Thames Tideway Tunnel
Thames Water Utilities Limited

Application for Development Consent

Application Reference Number: WWO10001

Transport Assessment

Doc Ref: **7.10.19**

Earl Pumping Station

Main Report

APFP Regulations 2009: Regulation **5(2)(q)**

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January 2013

Thames Tideway Tunnel

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Thames Tideway Tunnel

Transport Assessment

Section 22: Earl Pumping Station

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22 Earl Pumping Station

22.1 Introduction

22.1.1 This site-specific Transport Assessment (TA) presents the findings of the assessment of the transport issues of the Thames Tideway Tunnel project at the Earl Pumping Station.

22.1.2 The assessment takes into consideration the changes as a result of all other Thames Tideway Tunnel project sites to ensure that results indicate the significance of each individual site in combination with construction works being undertaken at other sites.

22.1.3 The site lies on the eastern and southern boundary of the London Borough (LB) of Lewisham. The local authority boundary with the LB of Southwark lies immediately to the north and west.

22.1.4 The purpose of this *TA* is to identify the site context, development proposals and any transport implications arising from these proposals to ensure that appropriate mitigation measures are identified, where necessary.

22.1.5 The *TA* draws on a number of project-wide and application documents which include the *Transport Strategy* and the *Code of Construction Practice (CoCP)*[i]. Further detail on these documents which form the background to the *TA* can be found in Section 1 of the *TA.*

22.1.6 The *TA* structure is as follows:

a. Section 22.2 includes a description of the proposed development. This details construction phasing, vehicle and person trip generation and construction traffic routing. It also provides details on transport during the operational phase.

b. Section 22.3 outlines the assessment methodology used for the *TA* for the construction and operational phases.

c. Section 22.4 details the baseline conditions on the transport network surrounding the site, including survey data analysis and accident analysis.

d. Section 22.5 provides the assessment of the construction phase of the project, including a comparison between the construction base case and the construction development case. This section also outlines sensitivity testing for the highway network.

e. Section 22.6 provides the assessment of the operational phase of the project.

f. Section 22.7 presents a summary of the *TA* findings.

[i] The *Code of Construction Practice (CoCP)* is provided in Vol 1 Appendix A of the *Environmental Statement*. It contains general requirements (Part A), and site specific requirements for this site (Part B).

22.2 Proposed development

22.2.1 The majority of the proposed development site is located in the LB of Lewisham, the on road works on Chilton Grove are within the LB of Southwark.

22.2.2 The site comprises the Thames Water Earl Pumping Station and adjacent industrial land. Figure 22.2.1 in the Earl Pumping Station *Transport Assessment* figures shows the Earl Pumping Station site location.

22.2.3 The site is bounded to the north by Chilton Grove, to the east by Yeoman Street and to the west by Croft Street. The site is occupied by Earl Pumping Station and commercial and industrial buildings in the southern part of the site. A row of two-storey terraced houses are adjacent to the southern site boundary. Immediately west of the site on Croft Street is a five storey block of flats and a large industrial unit.

22.2.4 Existing access to the site is from Chilton Grove to the north and Yeoman Street to the east, via Plough Way (B206) and Lower Road (A200).

22.2.5 The development at Earl Pumping Station would link the existing Earl Storm Relief Sewer (which currently enters the Pumping Station) through a CSO drop shaft to a connection tunnel from Greenwich connection tunnel (no tunnelling works would be carried out at Earl Pumping Station).

Construction

22.2.6 The construction site would be located in the Thames Water Earl Pumping Station and adjacent industrial land. In order to provide working areas, the site would also occupy the west side footway of Yeoman Street, and parts of the east side footway of Croft Street and south side footway of Chilton Grove. Parts of Croft Street would need to be narrowed for a period of time during the works and temporary traffic management would be required to allow two-way traffic.

22.2.7 Construction at the Earl Pumping Station site is anticipated to last for four years and during construction it is assumed that all construction material would be transported by road. There would be two phases of construction: phase 1 - covering site set-up and shaft construction, and phase 2 - construction of other structures. The access plan and highway layout during construction (phase 1 and phase 2) plans in the Earl Pumping Station Transport Assessment figures present the highway layout during construction.

22.2.8 Stage 1 Road Safety Audits have been carried out on the illustrative highway layouts proposed for this site. The Road Safety Audit reports for this site are contained in Section 22 Appendix E.

22.2.9 Phase 1 of construction would take place in the Earl Pumping Station and adjacent land to the south. In addition works would take place in a section of Croft Street. Phase 2 of construction would take place in the Pumping Station and adjacent land and would also involve works in a section of Chilton Grove.

22.2.10 During phase 1 of construction, the western footway of Yeoman Street and parts of the eastern footway of Croft Street would require closure and pedestrians would be diverted away from the sections affected by construction works. The route would be diverted to the eastern footway of Yeoman Street and the western footway of Croft Street. During this phase, speed cushions along Croft Street (outside the site access point) would be removed to accommodate construction vehicles arriving at and departing from the site. However, three new speed cushions would be installed to the south of the site access point on Croft Street to reduce vehicle speeds.

22.2.11 Phase 2 of construction would require closure of parts of the southern footway of Chilton Grove as well as the footway of Yeoman Street and Croft Street as outlined in para. 22.2.10. Pedestrians using the south side footway would be diverted away from the affected section to the northern footway of Chilton Grove. A short-term lane closure on Chilton Grove outside the Earl Pumping Station access point would be required to make a connection to the existing sewer and for service diversion works. During this period temporary traffic management to maintain two-way operation would be required and the speed cushions along Chilton Grove would be removed.

22.2.12 The construction site is located 400m from the Strategic Road Network (SRN) on Lower Road (A200), with road access to the site along Plough Way (B206) and then Yeoman Street. Traffic leaving the site would egress onto Croft Street and onto Plough Way (B206) via Chilton Grove and Yeoman Street. The site would have two gated access and egress points from Yeoman Street and Croft Street respectively. The access point would be via a right turn into the site from Yeoman Street and the egress would be a right turn out onto Croft Street.

22.2.13 The unmarked kerbside parking along Yeoman Street to the south of the junction with Chilton Grove, and along the southern section of Chilton Grove between the junctions with Yeoman Street and Croft Street would be temporarily restricted during phases 1 and 2 of construction.

22.2.14 To accommodate construction vehicle access to the site, a resident parking bay with capacity for one vehicle on Croft Street would require temporary restriction during phase 1 of construction.

22.2.15 During phase 2 of construction, a resident parking bay with capacity for approximately seven vehicles on Chilton Grove would require temporary restriction.

22.2.16 During construction it is therefore anticipated that transport networks may be affected as a result of the additional construction traffic associated with Earl Pumping Station and other construction sites with construction routes through the A200 gyratory of Bestwood Street and Bush Road, and the gyratory of Rotherhithe New Road (A2208) and Rotherhithe Old Road (A200), pedestrian diversions along Yeoman Street, Croft Street and Chilton Grove, and the temporary restriction of car parking bays and unmarked kerbside parking in surrounding streets.

22.2.17 Parking for five essential maintenance vehicles would be provided on site. No worker parking would be provided.

22.2.18 Construction details for the site relevant to the construction transport assessment are summarised in Table 22.2.1.

Table 22.2.1 Construction details

Description	Assumption
Assumed peak period of construction lorry movements	Site Year 1 of construction
Assumed average peak daily construction lorry vehicle movements (in peak month of Site Year 1 of construction) and duration	68 movements per day (34 vehicle trips) For one month
Typical types of lorry requiring access (comprising rigid-bodied, flatbed and articulated vehicles)	Excavated material lorries Plant and equipment deliveries Imported fill lorries Ready mix concrete lorries Steel reinforcement rebar lorries Office/general delivery lorries Temporary construction material lorries including pipe/track/oils /greases lorries

Note: a movement is a construction vehicle moving either to or from the site. A Site Year is a 12 month period, one in a series of Site Years; Site Year 1 commences at the start of construction.

Construction routes

22.2.19 Figure 22.2.2 in the Earl Pumping Station *Transport Assessment* figures shows the construction routes for the Earl Pumping Station site. These have been discussed with both Transport for London (TfL) and the Local Authority.

22.2.20 The site is approximately 1.5km from the nearest Transport for London Road Network (TLRN) route which is on Jamaica Road (A200) and Rotherhithe Tunnel (A101) and approximately 400m from the nearest part of the SRN on Lower Road (A200). The main junctions along the construction traffic routes are:

a. Chilton Grove / Yeoman Street
b. Chilton Grove / Croft Street
c. Plough Way (B206) / Yeoman Street
d. Lower Road (A200) / Plough Way (B206)
e. Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200)
f. Rotherhithe New Road (A2208) / Bush Road (A200)

g. Rotherhithe New Road (A2208) / Rotherhithe Old Road (A200)

h. Lower Road (A200) / Rotherhithe Old Road (A200) / Hawkstone Road (A2008)

i. Lower Road (A200) / Redriff Road (B205).

22.2.21 During all phases of construction at Earl Pumping Station, construction vehicles would use the Strategic Road Network (SRN) in the immediate area. They would use the northbound carriageway of Evelyn Street (A200) and would follow the one way system, turning left onto Bestwood Street (A200), left onto Rotherhithe New Road (A2208), right into Rotherhithe Old Road (A200), onto Lower Road (A200) and left into Plough Way (B206). The construction vehicles would approach the site from Plough Way (B206) and then Yeoman Street.

22.2.22 Traffic leaving the site would egress onto Croft Street, Chilton Grove, Yeoman Street and onto Plough Way (B206) before turning left onto Lower Road (A200). Construction traffic would then travel southbound along the A200 towards the A2 in the southeast.

22.2.23 The exact routing of construction traffic would depend on the origins and destinations of construction materials which are shown indicatively in the *Project-wide TA*.

Proposed construction flows

Construction vehicles

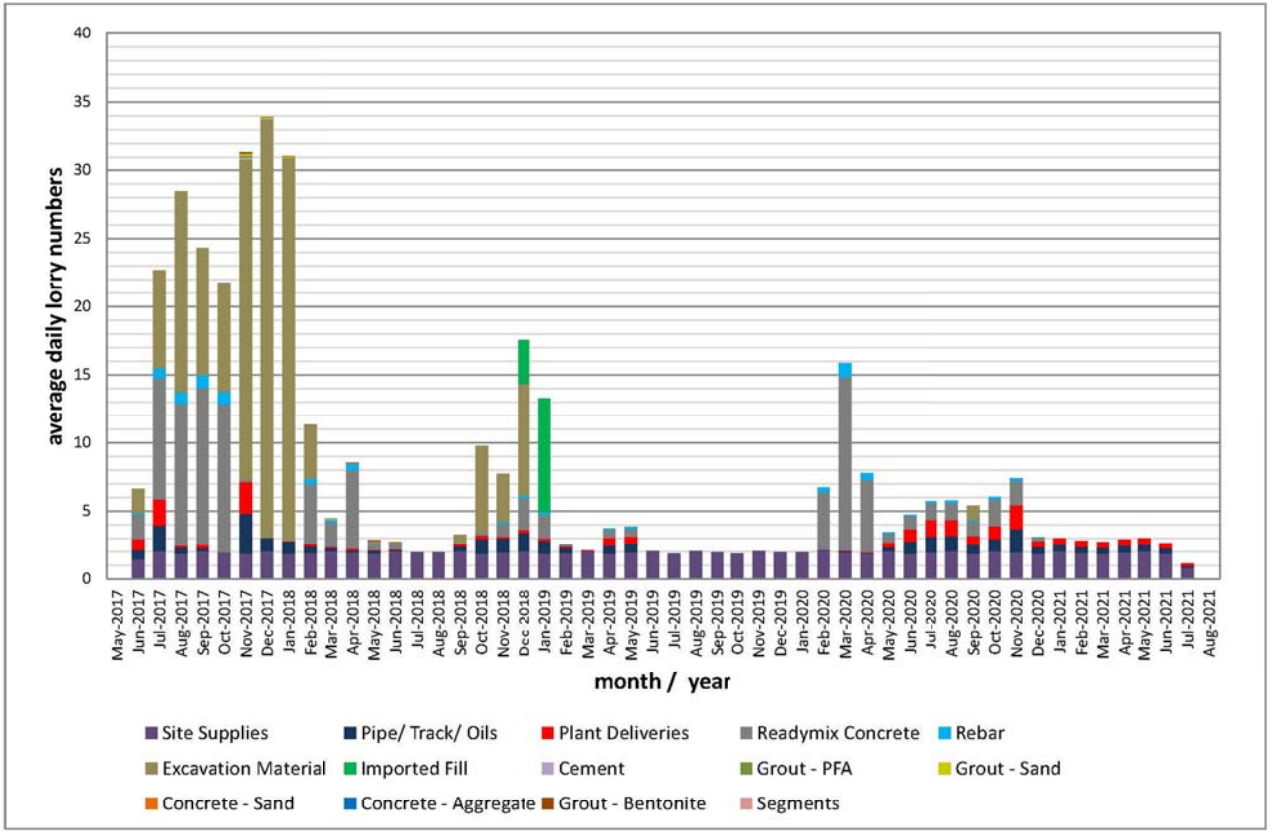
22.2.24 Vehicle movements would take place during the standard day shift of ten hours on weekdays (08:00 to 18:00) and five hours on Saturdays (08:00 to 13:00). It would be in exceptional circumstances that HGV and abnormal load movements could occur up to 22:00 on weekdays for large concrete pours and later at night on agreement with the LB of Lewisham.

