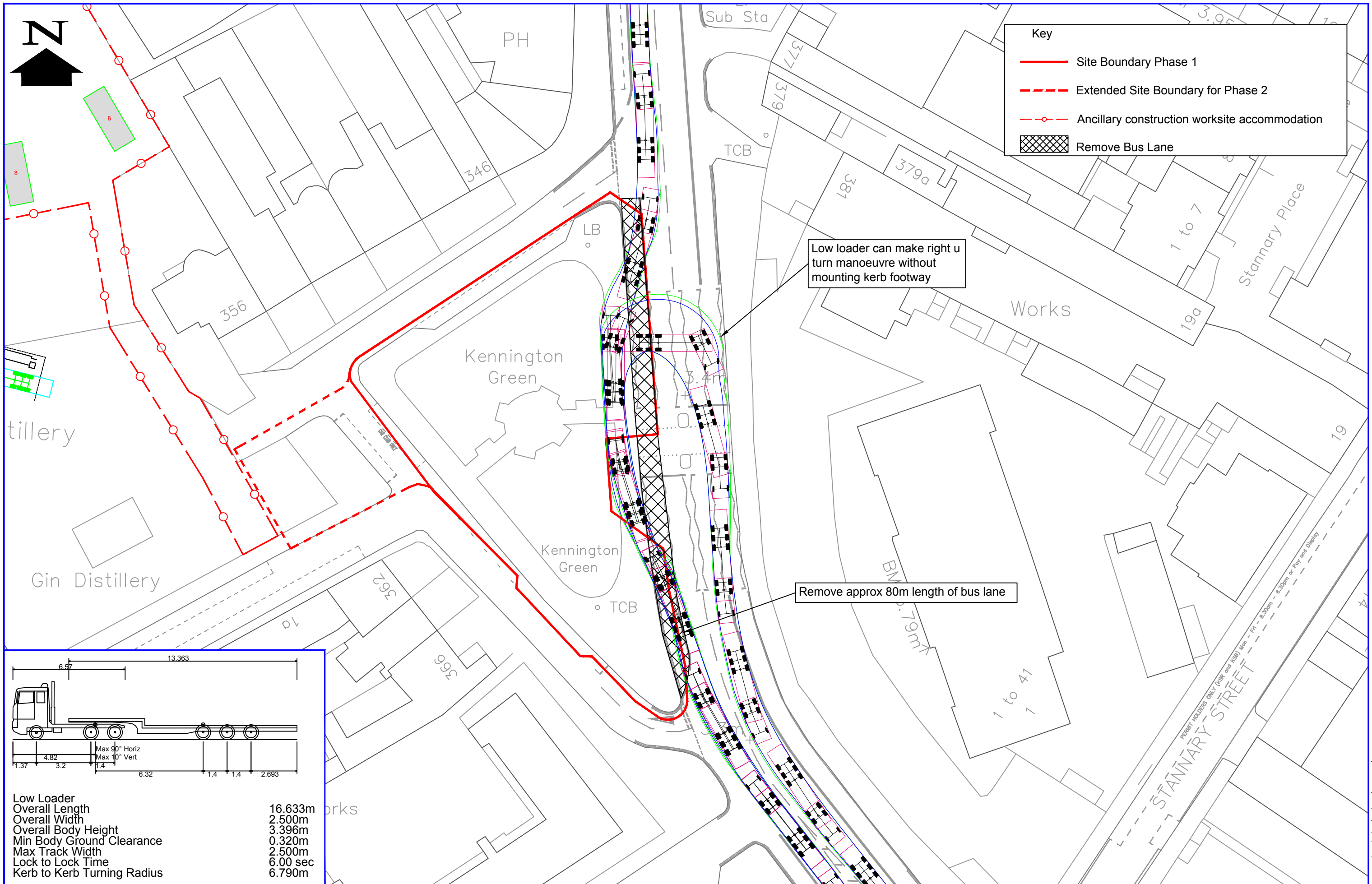
Unable to make right u turn manoeuvre without mounting kerb footway

Remove approx 80m length of bus lane

10.201

1.298 1.61 4.128 1.524

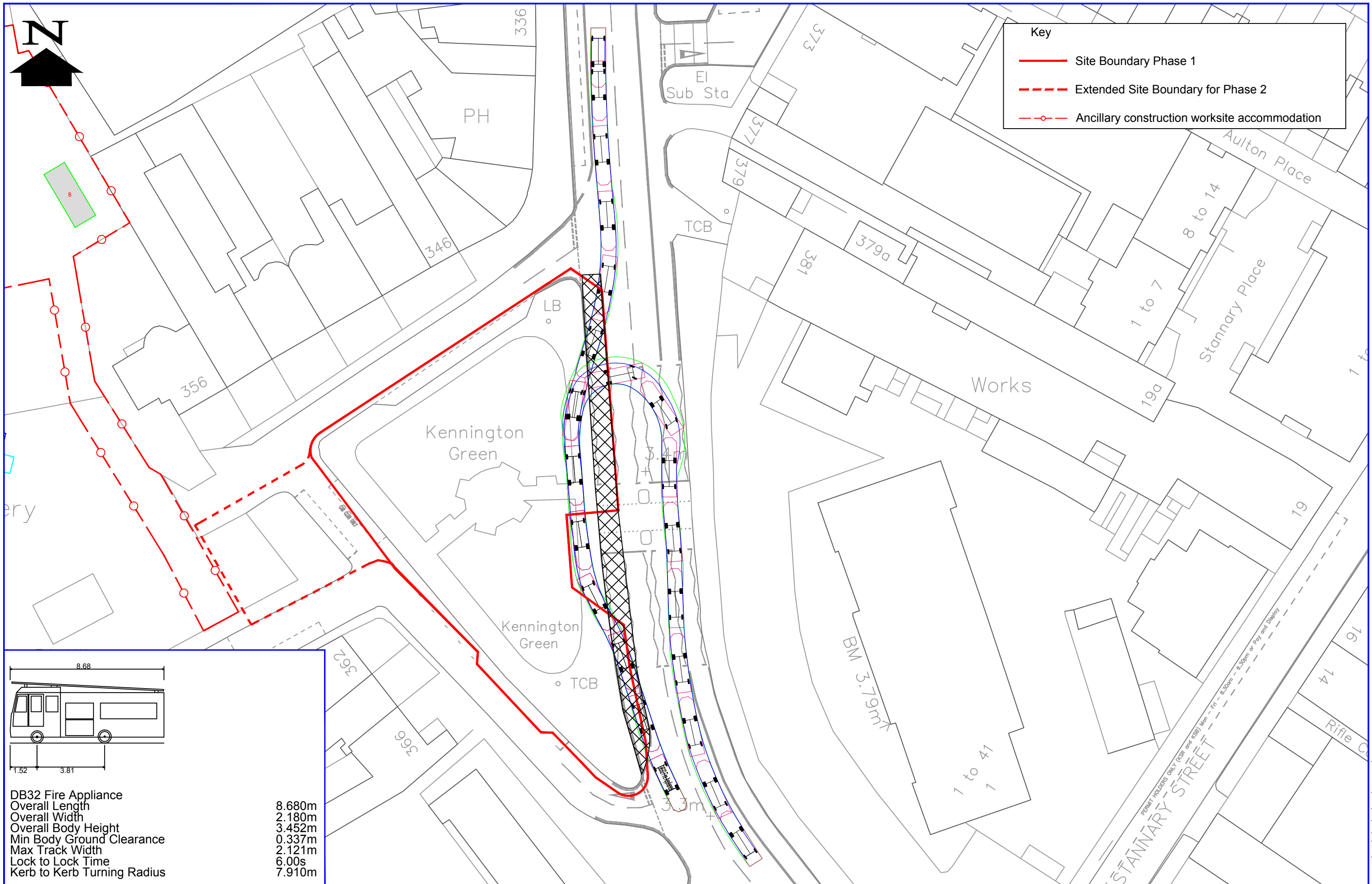
Large Tipper	
Overall Length	10.201m
Overall Width	2.500m
Overall Body Height	2.893m
Min Body Ground Clearance	0.343m
Max Track Width	2.500m
Lock to Lock Time	6.00 sec
Kerb to Kerb Turning Radius	11.550m



Northern Line Extension
Kennington Green - Low Loader Track Analysis



Drawn: CJP	Date: 15/08/13	Scale: 1:500	Figure No: 3-5A
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Key

- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- Ancillary construction worksite accommodation

DB32 Fire Appliance

Overall Length	8.680m
Overall Width	2.180m
Overall Body Height	3.452m
Min Body Ground Clearance	0.337m
Max Track Width	2.121m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	7.910m

Northern Line Extension
 Kennington Green - Emergency Vehicle Track Analysis

steer davis gleave

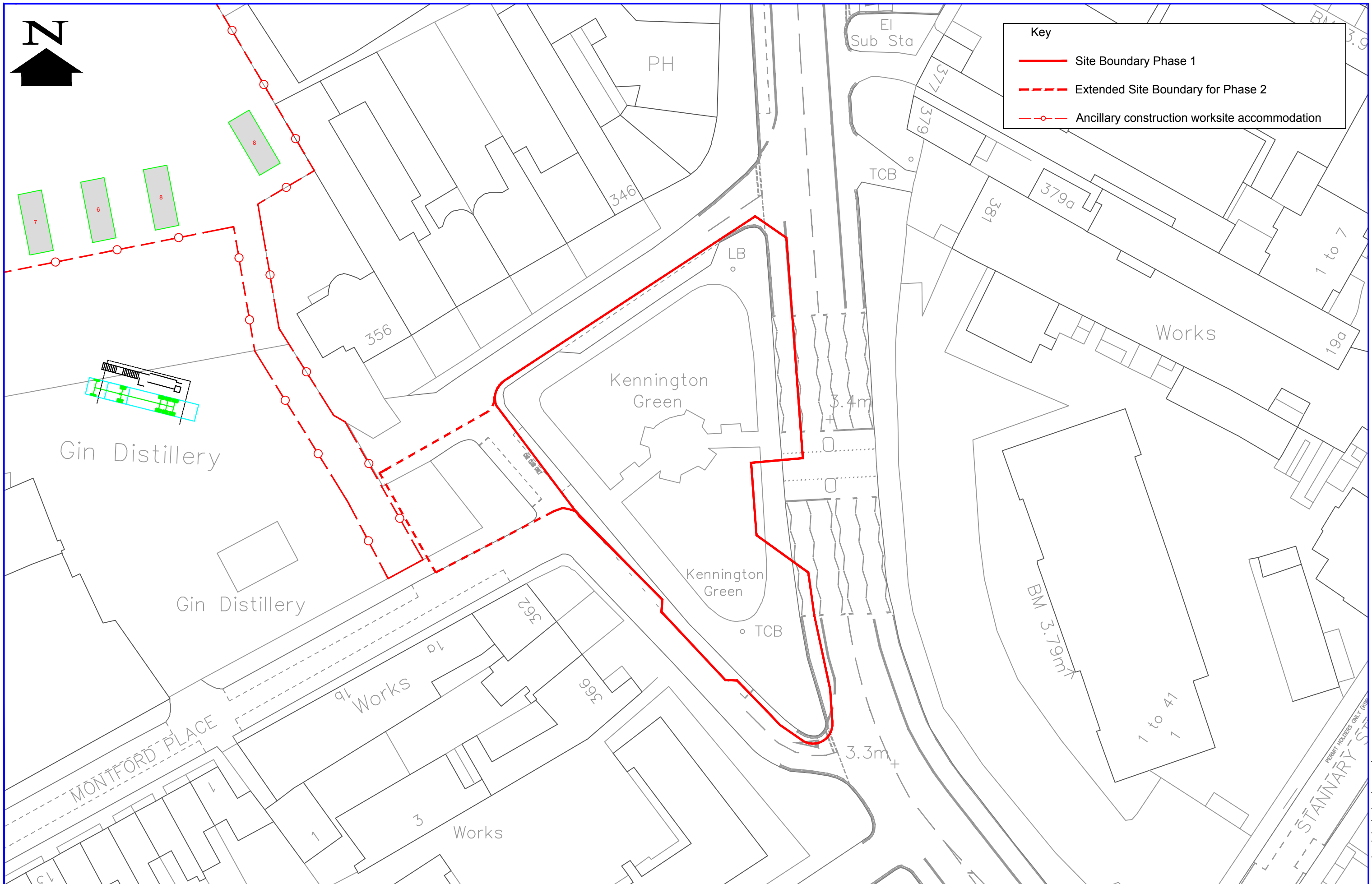
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Key

- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- Ancillary construction worksite accommodation