22.2.25 A site-specific peak construction assessment year has been identified. The histogram in Plate 22.2.1 shows that the peak site-specific activity at the Earl Pumping Station site would occur in Site Year 1 of construction.

22.2.26 This *TA* assesses this site-specific peak construction year. As detailed in Table 22.2.1, there would be 68 average peak daily construction lorry vehicle movements in the peak month of this year and Plate 22.2.1 shows how the number of vehicular movements would vary throughout the construction period.

22.2.27 The assessment is based on 10% of the daily number of lorry journeys occurring in the peak hours, which has been agreed with TfL as a reasonable approach. It is recognised that it may be desirable to reduce the number of construction lorry movements in peak hours and the mechanisms for addressing this would form part of the *Traffic Management Plans* (TMP) which are required as part of the *CoCP*.

Plate 22.2.1 Estimated construction lorry profile



Note: Plate shows approximate volumes and number of vehicle trips based upon assumed timings for the works. It is not a programme and remains subject to change.

22.2.28 As the *Project-wide TA* explains, the TfL Highway Assignment Models (HAMs) used for the strategic highway modelling represent peak hours of 08:00 to 09:00 and 17:00 to 18:00 and these have been taken as being the network-wide AM and PM peak hours in the project-wide and site-specific assessments.

22.2.29 The 07:00 to 09:00 periods identified from the local traffic surveys are busier on the network in the weekday than those encountered at the weekends (this is discussed in Section 22.4). Whilst the AM and PM peak hours differ slightly from these network-wide peak hours, the assessment at this site has been based on a combination of the highest hourly number of movements for construction and worker vehicles in the periods between 07:00 to 09:00 and 17:00 to 19:00. These have been applied to the network-wide peak hours to take account of the highest number of movements that could be generated by the site in these periods.

22.2.30 Hourly construction vehicle trips during the inter-peak period are not expected to exceed the hourly trips assumed for the 08:00 to 09:00 and 17:00 to 18:00 periods used in this assessment and in practice, the peaks for each of these groups would not occur concurrently and therefore the assessment is considered to be reasonable. The peak travel periods used for the modelling in this assessment are therefore the weekday periods between 08:00 and 09:00 and 17:00 and 18:00.

22.2.31 Other construction vehicle movements associated with site operations and contractor activities would be cars and light goods vehicles (LGVs). The construction vehicle movements expected to be generated by the Earl Pumping Station site are shown in Table 22.2.4.

Construction workers

22.2.32 The construction site is expected to require a maximum workforce of 40 workers on site at any one time. The number and type of workers is shown in Table 22.2.2.

Table 22.2.2 Maximum estimated construction worker numbers

Contractor		Client
Staff*	**Labour****	**Staff*****
08:00-18:00	**08:00-18:00**	**08:00-18:00**
15	20	5

**Staff Contractor – engineering and support staff to direct and project manage the engineering work and site.*
***Labour – those working on site doing engineering, construction and manual work.*
****Staff Client – engineering and support staff managing the project and supervising the Contractor.*

22.2.33 The mode split outlined in Table 22.2.3 has been used to assess the changes as a result of the worker journeys on the highway and public transport networks. It has been derived by taking the highest number of workers during the peak month and calculating the percentage of trips by

mode using the 2001 Census[ii] journey to work data for the area in the vicinity of the Earl Pumping Station site. The Census data indicates that the predominant mode of travel for journeys to work in this area is private car.

22.2.34 As parking on some of the surrounding streets is restricted, and measures to reduce car use would be incorporated into site-specific *Travel Plan* (prepared by the contractor in accordance with the overall aims and objectives of the *Draft Project Framework Travel Plan*), the number of construction workers driving to the site is likely to be much lower than shown in Table 22.2.3. However, the assessment has been based on the mode splits shown in Table 22.2.3 in order to ensure that the potential effects on the highway network are identified in the assessment.

Table 22.2.3 Transport mode split

Mode	Percentage of trips to site	Equivalent number of worker trips (based on 40 worker trips)	
		AM peak hour (07:00-08:00)	PM peak hour (18:00-19:00)
Bus	13%	5	5
Overground	7%	3	3
Underground	10%	4	4
Car driver	52%	21	21
Car passenger	3%	1	1
Cycle	2%	<1	<1
Walk	9%	4	4
River	1%	<1	<1
Other (taxi/motorcycle)	3%	1	1
Total	100	40	40

22.2.35 It is difficult to predict with certainty the directions to and from which workers at the site would travel. Staff could potentially be based in the local area or in the wider Greater London area and are unlikely to have the same trip origin-destination distributions as construction lorries.

22.2.36 On this basis it has been assumed that the origins of worker vehicle trips would be similar to the origins of trips to the zone in the TfL HAM in which the Earl Pumping Station site is located.

22.2.37 As indicated in Table 22.2.3 it is assumed that the predominant mode of travel for journeys to work in this area is by private car. However, a

[ii] Based on 2001 Census. This type of data had not been released from the 2011 Census at the time of the assessment.

significant proportion of journeys would be made by public transport and it is assumed that the primary public transport services used would be from the nearest London Overground Station at Surrey Quays on Lower Road (A200) and the bus stops on Plough Way (B206), Lower Road (A200) and Evelyn Street (A200).

Vehicle movements summary

22.2.38 The total anticipated number of construction-related vehicle movements in the peak month of activity at this site is set out in Table 22.2.4.

Table 22.2.4 Peak construction works vehicle movements

Vehicle type	Vehicle movements per time period				
	Total daily	07:00 to 08:00	08:00 to 09:00	17:00 to 18:00	18:00 to 19:00
Construction lorry vehicle movements 10%*	68	0	7	7	0
Other construction vehicle movements**	36	4	4	4	4
Worker vehicle movements***	42	21	0	0	21
Total	**146**	**25**	**11**	**11**	**25**

** The assessment has been based on 10% of the daily construction lorry movements associated with materials taking place in each of the peak hours.*
*** Other construction vehicle movements includes cars and light goods vehicles associated with site operations and contractor activity.*
****Worker vehicle numbers based on 52% of workers travelling by car, derived by taking the highest number of workers during the peak month and calculating the % of trips using the 2001 Census Journey to Work data. This represents an unconstrained case, as there will be no parking on site for workers and the Draft Project Framework Travel Plan would include measures to restrict workers from parking in surrounding streets.*

22.2.39 Based on all materials being transported by road, an average peak flow of 146 vehicle movements a day is expected during the months of greatest activity during Site Year 1 of construction at this site. At other times in the construction period, vehicle flows would be lower than this average peak figure.

22.2.40 Table 22.2.4 shows that in the AM and PM peak hours, the Earl Pumping Station site would generate approximately 11 vehicle movements.

Code of Construction Practice

22.2.41 Measures incorporated into the *Code of Construction Practice (CoCP)*[iii] *Part A* (Section 5) to reduce transport effects include:

a. site specific *Traffic Management Plans (TMP)*: to set out how vehicular access to the site would be managed so as to minimise impact on the

[iii] The *Code of Construction Practice (CoCP)* is provided in Vol 1 Appendix A. It contains general requirements (Part A), and site specific requirements for this site (Part B).

local area and communicate this with the local borough and other stakeholders. This includes any works on the highway, diversion or temporary closure of the highway or public right of way

b. HGV management and control: to ensure construction vehicles use appropriate routes to the sites and the vehicle fleet and/or drivers meet current safety and environmental standards.

22.2.42 In addition to the general transport measures within the *CoCP* Part A Section 5, the following site specific measures have been incorporated into the *CoCP* Part B Earl Pumping Station (Section 5):

a. access to the site would be from Plough Way (B206), right into Yeoman Street and right into the site

b. site egress would be onto Croft Street with only a right turn out, along Chiltern Grove and Yeoman Street, then travel along Plough Way (B206) towards Lower Road (A200). Access through Croft Street to the south and Chilton Grove to the west would not be permitted

c. suitable traffic management would be required during the connection to the existing sewer and service diversion works in Chilton Grove and Croft Street during diversion of the Earl sewer around the drop shaft. During this phase site egress would be onto Yeoman Street

d. revised parking arrangements and necessary suspensions would be agreed with LB of Lewisham and LB of Southwark

e. highway layout changes including removal of traffic calming features and junction modifications (requiring short-term pedestrian and traffic management) would be agreed with LB of Lewisham and LB of Southwark

f. the footway diversions on Croft Street, Chilton Grove and Yeoman Street would be adequately signed and protected.

22.2.43 The effective implementation of the *CoCP Part A and Part B* measures has been assumed within the assessment.

22.2.44 Based on current travel planning guidance including TfL's Travel Planning for new development in London (TfL, 2011)[1], this development falls within the threshold for producing a Strategic Framework Travel Plan. A *Draft Project Framework Travel Plan* has been prepared based on the TfL ATTrBuTE guidance (TfL, 2011)[2] ; this is submitted as part of the application documentation. The *Draft Project Framework Travel Plan* addresses project-wide travel planning measures, including the need for a project-wide Travel Plan Manager, initial travel surveys during construction and a monitoring framework. It also contains requirements and guidelines for the site-specific *Travel Plans* to be prepared by the site contractors. The site-specific travel planning requirements of relevance to the *Draft Project Framework Travel Plan* are as follows:

a. information on existing transport networks and travel initiatives for the Earl Pumping Station site

b. a mode split established for the Earl Pumping Station site construction workers to establish and monitor travel patterns

c. site-specific targets and interim targets based on the mode share which would link to objectives based on local, regional and national policy

d. a nominated person with responsibility for managing the *Travel Plan* monitoring and action plans specifically for this site.

Operation

22.2.45 Once the Thames Tideway Tunnel is operational it is not expected that there would be any significant changes to the transport infrastructure and operation within the local area, because maintenance trips to the site would be infrequent and short-term. On this basis the only issues considered during the operational phase are those affecting highway layout and operation.

22.2.46 These elements have only been considered qualitatively because the changes required to the highway network during maintenance activity would be minor and temporary, meaning that a quantitative assessment is not required. The scope of this analysis has been discussed with the LB of Lewisham and TfL.

22.2.47 Given the level of transport activity associated with the Thames Tideway Tunnel project during the operational phase, only the localised transport effects around the Earl Pumping Station site have been assessed. Other Thames Tideway Tunnel sites would not affect the area around the site in the operational phase and therefore they have not been considered in the assessment.

22.2.48 Access would be required for a light commercial vehicle on a three to six monthly maintenance schedule. Additionally there would be more substantive maintenance visits at approximately ten year intervals which would require access to enable two mobile cranes and associated support vehicles to be brought to the site. The cranes would facilitate lowering and recovery of tunnel inspection teams and to provide duty/standby access for personnel.

22.2.49 During operation the site would be accessed from Croft Street or the existing Pumping Station access points on Yeoman Street and Chilton Grove (via Plough Way (B206)), as set out in the Earl Pumping Station design principles. The permanent highway layout plan in the Earl Pumping Station *Transport Assessment* figures shows the highway layout during the operational phase at Earl Pumping Station.

22.3 Assessment methodology

Engagement

22.3.1 An extensive scoping and technical engagement process has been undertaken. All consultee comments relevant to this site are presented in Volume 24 of the *Environmental Statement.*

22.3.2 Whilst the effects associated with transport for the operational phase have been scoped out of the *Environmental Statement*, the TA examines the operational phase in order to satisfy the relevant stakeholders that

technical issues have been addressed (for example, those associated with access for maintenance activities).

Consultees

22.3.3 Throughout the scoping and technical engagement process, the key stakeholders with regards to transport; primarily TfL and the relevant local authority for each site have been consulted. For Earl Pumping Station, the LB of Lewisham has been consulted and the comments which have arisen relating directly to Earl Pumping Station have been recorded and responded to accordingly.

22.3.4 The key technical issues raised have been addressed as far as practical at this stage within this *TA*, the *Project-wide TA*, and the *Environmental Statement*, in consultation with both TfL and LB of Lewisham.

22.3.5 The key issues arising from the stakeholder engagement are:

a. concerns about accessing the site in terms of residential parking displacement and using residential streets
b. assessment of the operation of the SRN/TLRN in the vicinity of the site
c. construction vehicle routing should avoid using Deptford Church Street if possible
d. removal of traffic calming measures
e. the impact on the proposed Cycle Superhighway along Evelyn Street (A200)
f. the assessment of the impact of construction traffic given the potential effects associated with the construction of other developments in the area
g. consideration should be given to the opportunity to tranship materials to and from the site locally to the safeguarded Convoys Wharf
h. information on construction traffic associated with other Thames Tideway Tunnel sites should be provided
i. additional details and analyses of type of users involved in the accidents should be shown on a plan
j. Road Safety Audits should be carried out
k. justification should be provided of why some nearby junctions were not modelled
l. clarification of the basis for defining the year of construction is required
m. clarification of working hours assumed in the *TA* for the assessment is required
n. swept path analysis for vehicle access to the construction site and final operational site should be undertaken.

Construction

22.3.6 The assessment methodology for the construction phase follows that described in the *Project-wide TA*. In this case, local traffic modelling has

been undertaken for the junction of Lower Road (A200) / Plough Way (B206) and Rotherhithe New Road (A2208) but has not been undertaken for the junction of Plough Way (B206) with Yeoman Street. This is because the traffic flows associated with construction at that junction are expected to be low and to present limited impact on the operation of the junction. Survey results and qualitative analysis have instead been used to understand the operation of this junction in the construction base and development cases.

22.3.7 The effect of all other Thames Tideway Tunnel project sites on the area surrounding the Earl Pumping Station site has been taken into account within the assessment of the peak year of construction at this site.

Construction assessment area

22.3.8 The assessment area for the Earl Pumping Station site includes the site access routes onto Yeoman Street, Croft Street and Chilton Grove from Plough Way (B206). The assessment area also includes the junction of Lower Road (A200) / Rotherhithe New Road (A2208) and Plough Way (B206) approximately 400m to the northwest, and the junction of Plough Way (B206) and Yeoman Street, approximately 150m to the north.

22.3.9 Consideration has also been given to the potential impacts on pedestrian and cycle routes and on bus services and rail or river services within 640m and 960m of the site respectively. The Public Transport Accessibility Level (PTAL) of the site, calculated using TfL's approved PTAL methodology assumes a walking speed of 4.8km/h and considers rail stations within a 12 minute walk (960m) of the site and bus stops within an eight minute walk (640m).

22.3.10 The extent of the assessment area for the local highway network modelling has been informed by considering the volume of construction traffic at this site and the degree of impact that would be experienced at the nearest junction of the construction vehicle route with the SRN or TLRN. Where the assessment shows that the forecast impacts at this junction would not be significant, junctions further from the site on the strategic network have not been assessed. Where impacts are forecast to be significant, a wider area of the local network has been considered in the assessment.

Construction assessment year

22.3.11 To assess the busiest case scenario for the Earl Pumping Station locality, the peak construction traffic year has been identified. This ensures that the assessment for Earl Pumping Station takes into consideration the heaviest flow of construction vehicles at this site on local roads for the local modelling assessment.

22.3.12 The site-specific peak construction traffic year at Earl Pumping Station is Site Year 1 of construction.

22.3.13 The assessment of the aggregated Thames Tideway Tunnel project construction traffic flows on the wider highway network is included within the *Project-wide TA*.

Highway network modelling

22.3.14 The assessment for this site takes account of construction vehicle movements associated with Earl Pumping Station, together with construction traffic from other Thames Tideway Tunnel project sites that would use the highway network in the vicinity of this site in Site Year 1 of construction.

22.3.15 As indicated in the *Project-wide TA*, the TfL HAMs have been used as part of the assessment. The strategic highway modelling has used three of the HAMs, which cover west, central and east London. These three models cover the locations of all of the Thames Tideway Tunnel project sites and this approach has been agreed with TfL.

22.3.16 The HAMs have been developed by TfL using GLA employment and population forecast set out in the *London Plan 2011* (GLA, 2011)[3]. As a result the assessment inherently takes into account a level of future growth and development across London.

22.3.17 For future year assessments for the Earl Pumping Station site, the TfL East London HAM (ELHAM) has been used to test the strategic highway network impacts associated with this site. Construction traffic associated with other Thames Tideway Tunnel project sites using the routes in this area has been included in the ELHAM scenarios.

22.3.18 Construction lorry, operational and worker vehicle trips (where relevant) associated with the project peak month were assigned to ELHAM to create the scenarios for testing strategic highway impacts.

22.3.19 ELHAM also provides factors for the increase in vehicle-kilometres in the borough between the ELHAM model base and forecast years (2008/9 and 2021 respectively). The relevant growth factor for the LB of Lewisham was applied to the traffic data collected in 2011 in the vicinity of the Earl Pumping Station site to produce base case traffic flows for the purposes of local highway modelling.

22.3.20 Construction lorry, operational and worker vehicle movements (where relevant) associated with the Earl Pumping Station site for the site-specific peak month were added to the 2021 base case flows to provide the development case flows for local modelling.

22.3.21 This approach provides a robust assessment case for local modelling as the baseline traffic has been growthed to 2021, which is later than the site-specific peak year of construction, and no allowance has been made for existing traffic that might divert to other routes as a consequence of the use of local roads by the project related traffic.

Operation

22.3.22 The assessment methodology for the operational phase follows that described in the *Project-wide TA*. There are no site-specific variations for undertaking the operational assessment of this site.

22.3.23 Given the level of transport activity associated with the Thames Tideway Tunnel project during the operational phase, only the localised transport issues around the Earl Pumping Station site have been assessed. Other

Thames Tideway Tunnel project sites would not affect the area around Earl Pumping Station in the operational phase and therefore they have not been considered in the assessment

Operational assessment area

22.3.24 The assessment area for the operational assessment remains the same as for the construction assessment as outlined in para. 22.3.8.

Operational assessment year

22.3.25 The operational assessment year has been taken as Year 1 of operation which is the year in which it is assumed that the Thames Tideway Tunnel project would become operational. As the number of vehicle movements associated with the operational phase would be low, there is no requirement to assess any other year beyond that date.

22.4 Baseline

22.4.1 This section sets out the baseline conditions on the local transport network in the vicinity of the Earl Pumping Station site in 2012, with the exception of the traffic survey data which was collected in 2011.

Policy review

22.4.2 The majority of the site is located within the LB of Lewisham; the relevant national, regional, and local policy documents have been reviewed and are included in Appendix A.

Existing land use

22.4.3 The site comprises the Thames Water Earl Pumping Station and adjacent industrial land.

22.4.4 The nearest residential area is located on Croft Street adjacent to the southern boundary of the commercial and industrial warehouse buildings to the south of the site.

Existing access

22.4.5 The site is currently accessible by vehicle from Chilton Grove and Yeoman Street. There is pedestrian and cycle access from the southern footway of Chilton Grove and the western footway of Yeoman Street.

Pedestrian network and facilities

22.4.6 The key pedestrian network related to the Earl Pumping Station site comprises:

a. Yeoman Street providing a north-south link between Yeoman Street bus stop to the north and the site

b. Chilton Grove providing an east-west link between the Lower Road (A200) / Plough Way (B206) bus stop to the west and the site

c. Croft Street providing north-south and east-west links between Bestwood Street bus stop to the southwest and the site

d. Plough Way (B206) and Lower Road (A200) providing east-west and north-south links respectively between Surrey Quays Overground station to the northwest and the site.

22.4.7 The Thames Path and the London Strategic Walk network in the vicinity of the site are shown on Figure 22.4.1 in the Earl Pumping Station *Transport Assessment* figures.

22.4.8 The Thames Path (a Public Right of Way) runs approximately 730m walking distance to the east of the site, adjacent to the River Thames. The Thames Path continues to the north along Rope Street and Helsinki Square, and to the south along Deptford Wharf and Foreshore.

22.4.9 Located to the east of the site, Yeoman Street provides a north-south link for pedestrians between the site and Plough Way (B206). Yeoman Street leads to a service yard to the south.

22.4.10 Yeoman Street has footways of between 1.5m and 1.8m along both sides of the two-way road with dropped kerbs where it meets Chilton Grove and Plough Way (B206). A 20mph speed limit applies to this road and traffic calming is provided between the T-junction of Plough Way (B206) with Yeoman Street and Chilton Grove to promote low traffic speeds and to improve safety for pedestrians. Plate 22.4.1 shows the western footway of Yeoman Street.

Plate 22.4.1 Footway facing south along Yeoman Street

22.4.11 Croft Street is located to the west of the site providing a north-south link between Plough Way (B206) and the site and an east-west link between Lower Road (A200) and the site. Footways of approximately 2m wide run along both sides of Croft Street with dropped kerbs provided at the junction with Woodcroft Mews. A raised table pedestrian crossing is provided where Croft Street meets Lower Road (A200) at a priority T-

junction. Traffic calming is also provided along Croft Street and the road is subject to a 20mph speed limit. Plate 22.4.2 shows the western footway of Croft Street.

Plate 22.4.2 Footway facing south along Croft Street

22.4.12 Chilton Grove is located to the north of the site and provides an east-west link between Lower Road (A200) to the west and Yeoman Street and Croft Street to the east. Footways of approximately 1.5m wide run along both sides of the road with dropped kerbs provided where the road meets Yeoman Street, Croft Street, and Lower Road (A200). Traffic calming is also provided along Chilton Grove and the road is subject to a 20mph speed limit. The southern footway of Chilton Grove is shown in Plate 22.4.3.

Plate 22.4.3 Footway facing east along Chilton Grove

22.4.13 To the north of the site, Plough Way (B206) provides an east-west link between Lower Road (A200) and Rotherhithe New Road (A2208) to the west and Grove Street to the east. Yeoman Street is accessed via Plough Way (B206), approximately 300m from the junction with Lower Road (A200) and Rotherhithe New Road (A2208).

22.4.14 Plough Way (B206) has footways of between 2m and 6.5m wide along both sides of the road. To the east of the junction with Yeoman Street, a pedestrian refuge island is provided on Plough Way (B206) for pedestrians wishing to cross the road.

22.4.15 Lower Road (A200) runs in a north-south direction to the west of the site and has footways of between 1.7m and 5m wide along both sides of the road.

22.4.16 Signalised pedestrian crossings are provided to the north, east and west of the junction of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) with a pedestrian refuge island on Rotherhithe New Road (A2208) on the approach to the junction.

22.4.17 At the junction of Lower Road (A200) with Evelyn Street (A200) and Bestwood Street (A200), zebra crossing facilities are provided with a pedestrian refuge island in the middle of the junction.

Cycle network and facilities

22.4.18 The existing cycle network and facilities in the vicinity of the site are described below and shown on Figure 22.4.1 in the Earl Pumping Station *Transport Assessment* figures.

22.4.19 The main cycle route within the area is National Cycle Network (NCN) Route 4 (traffic-free) which routes through central London. In the local area, NCN Route 4 runs to the east of the site, approximately 700m away. Cyclists can use Cunard Walk and Rope Street (both approximately 200m to the north of the site) which leads to NCN Route 4. The route continues south along the Thames Path, adjacent to the River Thames, and north along South Sea Street. NCN Route 4 along Thames Path is shown in Plate 22.4.4.

Plate 22.4.4 NCN Route 4 along Thames Path

22.4.20 There is a cycle path (on-road) running along Brunswick Quay, approximately 600m to the north of the site. The path continues north across Russia Dock Woodland and continues west along Deal Porters Way, Lower Road (A200), and Gomm Road.

Barclays Cycle Superhighways

22.4.21 There are no Barclays Cycle Superhighways (CS) in the vicinity of the site; however, CS4 is a planned future route running between Woolwich and London Bridge which is planned to open in 2015.

Barclays Cycle Hire Scheme

22.4.22 There are no Barclays Cycle Hire docking stations in the vicinity of the Earl Pumping Station site.

Cycle parking

22.4.23 On Plough Way (B206) one Sheffield cycle stand is located to the east of the junction with Trident Street approximately 330m from the site and one to the east of the junction with Lower Road (A200) approximately 375m from the site.