Northern Line Extension
Kennington Green - Site Boundary



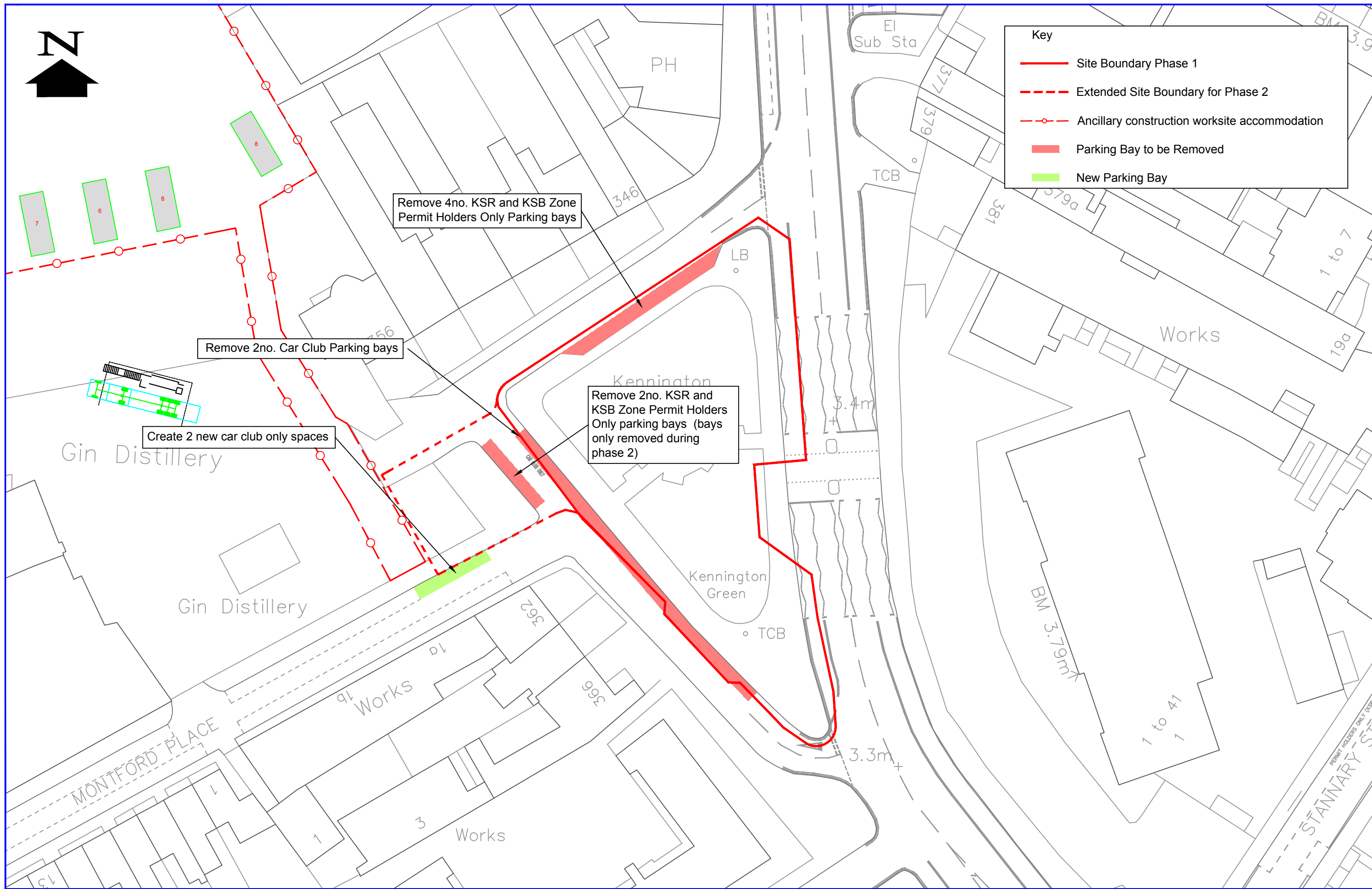
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Key

- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- Ancillary construction worksite accommodation
- Parking Bay to be Removed
- New Parking Bay

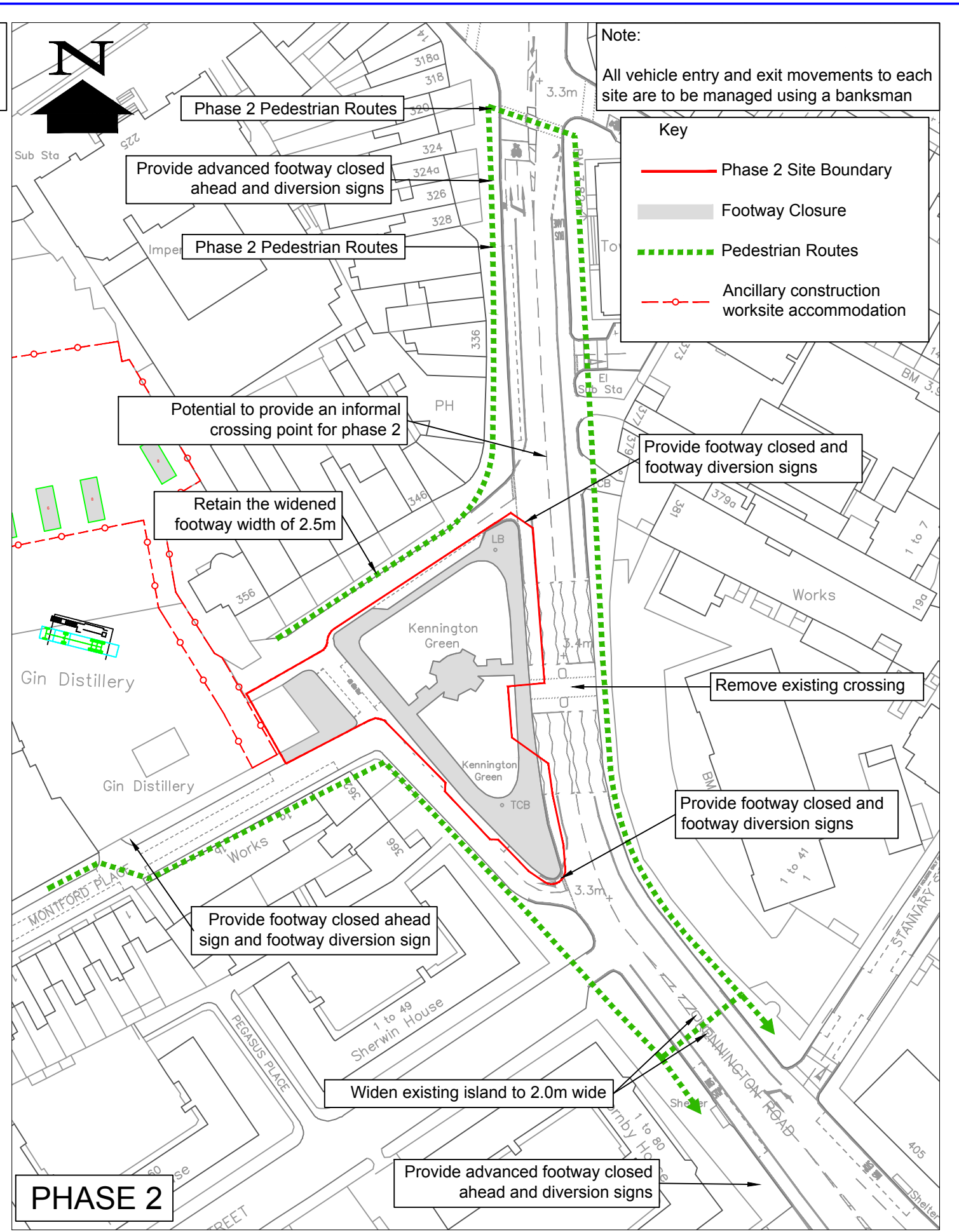
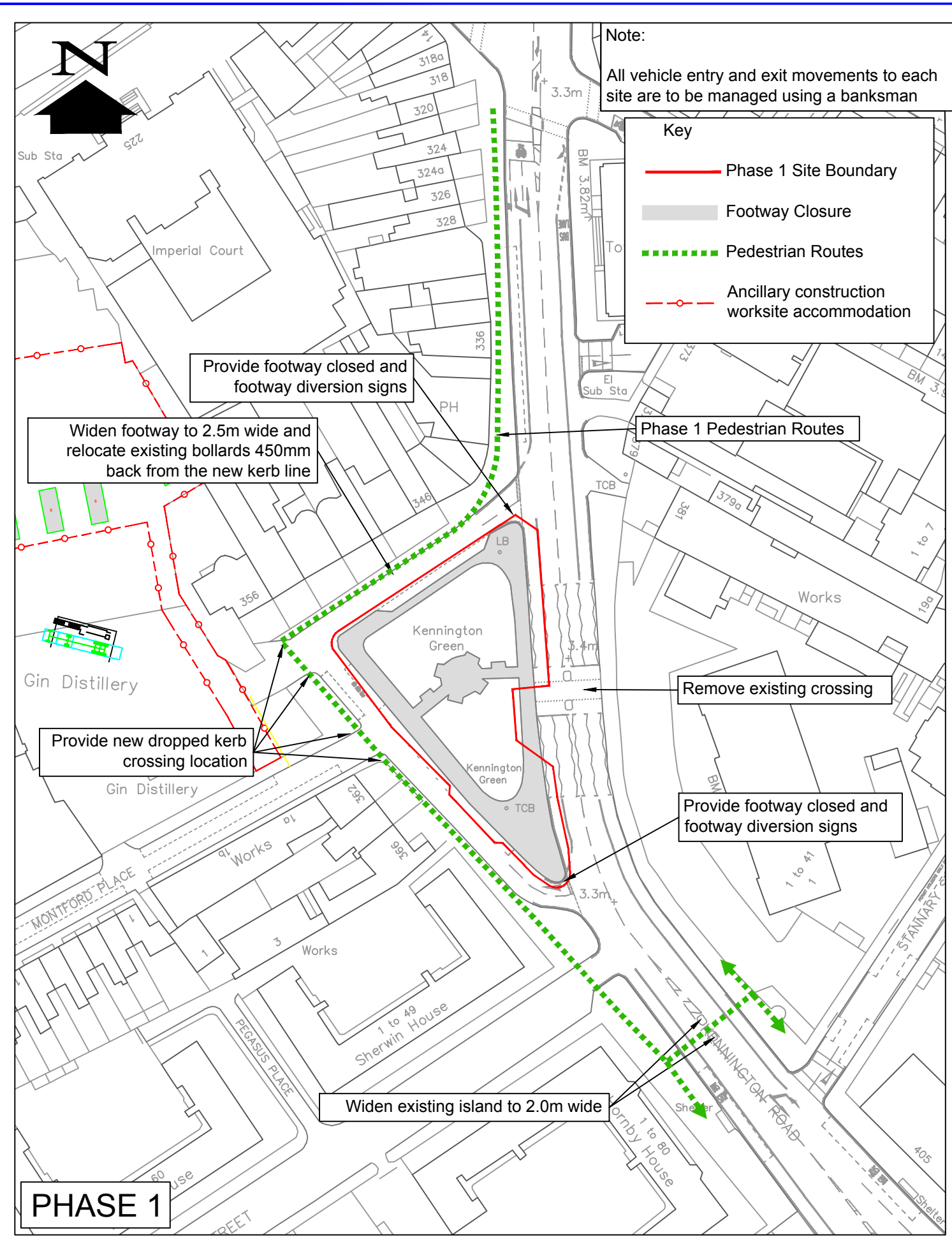


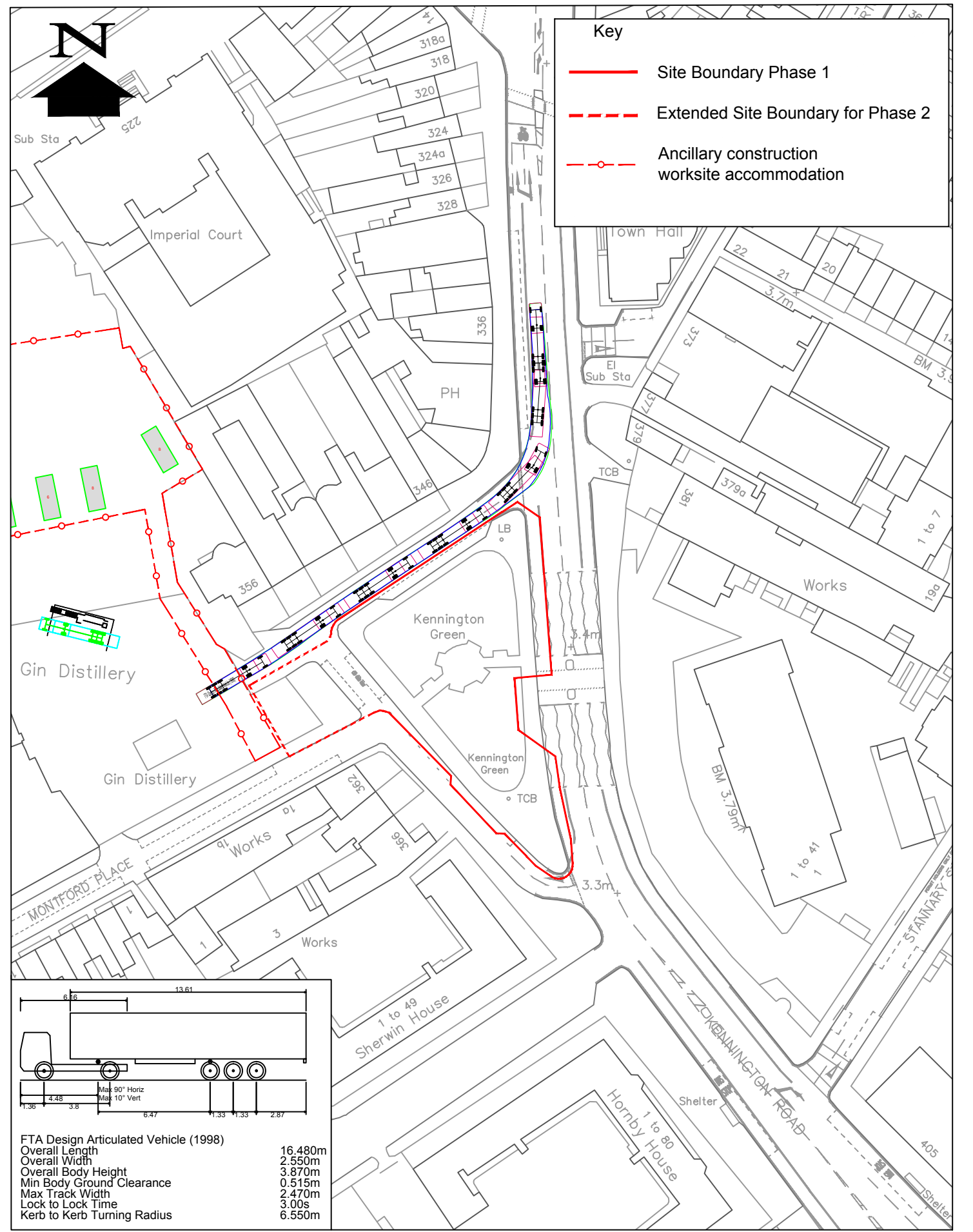
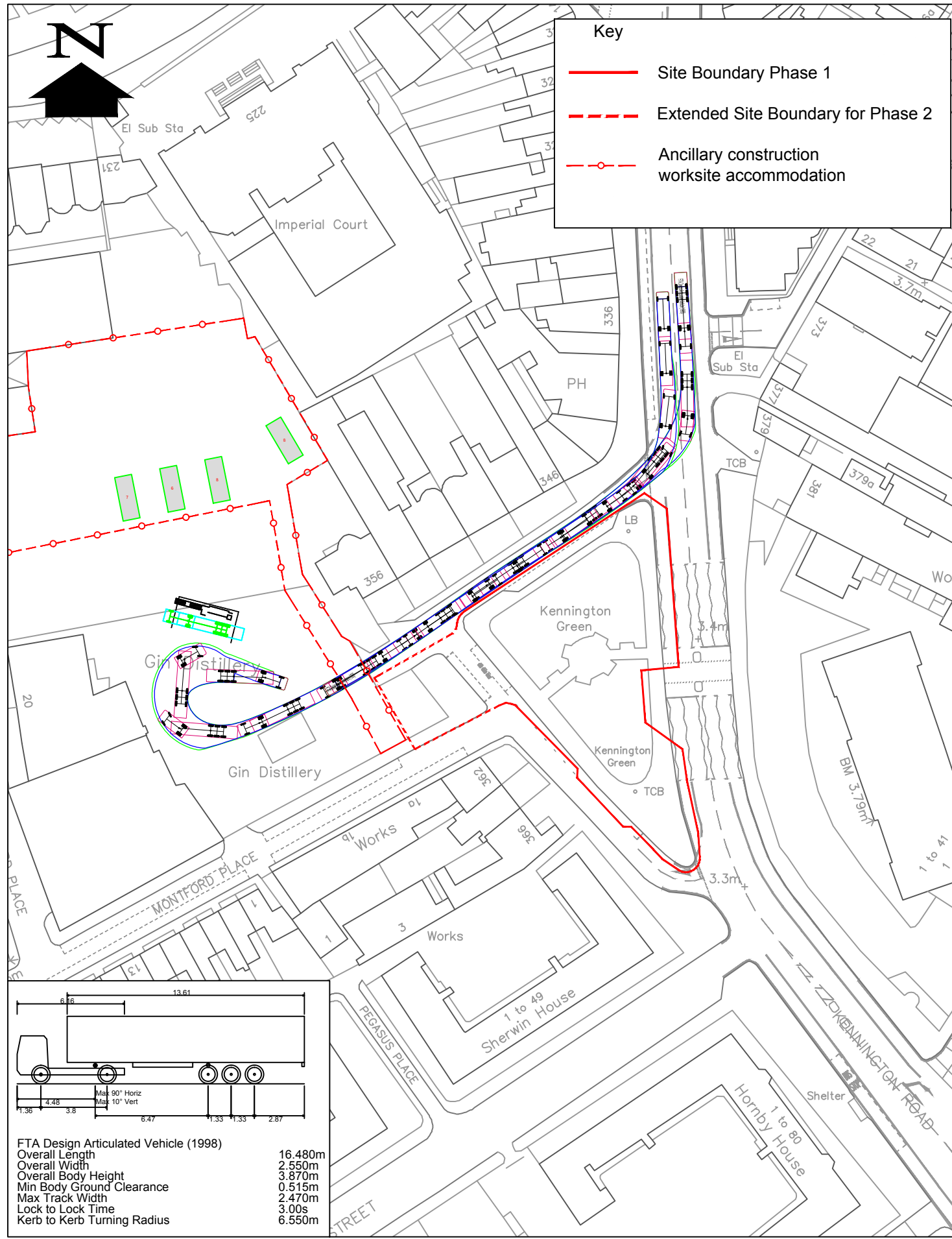
Northern Line Extension
Kennington Green - Proposed Parking Changes