22.4.24 Six Sheffield cycle stands are provided along Rope Street, outside Greenland Pier and to the north of Greenland Dock approximately 700m from the site. Further Sheffield cycle stands are provided along Lower Road (A200) 25m southeast of the junction with plough way (B206) and at a distance of approximately 400m from the site.

Public transport

Public Transport Accessibility Level

22.4.25 The Public Transport Accessibility Level (PTAL) of the site, calculated using TfL's approved PTAL methodology (TfL, 2010)[4] (analysis is included in Appendix B).

22.4.26 The site has a PTAL rating of 3, rated as 'moderate' (with 1 being the lowest accessibility and 6b being the highest accessibility). The following sections detail the public transport services in the vicinity of the site which are shown on Figure 22.4.2 in the Earl Pumping Station *Transport Assessment* figures.

Bus services

22.4.27 A total of four daytime bus routes and two night bus routes operate within 640m walking distance of the site. These bus services form a comprehensive network, extending outwards in all directions from the site. Table 22.4.1 provides a summary of the bus services and their frequencies during the weekday peaks.

Table 22.4.1 Existing daytime weekday peak hour local bus services and frequencies (number of buses per hour)

Bus number	Origin - destination	Nearest bus stop to Earl Pumping Station site	Approximate walking distance from Earl Pumping Station site (m)	Weekday peak hour two-way frequencies	
				AM peak (08:00-09:00)	PM peak (17:00-18:00)
47	Catford Bus Garage – Shoreditch	Bestwood Street	380	14	14
188	North Greenwich Station – Russell Square	Bestwood Street	380	16	16
199	Canada Water Bus Station – Catford Bus Garage	Yeoman Street	190	11	11
225	Springbank Road - Canada Water Bus Station	Lower Road/Plough Way	380	8	8

Source: Transport for London (TfL) (2012) Timetables. Available at www.tfl.gov.uk (site last accessed December 2012)

22.4.28 These bus routes operate from the following bus stops:

a. Bestwood Street bus stop on Evelyn Street (A200) - northbound and southbound, 440m walking distance southwest of the site

b. Yeoman Street bus stop on Plough Way (B206) - northbound and southbound, 145m walking distance north of the site

c. Lower Road/Plough Way bus stop on Lower Road (A200) - southbound only, 280m walking distance west of the site.

22.4.29 On average there are approximately 49 daytime bus services in total per hour in the AM and PM peak hours within a 640m walking distance of the site.

22.4.30 On average there are seven night-time bus services per hour Monday – Friday between 00:00 – 06:00 and 11 bus services per hour on Saturdays between 00:00 – 06:00 within a 640m walking distance of the site.

London Underground

22.4.31 As shown on Figure 22.4.2 in the Earl Pumping Station *Transport Assessment* figures, Canada Water station, which is served by the Jubilee Line is located approximately 1.4km walking distance to the northwest. This is beyond the threshold distance of 960m used in the PTAL calculations and represents approximately 18 minutes walking time.

22.4.32 The Jubilee Line trains from this station travel east to Stratford and west to Stanmore. There are approximately 28 services in the AM and PM peak hours travelling to Stanmore and approximately 29 services travelling to Stratford in the AM and PM peak hours providing a total of 57 services during the peak hours.

22.4.33 Table 22.4.2 provides a summary of both London Underground and London Overground services and their frequencies during the weekday peaks.

London Overground

22.4.34 Surrey Quays station is located approximately 760m walking distance to the northwest of the site. Surrey Quays station is served by the London Overground route to Highbury and Islington, and Dalston Junction to the north and to West Croydon, Crystal Palace and New Cross to the south.

22.4.35 On average there are approximately 12 services during the AM and PM peak hours towards New Cross and West Croydon and there are 14 services in the AM peak hour and 12 services in the PM peak hour towards Highbury and Islington.

22.4.36 On average there are therefore 26 and 24 London Overground services per hour in total during the AM and PM peak hours respectively from Surrey Quays station.

Table 22.4.2 Existing London Underground and London Overground weekday peak hour services and frequencies (number of services per hour)

Line	Origin - destination	Approximate walking distance from Earl Pumping Station site (m)	Weekday peak hour two-way frequencies	
			AM peak (08:00-09:00)	PM peak (17:00-18:00)
Jubilee Line	Stanmore – Stratford	1,400	57	57
London Overground	Highbury and Islington, Dalston Junction, West Croydon, Crystal Palace, New Cross	760	26	24

Source: Transport for London (TfL) (2012) Timetables. Available at www.tfl.gov.uk (site last accessed December 2012)

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National Rail

22.4.37 As shown on Figure 22.4.2 in the Earl Pumping Station *Transport Assessment* figures, the closest station to the site that provides National Rail services is South Bermondsey station, located approximately 1.7km walking distance to the southwest of the site. The station provides access to London Victoria, West Croydon, London Bridge, Beckenham Junction, and Wimbledon.

22.4.38 In the AM and PM peak hours there are approximately 15 services (10 northwest bound and five southwest bound). Table 22.4.3 provides a summary of the National Rail services and their frequencies during the weekday peaks.

River passenger services

22.4.39 The nearest pier to the site is Greenland Pier, approximately 800m walking distance to the east of the site. The pier is served by Thames Clippers services which run between Embankment Pier to the west and Woolwich Arsenal Pier in the east. These river services are shown on Figure 22.4.2 in the Earl Pumping Station *Transport Assessment* figures.

22.4.40 Eastbound services from Greenland Pier start at 10:55 running until 23:43. During the AM weekday peak hour, there is no eastbound river service from this pier; however, the frequency of the PM weekday peak hour is approximately every 20 minutes in the eastbound direction.

22.4.41 The westbound services begin at 06:24 from this pier running until 22:34. During the AM and PM weekday peak hours, the frequency of the westbound services is approximately 10-20 minutes per hour.

22.4.42 Weekend river services at Greenland Pier begin at 10:08 in the eastbound direction and run until 23:43 with a frequency of every 20 minutes in the peak hours. The westbound weekend services start at 08:59 and arrive every 20 minutes at the pier during the peak hours. The last river service is at 22:34.

22.4.43 The frequency distribution of the services that stop at Greenland Pier is shown in Table 22.4.4.

Taxis

22.4.44 There is no taxi rank within 640m walking distance of the site.

Table 22.4.3 Existing National Rail weekday peak hour services and frequencies (number of services per hour)

National Rail station	Origin - destination	Approximate walking distance from Earl Pumping Station site (m)	Weekday peak hour two-way frequency	
			AM peak (08:00-09:00)	PM peak (17:00-18:00)
South Bermondsey	London Victoria, London Bridge, Epsom, Beckenham Junction, West Croydon, Wimbledon	1,700	15	15

Source: Railplanner information and timetables: www.nationalrail,co,uk (site last accessed December 2012)

Table 22.4.4 Greenland Pier weekday peak hour services and frequencies (number of services per hour

River service	Origin - destination	Approximate walking distance from Earl Pumping Station site (m)	Weekday peak hour two-way frequency	
			AM peak (08:00-09:00)	PM peak (17:00-18:00)
Thames Clippers	Embankment – Woolwich Arsenal	800	4*	6

**This is westbound services only in the AM peak hour.*
Source: Transport for London (TfL) (2012) Timetables. Available at www.tfl.gov.uk (site last accessed December 2012)

Highway network and operation

22.4.45 The site is bounded by Chilton Grove to the north, Yeoman Street to the east and Croft Street to the west. Croft Street is a one-way road northbound from the eastbound section of Croft Street to Chilton Grove with a 20mph speed limit. To the west, Chilton Grove meets Lower Road (A200) at a priority T-junction and to the east meets Yeoman Street at a priority T-junction.

22.4.46 Yeoman Street links to Plough Way (B206) to the north and a service yard to the south. A 20mph speed limit applies on Yeoman Street. Yeoman Street, Croft Street and Chilton Grove would be used by the construction vehicles to travel to and from the Earl Pumping Station site.

22.4.47 Construction vehicles would also use Plough Way (B206) and Lower Road (A200) to access the site. A 30mph speed limit applies on these roads. Lower Road (A200) is approximately 400m from the site and forms part of the SRN. It has a signal controlled junction with Plough Way (B206) and Rotherhithe New Road (A2208) and all construction vehicles would approach the site via this junction.

22.4.48 Lower Road (A200) is a one-way southbound carriageway between the junctions with Rotherhithe Old Road (A200) / Hawkstone Road (A2208) and Evelyn Street (A200) / Bestwood Street (A200). Lower Road (A200) flows into four lanes on the approach to the junction with Rotherhithe New Road (A2208) and Plough Way (B206) which provide one left turn lane (to Plough Way (B206), two ahead lanes and one right turn lane (to Rotherhithe New Road (A2208). Buses are also permitted to travel ahead from the nearside (left turn) lane.

22.4.49 Plough Way (B206) to the east of the junction with Lower Road (A200) and Rotherhithe New Road (A2208) has one lane in the eastbound direction and one lane in the westbound direction. Westbound traffic can only turn left at the junction to Lower Road (A200). The ahead movement into Rotherhithe New Road (A2208) is for buses only.

22.4.50 Located to the west of the junction with Lower Road (A200) and Plough Way (B206), Rotherhithe New Road (A2008) is a one-way westbound road with two lanes on the exit from the junction.

22.4.51 Lower Road (A200) leads to Jamaica Road (A200), Brunel Road (B205), and Rotherhithe Tunnel (A101) to the north, meeting them at a large roundabout approximately 1.5km to the northwest of the site. Jamaica Road (A200) and Rotherhithe Tunnel (A101) both form part of the TLRN. To the south, Lower Road (A200) links to Evelyn Street (A200) and Bestwood Street (A200) at a priority T-junction. Evelyn Street (A200) is a two-way single carriageway with a 30mph speed limit and is part of the SRN.

22.4.52 Bestwood Street (A200), Bush Road (A200), Rotherhithe New Road (A2208) and Lower Road (A200) form a one-way gyratory system surrounding Surrey Quays Overground station.

22.4.53 During all phases of construction at Earl Pumping Station, construction vehicles would use the northbound carriageway of Evelyn Street (A200) and would follow the one way gyratory system to access the site.

22.4.54 Traffic leaving the site would use Plough Way (B206) and would turn left at the junction with Lower Road (A200). Construction traffic would then travel southbound along the A200 towards the A2 in the southeast.

22.4.55 Local highway modelling has been undertaken to determine the operation of the Lower Road (A200) / Plough Way (B206) / Rotherhithe New Road (A2208) junction in the baseline situation. This is discussed in paras. 22.4.104 to 22.4.114.

Parking

22.4.56 Figure 22.4.3 in the Earl Pumping Station *Transport Assessment* figures shows the locations of the existing car parks and car club spaces within the vicinity of the site. The existing off-street/private car parking and car clubs parking spaces are also shown in this figure.

Existing on-street car parking

22.4.57 There is capacity to accommodate approximately 180 vehicles in unmarked parking zones at the kerbside on Croft Street, Yeoman Street, Chilton Grove, and Plough Way (B206) (between the junction with Lighter Close and the junction with Lower Road (A200)) which are located close to the site.

22.4.58 In addition, there are 131 resident parking bays on these roads. These parking bays are restricted to permit holders only between 08:00 and 18:30 Monday to Friday.

22.4.59 Capacity for approximately 375 vehicles is available on Acacia Close, the access road to Iceland Wharf, Boatlifter Way, Greenland Quay, Rope Street, and Sweden Gate in the form of unmarked spaces. These are located between 165m and 700m from the site.

22.4.60 There are also three resident parking bays on Trident Street which are restricted to permit holders only between 08:00 and 18:30 Monday to Friday.

22.4.61 On Croft Street, Chilton Grove, and Plough Way (B206) (between the junction with Lighter Close and the junction with Lower Road (A200)), there are four blue badge parking bays which are restricted to blue badge holders only.

22.4.62 Seven pay and display parking bays are provided on Rotherhithe New Road (A2208) to the west of the junction with Lower Road (A200) and Plough Way (B206). The parking bays are restricted to a maximum stay of 30 minutes with no return within two hours between 08:00 and 18:30 Monday to Saturday.

22.4.63 Table 22.4.5 summarises the parking restrictions and the number of bays on the roads in the vicinity of the site. The availability and usage of parking capacity on a weekday and a Saturday on the roads in the vicinity of the site is summarised later in this section in Table 22.4.9.

Table 22.4.5 Existing on-street car parking in the vicinity of the Earl Pumping Station site

Road name	Type of parking restrictions and number of bays				
	Pay and display	Resident	Blue badge	Unrestricted	Short-term
Acacia Close	0	0	0	49	0
Access road to Iceland Wharf	0	0	0	17	0
Croft Street	0	17	1	56	0
Yeoman Street	0	7	0	51	0
Boatlifter Way	0	0	0	29	0
Chilton Grove	0	51	2	24	0
Greenland Quay	0	0	1	48	0
Plough Way (B206)*	0	56	1	49	0
Rope Street	0	0	0	196	0
Sweden Gate	0	0	0	36	0
Trident Street	0	3	0	0	0
Total	**0**	**134**	**5**	**555**	**0**

**The maximum stay for short-term parking bays is 20 minutes.*
***Plough Way (B206) between the junctions with Lighter Close and Lower Road (A200).*

Existing off-street/private car parking

22.4.64 No off-street / private car parks are available in the immediate vicinity of the site. The nearest off-street car park to the site is Surrey Quays shopping centre car park with a large number of parking spaces, located on Redriff Road (B205), approximately 750m walking distance to the northwest of the site.

Coach parking

22.4.65 There is no provision for coach parking in the immediate vicinity of the site. The nearest coach parking spaces are at Associated Newspapers Print Works car park on Surrey Quays Road which is approximately 1.2km walking distance to the north-west of the site.

Car clubs

22.4.66 Car clubs provide members with easy access to cars for short-term use. Cars are available as and when needed and allow members to access a car without purchase, storage and operational costs associated with owning a private car.

22.4.67 The closest car club parking space to the site is operated by ZipCar and is approximately 350m walking distance away from the site on Greenland Quay to the north of the junction with Plough Way (B206) where one car is provided.

Servicing and deliveries

22.4.68 A loading bay is located approximately 480m to the northwest of the site, along Lower Road (A200) to the south of the junction with Cope Street. The bay is restricted to a stay of 40 minutes with no return within one hour.

Baseline survey data

Description of data

22.4.69 Junction movement data for the Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction were obtained from TfL. Data have been analysed to validate the traffic surveys undertaken in 2011 for the project which are discussed in further detail in para. 22.4.97.

22.4.70 Baseline survey data were collected in May and July 2011 to establish the existing transport movements and usage of parking in the area. Traffic surveys were carried out on a weekday and a weekend to represent a weekly profile of traffic at particular locations. Where two weekly profiles have been surveyed, the busiest survey was used. Figure 22.4.4 in the Earl Pumping Station *Transport Assessment* figures indicates the survey locations in the vicinity of the site.

22.4.71 As part of surveys in May and July 2011, manual and automated traffic surveys were undertaken to establish specific traffic, pedestrian and cycle movements including turning volumes, queue lengths and traffic signal timings. Parking surveys were undertaken to establish the availability and usage of parking in the vicinity of the site.

22.4.72 The scope of the surveys in terms of location and time periods was considered to ensure that the data required for assessment was collected. In some cases ATC data was collected on links to validate the junction count data and provide information for noise and air quality assessments. Pedestrian and cycle count data was collected at locations where flows could be affected by pedestrian and cycle diversions during construction, the generation of additional trips or where conflicts could occur with construction vehicles. Parking survey data was collected where it was possible that parking suspensions would be necessary or where additional parking demand might be generated by the proposed development.

22.4.73 The *Baseline Data Report* presents the method for field survey data collection and data collected through other sources which is an appendix to the *Project-wide TA.*

22.4.74 The surveys undertaken and their locations are summarised in Table 22.4.6.

Table 22.4.6 Survey type and locations

Survey type and location	Date
Junction survey (including pedestrian and cycle movements)	
Lower Road (A200) / Bestwood Street (A200) / Croft Street	7 and 12 May 2011
Rotherhithe New Road (A200) / Rotherhithe Old Road (A200) / Oldfield Grove	
Plough Way (B206) / Yeoman Street	
Jamaica Road (A200) / Brunel Road (B205) / Rotherhithe Tunnel (A101) / Lower Road (A200) roundabout	9 and 12 July 2011
Lower Road (A200) / Hawkstone Road (A2208) / Rotherhithe Old Road (A200)	
Lower Road (A200) / Redriff Road (B205)	
Lower Road (A200) / Surrey Quays Road	
Lower Road (A200) / Rotherhithe New Road (A200) / Plough Way (B206)	
Automatic Traffic Count (ATC)	
Evelyn Street (A200) to the west of the junction with Alloa Road	21 May – 10 June 2011
Lower Road (A200) to the south of the junction with Hotfield Place	
Pedestrian and cycle surveys	
Evelyn Street (A200) pedestrian crossing south of junction with Alloa Road	7 and 12 May 2011
Lower Road (A200) pedestrian crossing north of junction with Surrey Quays Road	
Parking surveys	
Greenland Quay	7 and 11 May 2011
Rope Street	
Chilton Grove	
Plough Way (B206)	
Lighter Close	
Trident Street	
Sweden Gate	
Yeoman Street	
Croft Street	
Woodcroft Mews	
Acacia Close	

22.4.75 The following ATC and junction surveys are on construction traffic routes to and from the Earl Pumping Station site:

a. ATC survey on Evelyn Street (A200) to the west of the junction with Alloa Road

b. junction survey at Lower Road (A200) / Bestwood Street (A200) / Croft Street

c. junction survey at Rotherhithe New Road (A200) / Rotherhithe Old Road (A200) / Oldfield Grove

d. junction survey at Plough Way (B206) / Yeoman Street

e. junction survey at Lower Road (A200) / Hawkstone Road (A2208) / Rotherhithe Old Road (A200)

f. junction survey at Lower Road (A200) / Redriff Road (B205)

g. junction survey at Lower Road (A200) / Rotherhithe New Road (A200) / Plough Way (B206).

Results of the surveys

22.4.76 The surveys inform the baseline situation in the area surrounding the site and are summarised in the following paragraphs.

Pedestrians

22.4.77 Table 22.4.7 indicates the pedestrian flows along the footway that crosses Yeoman Street at the junction with Plough Way (B206).

22.4.78 The pedestrian surveys indicate that during the AM peak hour the flow is heavier westbound with 27 pedestrians and there is a small flow of six pedestrians in the eastbound direction.

22.4.79 During the PM peak hour, there are five eastbound and seven westbound pedestrians using the footway of Plough Way (B206) at the junction with Yeoman Street.

22.4.80 A total of 641 and 554 pedestrians used the junction of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) in AM and PM peak hours respectively. During the AM peak hour, the predominant flow of pedestrians was northbound across the western arm of the junction (ie. across Rotherhithe New Road (A2208)) and during the PM peak hour the predominant flow of pedestrians was southbound across the same arm of the junction.

Table 22.4.7 Existing pedestrian flows

Road/route	Direction	Weekday			Weekend
		AM peak (08:00-09:00)	Inter-peak (12:00-13:00)	PM peak (17:00-18:00)	(13:00-14:00)
Junction counts (pedestrian crossings)					
Uncontrolled pedestrian crossing to the south of Plough Way (B206) / Yeoman Street junction	Eastbound	6	5	5	13
	Westbound	27	9	7	7
Controlled pedestrian crossing at the junction of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) (northern arm)	Eastbound	71	78	89	82
	Westbound	121	75	79	81
Controlled pedestrian crossing at the junction of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) (eastern arm)	Northbound	108	54	69	85
	Southbound	29	36	68	55
Controlled pedestrian crossing at the junction of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) (western arm)	Northbound	212	93	91	128
	Southbound	100	106	158	115

Cyclists

22.4.81 Cycle surveys around the site show the existing usage of cycle routes. Table 22.4.8 indicates the flows of bicycles along the main roads surrounding the site including Plough Way (B206), Lower Road (A200), Rotherhithe New Road (A2208), Rotherhithe Old Road (A200), and Bestwood Street (A200).

22.4.82 During the AM peak hour, there is a heavy flow of approximately 450 cyclists, along Rotherhithe New Road (A2208), Rotherhithe Old Road (A200), and Bestwood Street (A200). During the PM peak hour, a predominant southbound flow of approximately 250 cycles was observed along Lower Road (A200).

22.4.83 Plough Way (B206) experiences lower overall cycle flows with a predominant westbound flow of 29 cycles in the AM peak hour and relatively balanced cycle flows of approximately five cycles in each direction during the PM peak hours.

Table 22.4.8 Existing cycle flows

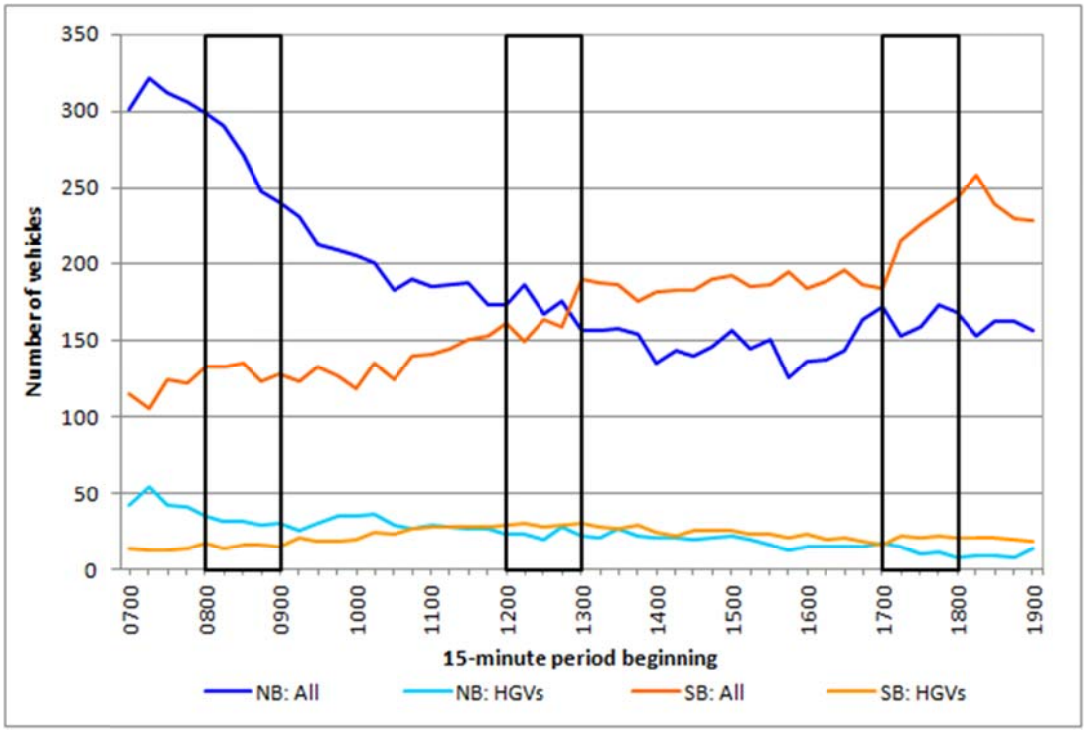
Road/route	Direction	Weekday			Weekend
		AM peak (08:00-09:00)	Inter-peak (12:00-13:00)	PM peak (17:00-18:00)	(13:00-14:00)
Plough Way (B206)	Eastbound	3	0	6	4
	Westbound	29	2	5	0
Lower Road (A200)*	Southbound	40	15	268	36
Rotherhithe New Road (A2208)*	Westbound	456	N/A**	45	6
Rotherhithe Old Road (A200)*	Northbound	410	N/A**	51	4
Bestwood Street (A200)*	Northwest bound	457	18	59	18

**Lower Road (A200), Rotherhithe New Road (A2208), Rotherhithe Old Road (A200) and Bestwood Street (A200) are one-way roads.*
*** Data is not available for inter-peak period along Rotherhithe New Road (A2208) and Rotherhithe Old Road (A200).*

Traffic flows

22.4.84 ATC data collected as part of the surveys have been analysed to identify the existing traffic flows along Lower Road (A200) and Evelyn Street (A200). Weekday flows have been used as this is when the greatest impacts from the project are likely to be experienced. The weekday vehicle and HGV flows for a 12-hour period (07:00-19:00) along Evelyn Street (A200) are shown in Plate 22.4.5 and along Lower Road (A200) in Plate 22.4.6.