Drawn: CJP	Date: 15/08/13	Scale: 1:500	Figure No: 3-8A
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CAD REFERENCE: P:\Projects\224\6\91\03\CAD\Drawings\22469102-1.1.dwg

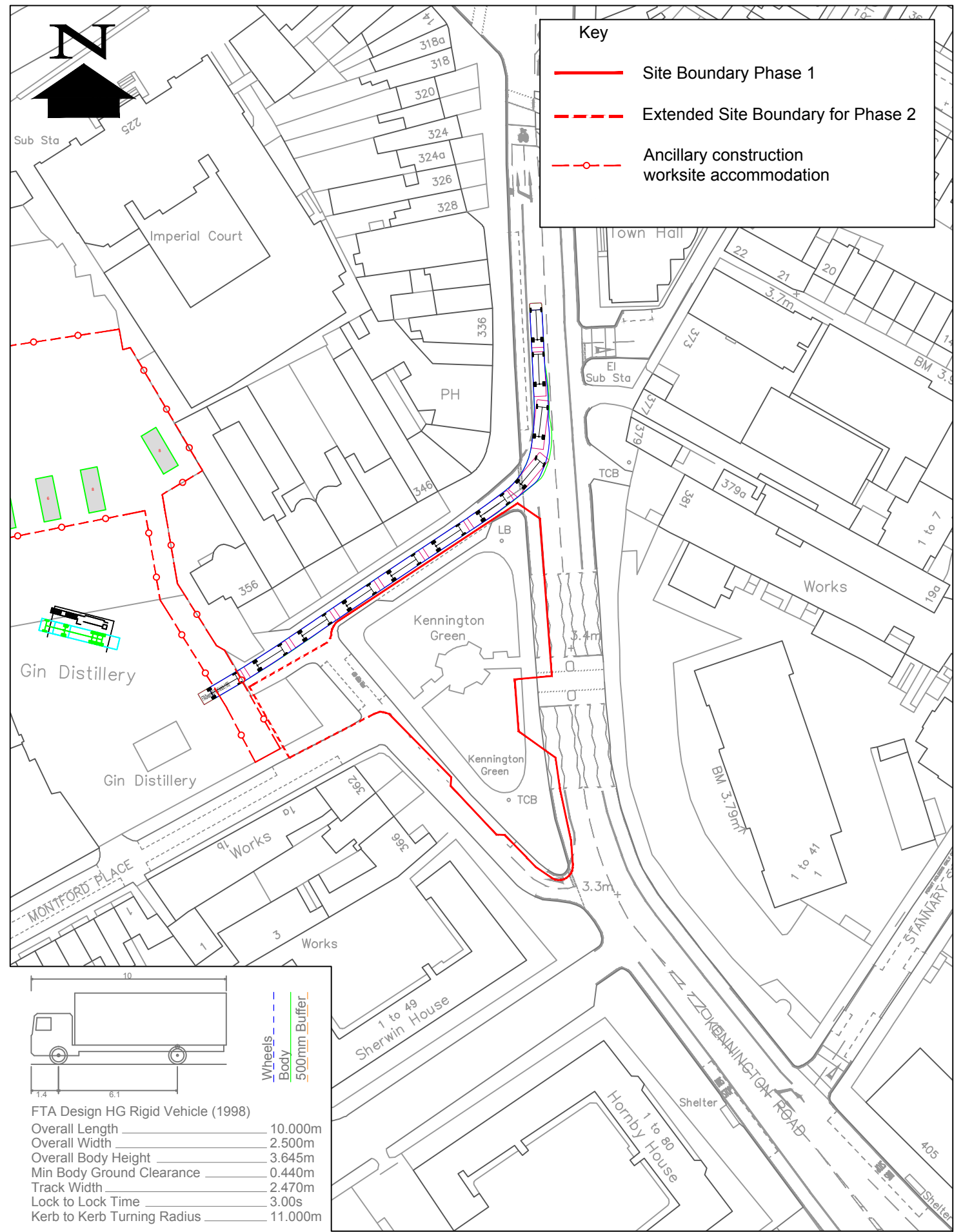
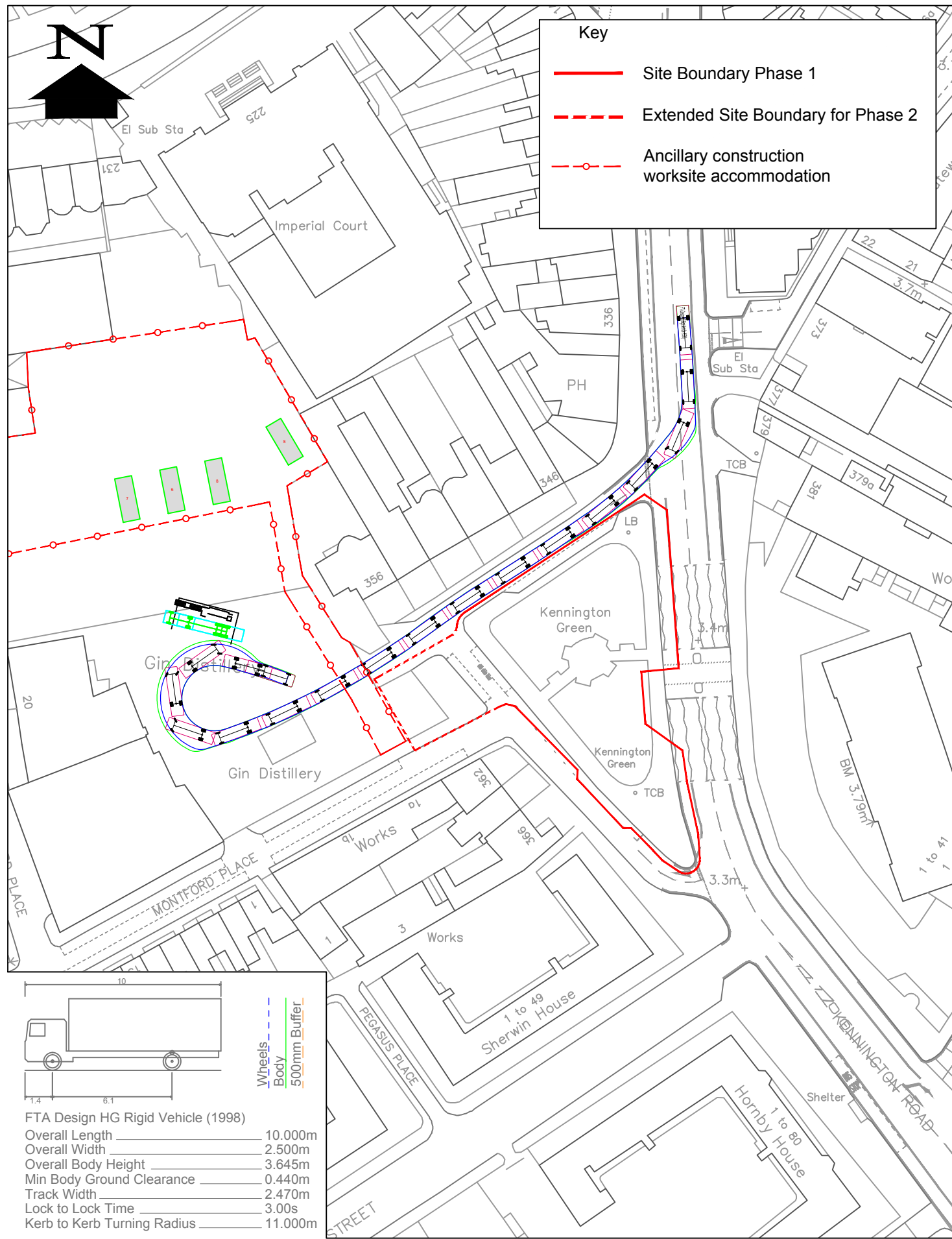