Plate 22.4.5 Existing weekday 15-minute traffic flows on Evelyn Street (A200) (ATC survey)

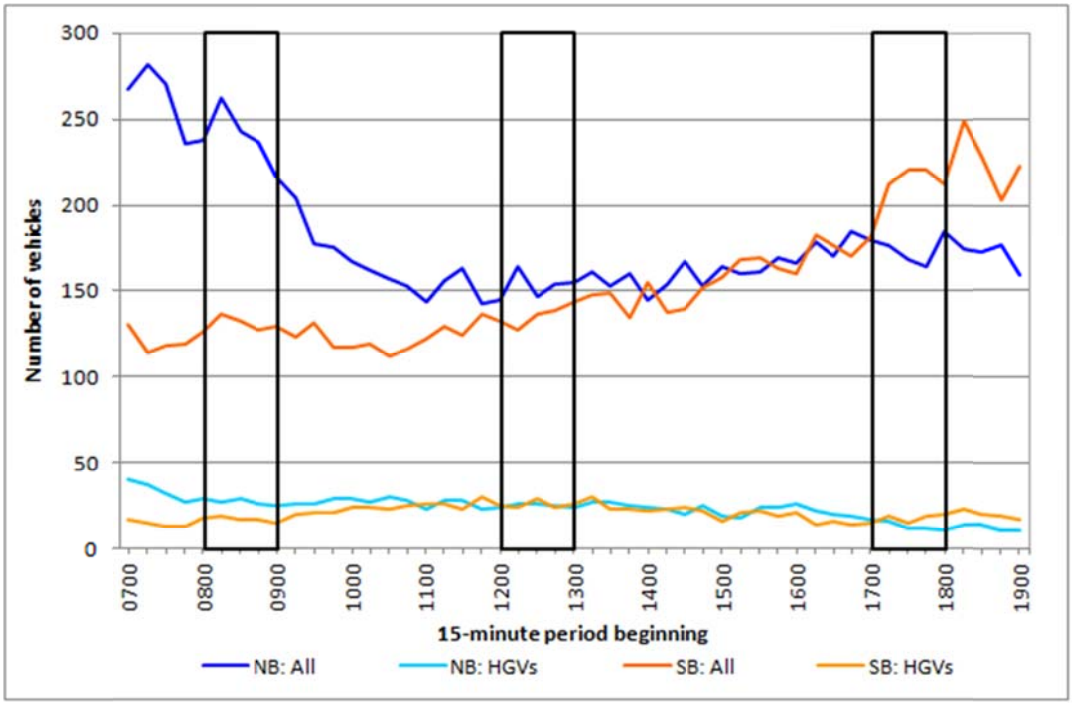


NB – North Bound, SB – South Bound. The black box represents the peak hour traffic flows used for the traffic assessment.

22.4.85 The weekday ATC data shows that between 08:00 and 09:00 there were approximately 1,640 two-way vehicle movements on Evelyn Street (A200). The busiest 15 minute peak period in this period occurred between 07:45 and 08:00 with approximately 300 northbound vehicles and approximately 130 southbound vehicles.

22.4.86 For the period between 17:00 and 18:00 there were approximately 1,520 two-way vehicle movements. The busiest 15 minute peak period in this period occurred after 17:30 with approximately 170 northbound vehicles and approximately 240 southbound vehicles.

Plate 22.4.6 Existing weekday 15-minute traffic flows on Lower Road (A200) (ATC survey)



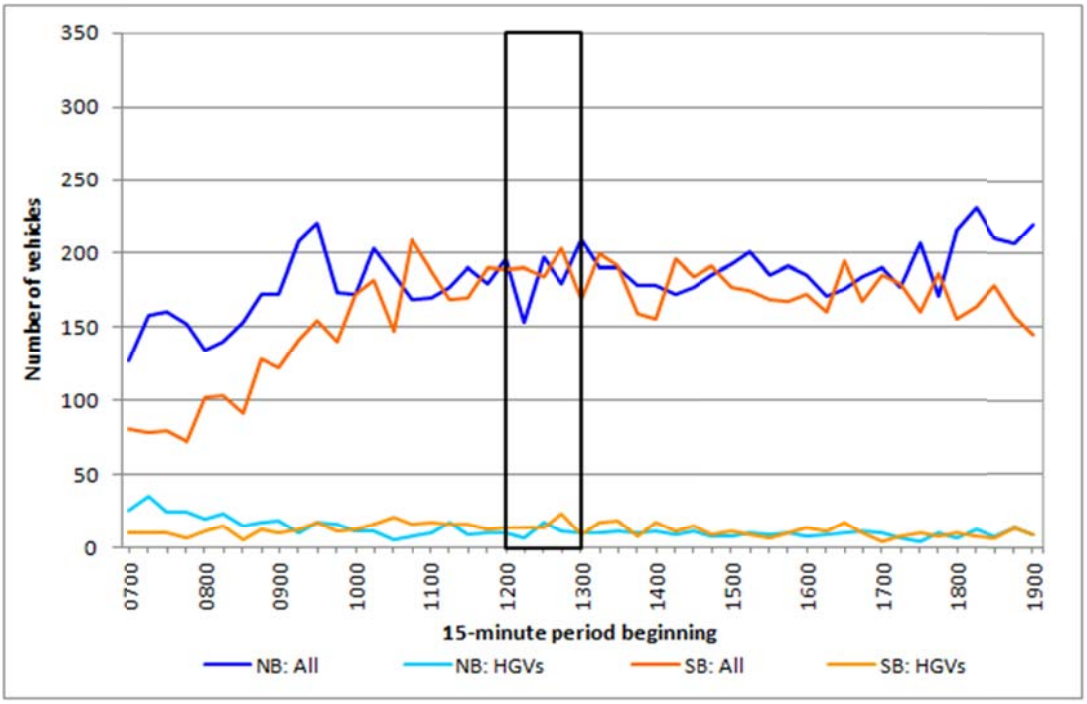
NB – North Bound, SB – South Bound. The black box represents the peak hour traffic flows used for the traffic assessment.

22.4.87 The weekday ATC data shows that between 08:00 and 09:00 there were approximately 1,500 two-way vehicle movements on Lower Road (A200). The busiest 15 minute peak period in this period occurred after 08:00 with approximately 260 northbound vehicles and approximately 140 southbound vehicles.

22.4.88 For the period between 17:00 and 18:00 there were approximately 1,520 two-way vehicle movements. The busiest 15 minute peak period in this period occurred after 17:15 with approximately 170 northbound vehicles and approximately 220 southbound vehicles.

22.4.89 The Saturday vehicle and HGV flows for a 12-hour period (07:00-19:00) on Evelyn Street (A200) are shown in Plate 22.4.7. Analysis of the data showed that the Saturday peak travel period occurred between 12:00 and 13:00 with approximately 1,500 two-way movements recorded. This is less than the AM and PM weekday two-way traffic flows however the period falls within the expected weekend construction works vehicle movements period of between 08:00 and 13:30 on a Saturday.

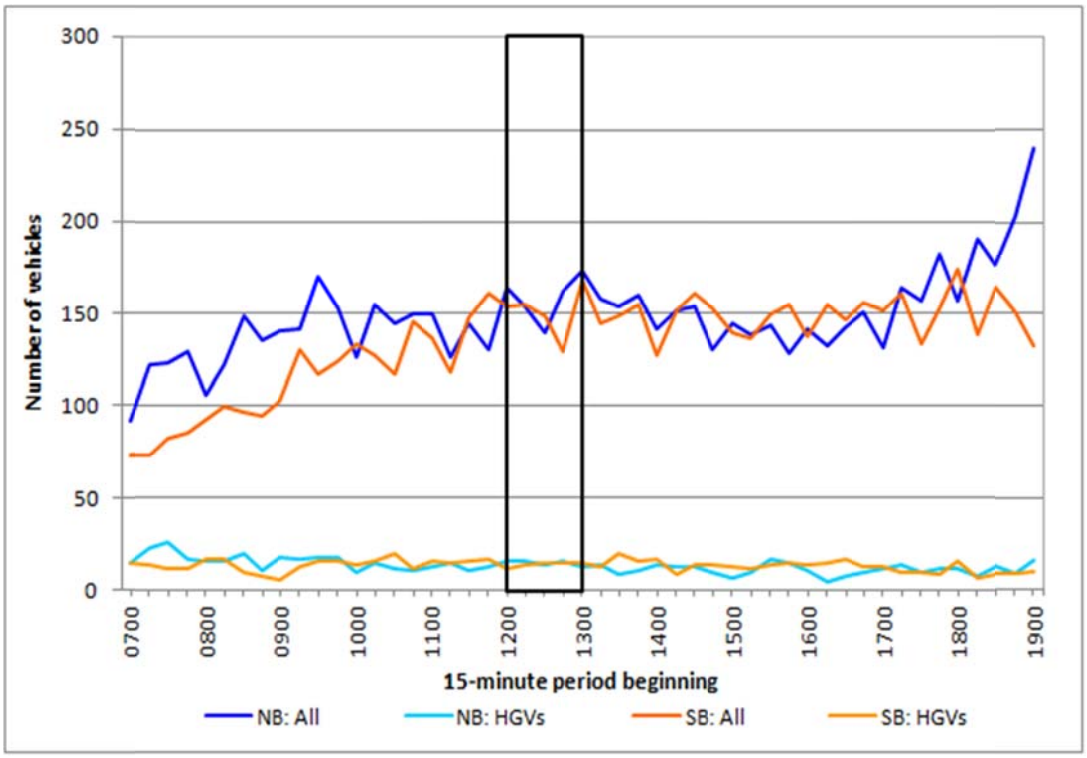
Plate 22.4.7 Existing Saturday 15-minute traffic flows on Evelyn Street (A200) (ATC survey)



NB – North Bound, SB – South Bound. The black box represents the peak hour traffic flows used for the traffic assessment.

22.4.90 The Saturday vehicle and HGV flows for a 12-hour period (07:00-19:00) on Lower Road (A200) are shown in Plate 22.4.8. The Saturday peak travel period occurred between 18:00 and 19:00 with approximately 1,360 two-way movements recorded. This is less than the AM and PM weekday two-way traffic flows and the period falls outside of the expected weekend construction works vehicle movements period of between 08:00 and 13:30 on a Saturday.

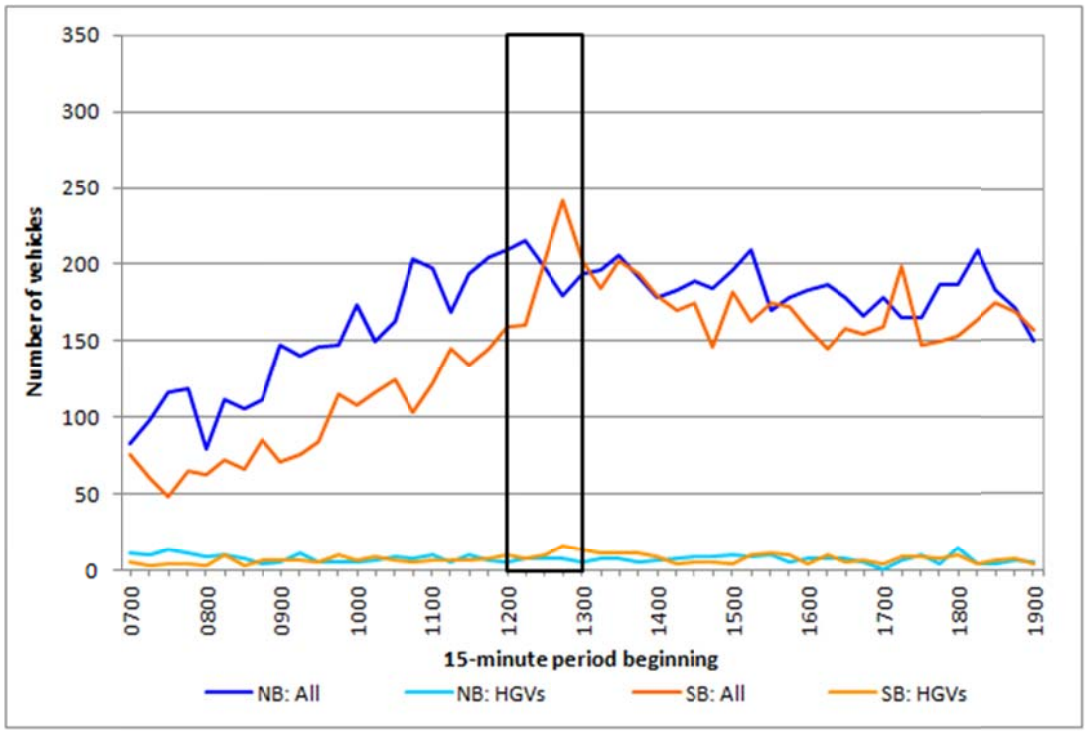
Plate 22.4.8 Existing Saturday 15-minute traffic flows on Lower Road(A200) (ATC survey)



NB – North Bound, SB – South Bound. The black box represents the peak hour traffic flows used for the traffic assessment.

22.4.91 The Sunday vehicle and HGV flows for a 12-hour period (07:00-19:00) on Evelyn Street (A200) are shown in Plate 22.4.9. Analysis of the data showed that the Sunday peak travel period occurred between 15:00 and 16:00 with approximately 1,450 two-way movements recorded. This is less than the AM and PM weekday two-way traffic flows. However, construction vehicle movements are not expected to take place on a Sunday.

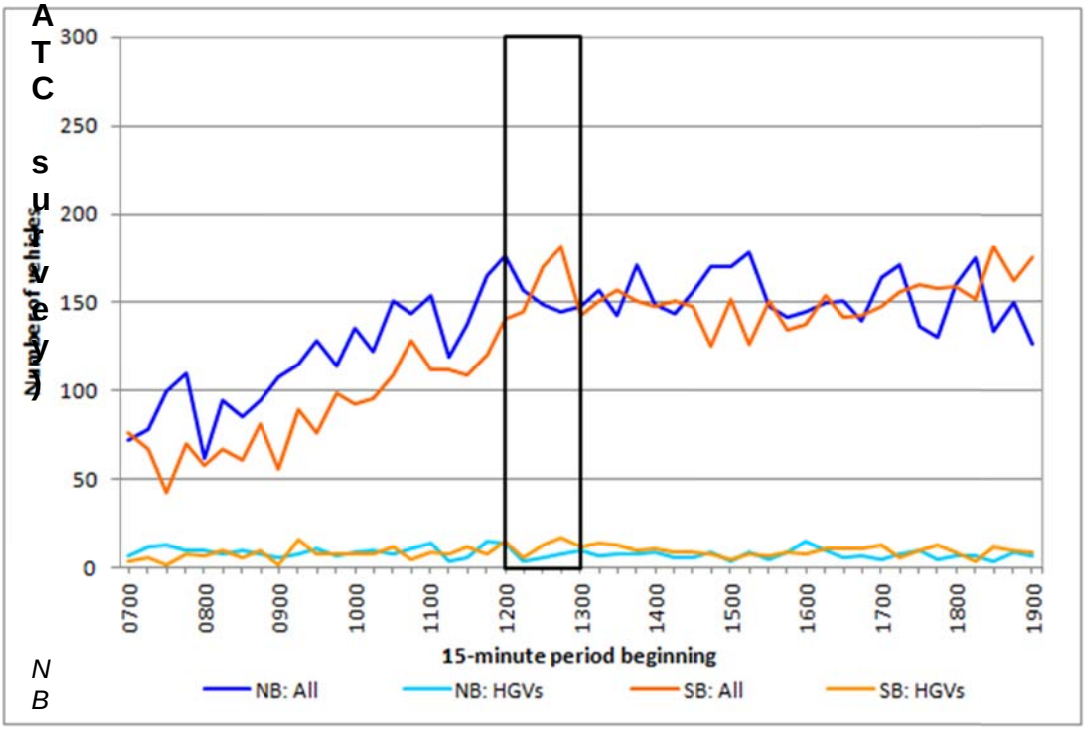
Plate 22.4.9 Existing Sunday 15-minute traffic flows on Evelyn Street (A200) (ATC survey)



NB – North Bound, SB – South Bound. The black box represents the peak hour traffic flows used for the traffic assessment.

22.4.92 The Sunday vehicle and HGV flows for a 12-hour period (07:00-19:00) on Lower Road (A200) are shown in Plate 22.4.10. The Sunday peak travel period occurred between 18:00 and 19:00 with approximately 1,280 two-way movements recorded. This is less than the AM and PM weekday two-way traffic flows. However, construction vehicle movements are not expected to take place on a Sunday.

Plate 22.4.10 Existing Sunday 15-minute traffic flows on Lower Road (ATC survey)



NB – North Bound, SB – South Bound. The black box represents the peak hour traffic flows used for the traffic assessment.

22.4.93 The traffic flows for the junctions of Plough Way (B206) / Yeoman Street and Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) in the AM and PM peak hours are shown in Figure 22.4.5 and Figure 22.4.6 in the Earl Pumping Station *Transport Assessment* figures.

22.4.94 The junction surveys indicate that in the AM and PM peak hours, a total of 235 and 346 vehicles respectively use the junction of Plough Way (B206) with Yeoman Street, with a predominant westbound flow of 135 vehicles in the AM peak hour and predominant eastbound flow of 251 vehicles during the PM peak hour along Plough Way (B206).

22.4.95 There is a total traffic flow of 1,127 and 1,859 vehicles in the AM and PM peak hours respectively using the Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction. The dominant flows are 1,029 and 1,785 vehicles along Lower Road (A200) in the southbound direction in the AM and PM peak hours respectively.

22.4.96 Junction survey data for the Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction were also sourced from TfL from surveys undertaken in March 2010. The baseline traffic flow diagrams in Figures 22.4.7 and 22.4.8 in the Earl Pumping Station *Transport Assessment* figures indicate the AM and PM peak hour traffic flows for this junction.

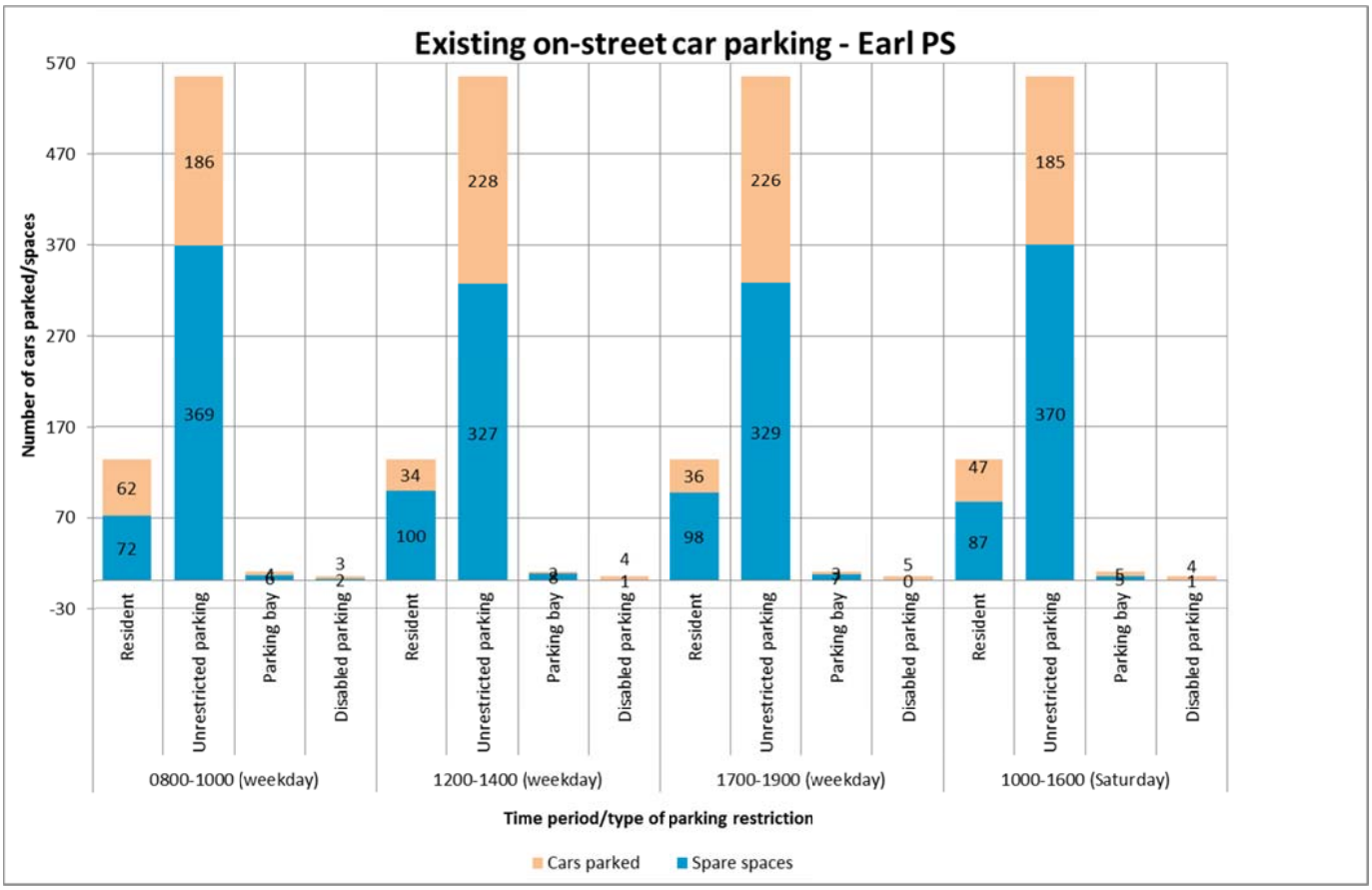
22.4.97 The TfL data for the Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction indicates that there is a total traffic flow of 999 and 1,788 vehicles using this junction in the AM and PM peak hours

respectively. The dominant flows are 910 and 1,726 vehicles along Lower Road (A200) in the southbound direction in the AM and PM peak hours respectively.

22.4.98 Comparison of the 2011 junction survey data against the TfL junction survey data shows that the TfL data is slightly lower than, but of a similar order of magnitude to, the 2011 junction survey data.

22.4.99 Parking Plate 22.4.11 shows a histogram of the resident and unrestricted car parking survey results as well as blue badge parking bay availability and usage in the area surrounding the Earl Pumping Station site during the AM, inter-peak, PM peaks on a weekday and during the weekend peak period.

Plate 22.4.11 Existing on-street car parking availability and usage



22.4.100 Table 22.4.9 indicates the parking capacity available throughout a weekday and on Saturday on the roads in the vicinity of the site.

Table 22.4.9 Resident, unrestricted and blue badge parking bay availability and usage*

Location	Total number of bays	No. of spaces available			
		Weekday			Saturday
		08:00-10:00	12:00-14:00	17:00-19:00	12:00-14:00
Number of resident parking bays					
Croft Street	17	14	13	15	11
Yeoman Street	7	4	4	3	4
Chilton Grove	51	23	34	39	30
Plough Way (B206)*	56	30	48	41	42
Trident Street	3	1	1	0	0
Total	**134**	**72**	**100**	**98**	**87**
Number of unrestricted parking					
Acacia Close	49	40	44	42	49
Access road to Iceland Wharf	17	16	17	17	17
Croft Street	56	18	21	20	35
Yeoman Street	51	23	26	28	39
Boatlifter Way	29	18	14	15	14
Chilton Grove	24	6	4	3	3
Plough Way (B206)*	49	41	40	42	43
Greenland Quay	48	32	22	17	17
Rope Street	196	146	113	120	129
Sweden Gate	36	29	26	25	24
Total	**555**	**369**	**327**	**329**	**370**
Blue badge parking bay					
Croft Street	1	0	0	0	0
Chilton Grove	2	0	0	0	1
Greenland Quay	1	1	0	0	0
Plough Way (B206)*	1	1	1	0	0
Total	**5**	**2**	**1**	**0**	**1**

**Plough Way (B206) between the junctions with Lighter Close and Lower Road (A200). Figures for Plough Way (B206) are based on observation during site visits.*

22.4.101 The results of the surveys indicate that usage of the resident parking bays on the roads in the vicinity of the site is between 25% and 46% and that

there is generally spare capacity available on both weekdays and at weekends.

22.4.102 Surveys were also undertaken to establish the availability of unrestricted parking in the vicinity of the site to understand existing occupancy and capacity. Results indicate there is ample capacity (between 33% and 41% of available kerbside space utilised) along the roads close to the site as the spaces in these locations are not heavily used for the majority of the day.

22.4.103 The blue badge holder parking spaces on Croft Street, Chilton Grove, Greenland Quay, and Plough Way (B206) are almost fully used on weekdays and at weekends.

Local highway modelling

22.4.104 To establish the existing capacity on the local highway network, a scope was discussed with TfL and the LB of Lewisham to model the junction of Lower Road (A200) / Plough Way (B206) / Rotherhithe New Road (A2208) using a LinSig model. The baseline model therefore accounts for the current traffic and transport conditions within the vicinity of the site.