Northern Line Extension
 Kennington Green - Distillery Access - 16.5m Articulated Lorry Track Analysis



Drawn: CJP	Date: 15/08/13	Scale: 1:1000	Figure No: 3-10A
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Key

- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- Ancillary construction worksite accommodation

KERBLINE CUT-BACK TO REFLECT ON SITE CONDITIONS

3.7m +

TCB
El Sub Sta

Imperial Court

60
El Sub Sta

NEW TANKER STATION

Gin Distillery

DISTILLERY ACCESS

Max Legal Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.500m
Overall Body Height	3.632m
Min Body Ground Clearance	0.396m
Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	6.870m

Northern Line Extension
Kennington Green - 16.5m Max Articulated Vehicle Track Analysis - Access to Worksite



Drawn: CJP	Date: 15/0/13	Scale: 1:500	Figure No: 3-12A
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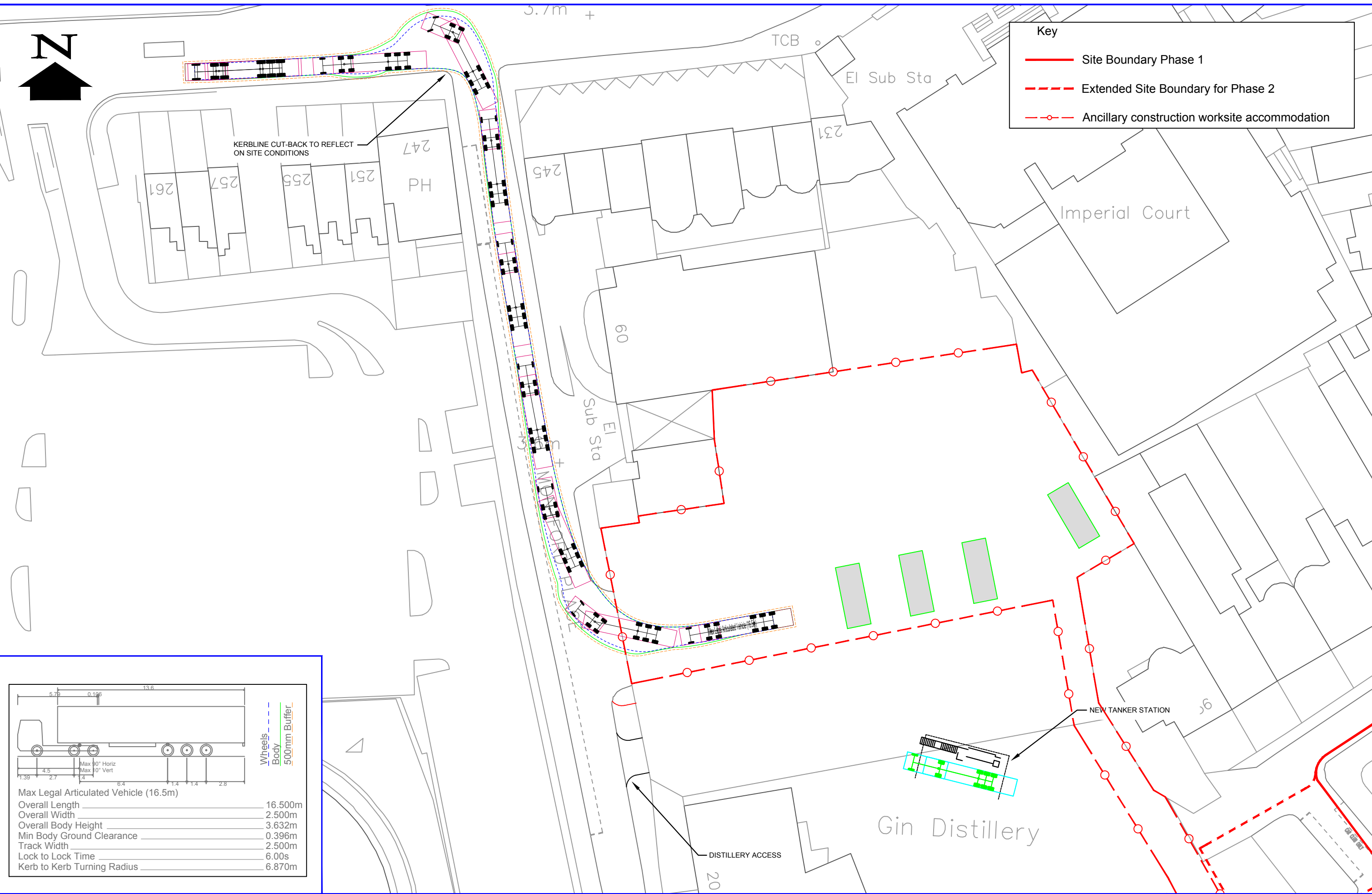
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Key

- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- Ancillary construction worksite accommodation

KERBLINE CUT-BACK TO REFLECT ON SITE CONDITIONS



Max Legal Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.500m
Overall Body Height	3.632m
Min Body Ground Clearance	0.396m
Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	6.870m

Northern Line Extension
 Kennington Green - 16.5m Max Articulated Vehicle Track Analysis - Access to Worksite



Drawn: CJP	Date: 15/0/13	Scale: 1:500	Figure No: 3-13A
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CAD REFERENCE: P:\Projects\224\6\91\03\CAD\Drawings\22469102-1.1.dwg

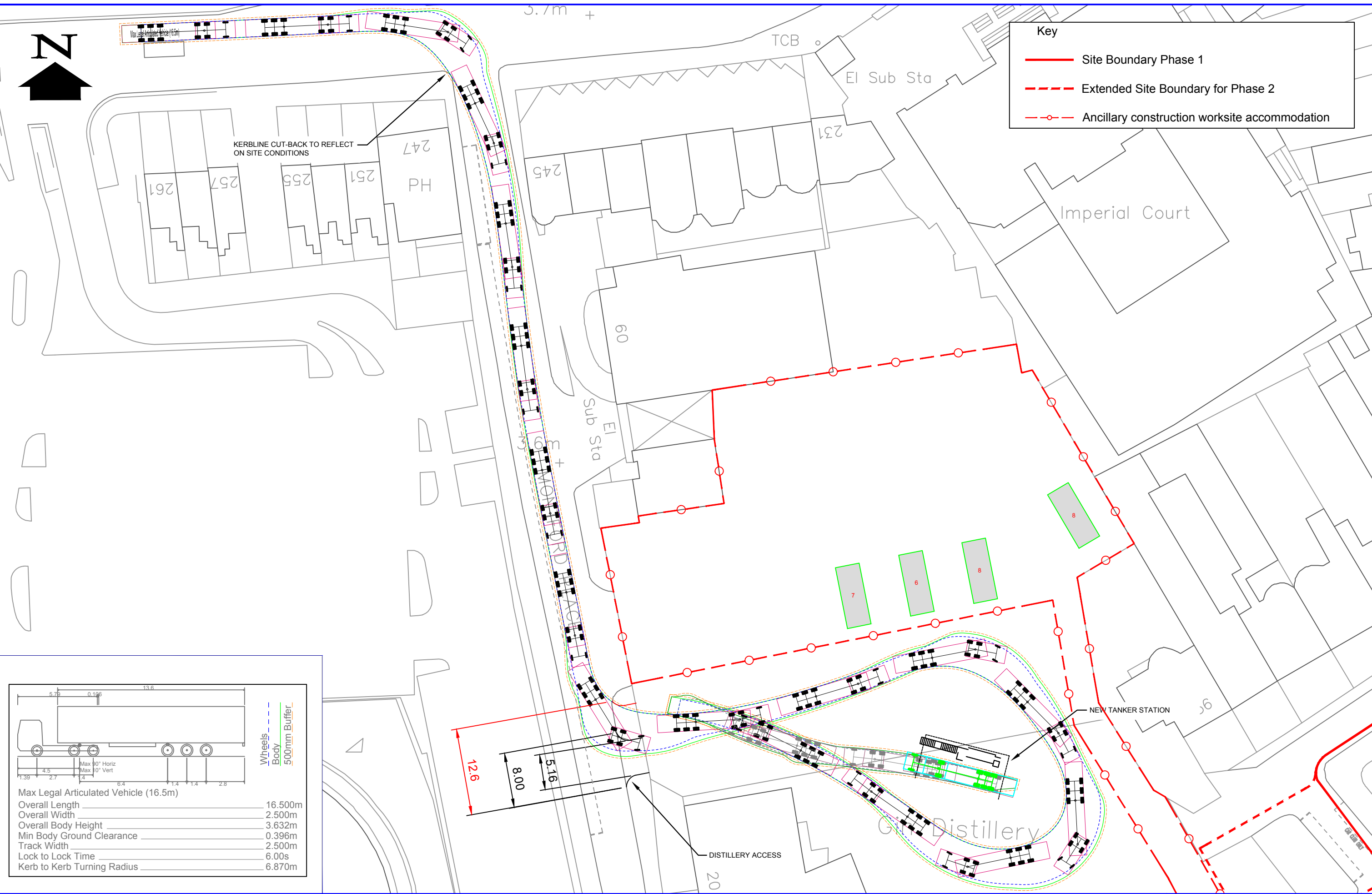


Max Legal Articulated Vehicle (16.5m)

KERBLINE CUT-BACK TO REFLECT ON SITE CONDITIONS

Key

- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- o- Ancillary construction worksite accommodation



Max Legal Articulated Vehicle (16.5m)	Overall Length	16.500m
	Overall Width	2.500m
	Overall Body Height	3.632m
	Min Body Ground Clearance	0.396m
	Track Width	2.500m
	Lock to Lock Time	6.00s
	Kerb to Kerb Turning Radius	6.870m

Northern Line Extension
 Kennington Green - 16.5m Max Articulated Vehicle Track Analysis - Access to Distillery



Drawn: CJP	Date: 15/0/13	Scale: 1:500	Figure No: 3-14A
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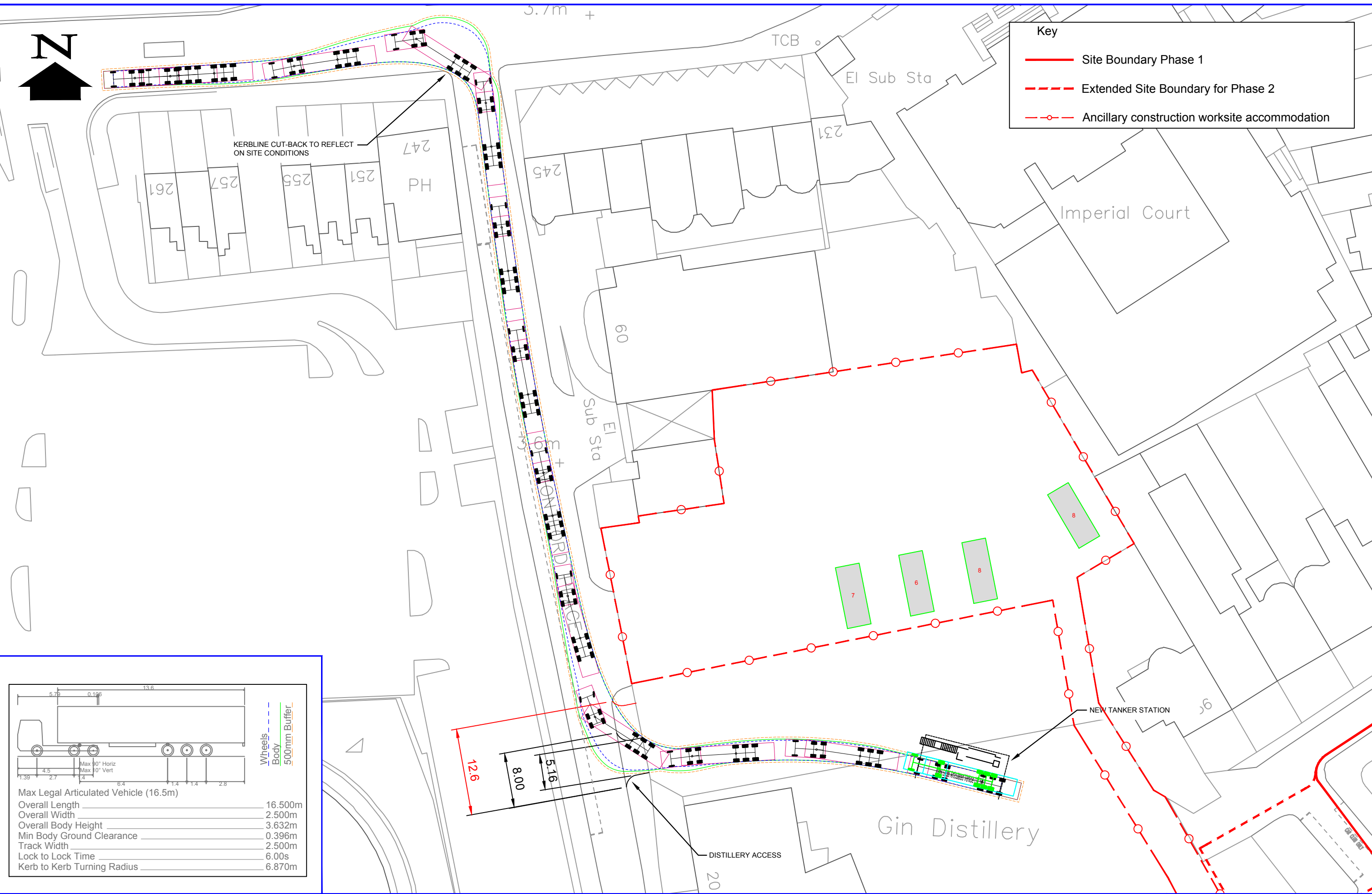
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Key

- Site Boundary Phase 1
- - - Extended Site Boundary for Phase 2
- Ancillary construction worksite accommodation

KERBLINE CUT-BACK TO REFLECT ON SITE CONDITIONS



Max Legal Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.500m
Overall Body Height	3.632m
Min Body Ground Clearance	0.396m
Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	6.870m

Wheels
Body
500mm Buffer

Northern Line Extension
Kennington Green - 16.5m Max Articulated Vehicle Track Analysis - Access to Distillery



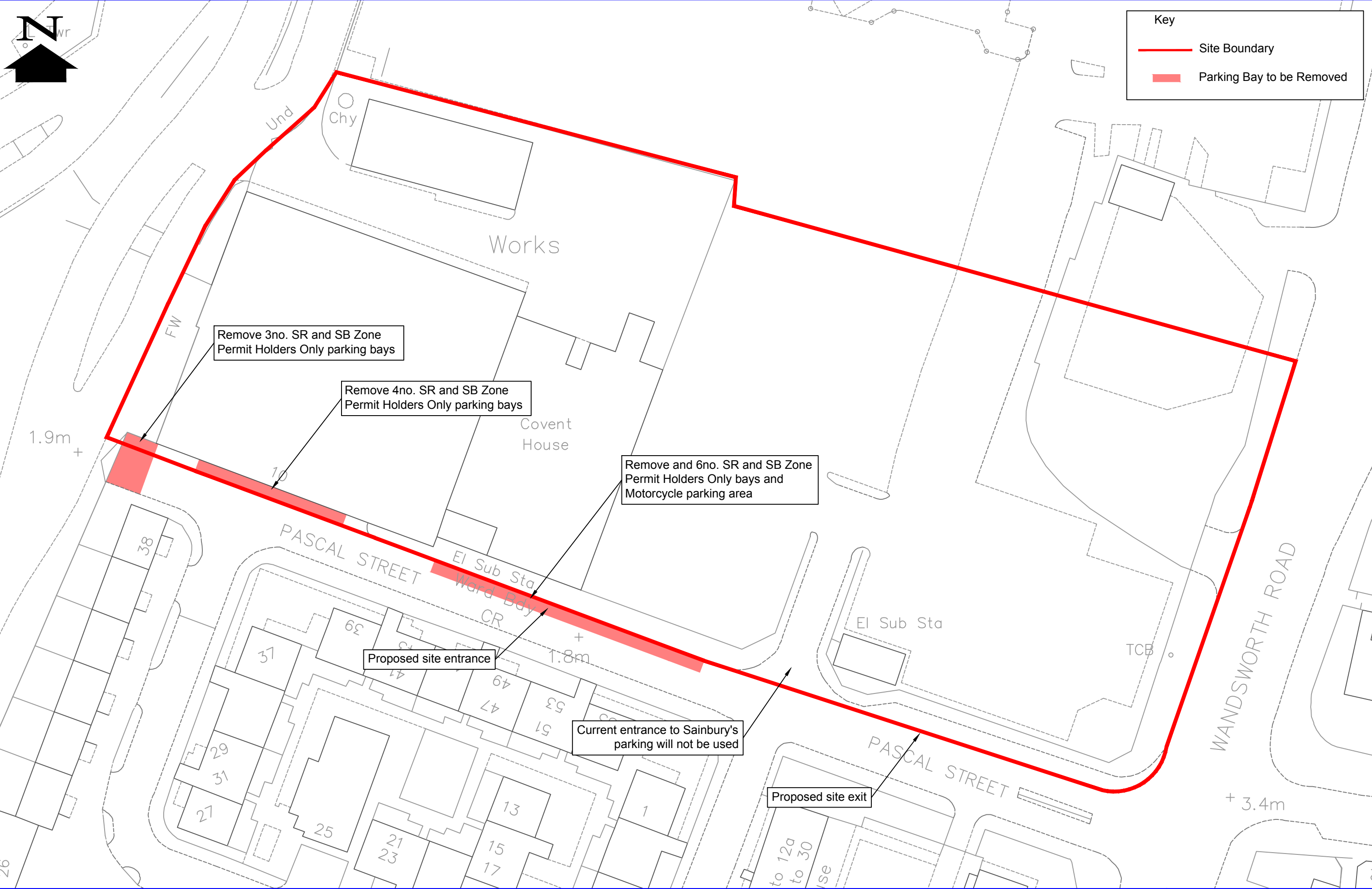
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CAD REFERENCE: P:\Projects\224\03\CAD\Drawings\22469102-1.1.dwg



Key

- Site Boundary
- Parking Bay to be Removed



Remove 3no. SR and SB Zone
Permit Holders Only parking bays

Remove 4no. SR and SB Zone
Permit Holders Only parking bays

Remove and 6no. SR and SB Zone
Permit Holders Only bays and
Motorcycle parking area

Proposed site entrance

Current entrance to Sainbury's
parking will not be used

Proposed site exit