22.4.105 Traffic models for this junction have been developed for this assessment and where possible suitable models from TfL have been used. The models have been constructed using on-street measurements of classified vehicle volumes and queue lengths.

22.4.106 The TfL Modelling Guidelines (TfL, 2010)[5] and Modelling Audit Process (MAP) (TfL, 2011)[6] have been used as the basis for preparing and checking models and their outputs. All required input data has been used in order to calibrate the model. Where TfL models have been used, saturation flows have been retained where no change is proposed to junctions; where changes are proposed, saturation flows have been calculated and compared with site observations to determine suitable values. Validation of the models has been used on observed data including signal timings, vehicle volumes and queue lengths to provide the key criteria for comparison with modelled queue lengths.

22.4.107 The models are considered suitable for this planning stage and are intended to demonstrate the nature of the effects of the additional vehicles generated by the Thames Tideway Tunnels project in this location. It is acknowledged that these models may require further refinement as the project moves from planning to detailed design stage; however, as a period of time will elapse before construction commences at this site, it will be necessary in any case to review and revalidate the models against traffic conditions at that time, as is normal practice

22.4.108 As the strategic modelling has not identified any major issues at other junctions in the vicinity of the site, no local modelling is required for other junctions.

22.4.109 Figures 22.4.5 and 22.4.6 in the Earl Pumping Station *Transport Assessment* figures show the traffic flows which were used for the baseline AM and PM peak hour assessments. They take TfL and survey data into account.

22.4.110 Table 22.4.10 shows the modelling outputs for the baseline case. The modelling results indicate that the network is currently operating below theoretical capacity in the weekday AM and PM peak hours.

Table 22.4.10 Baseline LinSig model outputs

Approach	Movement	Weekday							
		AM peak hour (08:00-09:00)				PM peak hour (17:00-18:00)			
		Flow (PCU)	DoS	MMQ (PCU)	Delay (seconds per PCU)	Flow (PCU)	DoS	MMQ (PCU)	Delay (seconds per PCU)
Lower Road (A200)	Ahead left	363	21%	2	4	934	51%	4	5
	Ahead right	667	44%	3	5	850	54%	4	5
Plough Way (B206)	Ahead left	98	48%	3	60	74	48%	3	68
Rotherhithe New Road (A2208)	Ahead	306	51%	3	7	409	68%	6	11
		PRC		Total delay (PCU hours)		PRC		Total delay (PCU hours)	
Overall junction performance		+75%		4		+32%		5	

Note: DoS represents Degree of Saturation; the ratio of flow to capacity. MMQ represents Mean Maximum Queue for the busiest-case 15 minute modelled period (in vehicle length). Delay represents the mean delay per PCU. PCU represents Passenger Car Unit. PRC represents Practical Reserve Capacity; measure of how much additional traffic could pass through a junction whilst maintaining a maximum DoS of 90% on all lanes. PCU value for a car is one PCU. Vans and three-axle vehicles are 1.5 PCUs, vehicles with four or more axles are 2.3 PCUs. Buses and coaches are two PCUs. Motorcycles are 0.4 and pedal cycles are 0.2 PCUs.

22.4.111 The model indicates that during the AM peak the delay to vehicles is most significant on Plough Way (B206) which currently experiences an average of 60 seconds of delay per PCU.

22.4.112 The PM peak hour is the busiest and the Rotherhithe New Road (A200) westbound ahead movement is operating at 68% of saturation in the baseline, with maximum queues of approximately six vehicle lengths. The delay to vehicles is most significant on Plough Way (B206) with an average of 68 seconds of delay per PCU.

22.4.113 The LinSig junction model output shows that total junction delay is four PCU hours in the AM peak period assessed and five PCU hours in the PM peak period assessed. These equate to nine seconds per PCU in the AM peak period assessed and eight seconds per PCU in the PM peak period assessed.

22.4.114 More detailed model outputs are indicated in Appendix C which also supplies diagrams showing the lane structure used for the assessment of the junction.

Accident analysis

22.4.115 Accident data in the assessment area for the most recent five-year period available were obtained from TfL.

22.4.116 A total of three serious and 29 slight accidents occurred in the Earl Pumping Station assessment area over the five years for which accident data was obtained and analysed. There were no fatal accidents.

22.4.117 The largest number of road traffic accidents in the five year period occurred at the junction of Lower Road (A200) / Evelyn Street (A200) and Bestwood Street (A200) with a total of nine accidents (one serious accident and seven slight accidents).

22.4.118 In total, three serious accidents occurred in the vicinity of the site. One of the serious accidents involved a pedestrian who was hit by a car along Plough Way (B206). The other serious accidents, which did not involve pedestrians or cyclists, involved motor vehicles. Not looking properly and failing to judge another vehicle's path or speed were the main causes of the serious accidents, which were not considered to be as a result of the road geometry.

22.4.119 Of the total accidents, nine involved pedestrians with the majority occurring along Plough Way (B206) and at the junction of Lower Road (A200) / Evelyn Street (A200) and Bestwood Street (A200). Three of the pedestrians involved in the accidents were minors and six were adults. The accidents were primarily caused by drivers or pedestrians not looking properly and reckless driving.

22.4.120 Five of the total accidents involved pedal cycles, all of which involved collisions with cars. The accidents occurred along Lower Road (A200) and at the junctions with Chilton Grove, Croft Street and Evelyn Street (A200) and Bestwood (A200). These accidents were caused by road users not looking properly, making poor manoeuvres or driving recklessly.

22.4.121 One accident involved a goods vehicle which happened at the junction of Lower Road (A200), Evelyn Street (A200) and Bestwood Street (A200) where the goods vehicle and a motorcycle collided. The accident was caused by one vehicle following another too closely and travelling too fast for the conditions.

22.4.122 In the majority of the accidents which occurred in the vicinity of the site, not looking properly, reckless driving, poor manoeuvres and travelling too fast for the conditions were the main causes of the accidents. Based on the information available, none of the accidents were considered to be as a result of the road geometry or failure of infrastructure.

22.4.123 Table 22.4.11 and Figure 22.4.9 in the Earl Pumping Station *Transport Assessment* figures show the accidents that occurred within the vicinity of the site.

Table 22.4.11 Summary of accidents recorded

Location	Slight	Serious	Fatal	Total
Croft Street	0	0	0	0
Yeoman Street	0	0	0	0
Chilton Grove	0	0	0	0
Plough Way (B206)	3	1	0	4
Lower Road (A200)	4	0	0	4
Chilton Grove / Yeoman Street junction	0	0	0	0
Chilton Grove / Croft Street junction	1	0	0	1
Croft Street / Woodcroft Mews junction	0	0	0	0
Plough Way (B206) / Yeoman Street junction	0	1	0	1
Plough Way (B206) / Greenland Quay junction	0	0	0	0
Plough Way (B206) / Trident Street junction	1	0	0	1
Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction	7	0	0	7
Lower Road (A200) / Chilton Grove junction	3	0	0	3
Lower Road (A200) / Croft Street junction	2	0	0	2
Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200) junction	8	1	0	9
Total	**29**	**3**	**0**	**32**

** Plough Way (B206) between the junction with Yeoman Street and the junction with Lower Road (A200) and Rotherhithe New Road (A2208)*
*** Lower Road (A200) between the junction with Rotherhithe New Road (A2208) and Plough Way (B206) and the junction with Bestwood Street (A200) and Evelyn Street (A200)*

22.4.124 Of the nine pedestrian-injury accidents, all occurred on the roads expected to be used by construction vehicles within the study area. Inspection of the data showed that none of these occurred at junctions with signalised pedestrian crossing facilities, with the nine accidents occurring at locations without signal control. Of the five accidents involving cyclists, all occurred on the roads expected to be used by construction vehicles within the study area. Figure 22.4.10 in the Earl Pumping Station *Transport Assessment* figures shows the pedestrian and cycle accidents by severity that occurred within the vicinity of the site.

22.4.125 In the context of the construction HGV movements associated with the Earl Pumping Station site, the accident risk to these modes of travel would be managed by providing pedestrian and cyclist awareness training for commercial drivers associated with the construction works as set out in the *CoCP*. For sections of roads affected by roadworks, the risk to all road users would be managed by the contractor(s) in accordance with the provisions made under the Traffic Signs Manual Chapter 8 – Traffic Safety Measures and Signs for Road Works (DfT, 2009)[7].

22.4.126 Appendix D provides a full analysis of accidents within the local area surrounding Earl Pumping Station.

22.5 Construction assessment

22.5.1 The *TA* for the Earl Pumping Station site including both qualitative and quantitative analysis has been undertaken drawing on discussions with TfL and the Local Highway Authorities, knowledge of the transport networks and their operational characteristics in the vicinity of the site and the anticipated construction programme, duration and levels of construction activity.

22.5.2 The construction assessment compares a construction base case, which represents transport conditions in the assessment year without the Thames Tideway Tunnel project, with a construction development case, which represents conditions with the Thames Tideway Tunnel project under construction. The construction base case does not include any traffic related to the Thames Tideway Tunnel, whether from the Earl Pumping Station site or from other sites.

Construction base case

22.5.3 As described in Section 22.3, the construction assessment year for transport effects in relation to this site is Site Year 1 of construction.

Pedestrians and cyclists

22.5.4 There are no known proposals to change the pedestrian network by Site Year 1 of construction and the construction base case for the pedestrian network is therefore the same as indicated in the baseline description in Section 22.4.

22.5.5 It is expected that by 2015 Barclays Cycle Superhighway (CS) Route 4 will be opened, running from Woolwich to London Bridge. The nearest

approach of CS4 to the site would be at Lower Road (A200), approximately 400m to the northwest.

Public transport

22.5.6 In terms of the public transport network, it is expected that as a result of the TfL London Underground Upgrade Plan (TfL, 2011)[8], compared to the current baseline, London Underground capacity will increase on the Jubilee Line by approximately 33% with a reduction in journey times of approximately 22%.

22.5.7 There are no known proposals to alter London Overground services in the Lewisham area from current baseline conditions and therefore the construction base case remains similar to the baseline position.

22.5.8 Due to the traffic growth in the construction base case compared to the baseline situation, bus journey times at the junction of Lower Road (A200) / Plough Way (B206) / Rotherhithe New Road (A2208) and within the wider area will be affected. The effect on journey times is detailed under the highway operation and network assessment (paras. 22.5.20 to 22.5.23) and will result in an additional average delay of a maximum of one second per PCU in the PM peak hour on the Lower Road (A200) southbound ahead and right movements, and the Rotherhithe New Road (A2208) westbound ahead movement. In the AM peak hour, there will be no additional delay at Lower Road (A200) / Plough Way (B206) / Rotherhithe New Road (A2208) junction compared to baseline conditions.

22.5.9 It is anticipated that patronage on public transport services may change between the baseline situation and Site Year 1 of construction. Future patronage changes on bus, rail and river networks will be driven by a range of complex factors and there are inherent uncertainties in setting a patronage level for a future year. Therefore, in order to ensure that a busiest base case scenario has been used in assessing the result of additional construction worker journeys by public transport, the capacity for public transport services in the construction base case has been assumed to remain the same as capacity in the baseline situation. This ensures a robust assessment.

Highway network and operation

22.5.10 Baseline traffic flows (determined from the junction surveys and TfL data) have been used and forecasting carried out to understand the capacity on the highway network in the vicinity of the Earl Pumping Station site in Site Year 1 of construction without the Thames Tideway Tunnel project. The scope of this analysis has been discussed with the LB of Lewisham and TfL.

22.5.11 Strategic highway network modelling has been undertaken at a project-wide level using the TfL HAMs, which include forecasts of employment and population growth in line with the *London Plan 2011* (TfL, 2011)[9]. Growth factors have been derived at individual borough level by comparing the 2008/9 base and 2021 forecast years in the HAMs, as described in the *Project-wide TA*.

22.5.12 For the Earl Pumping Station site, ELHAM has been used. The relevant growth factor for this site is described in para. 22.5.18 which was applied to the survey flows undertaken in 2011 to produce flows for the base and development cases.

22.5.13 It should be noted that these represent growth over the period to 2021, which is beyond Year 1 of construction at Earl Pumping Station and therefore ensure that the construction base case for the highway network is robust.

Committed developments

22.5.14 The construction base case takes into account new developments that would be complete or under construction within the vicinity of the site by Site Year 1 of construction at Earl Pumping Station. Six developments identified within 1km of the Earl Pumping Station site which would be complete and operational by Site Year 1 of construction. These developments have therefore been included in the construction base case. They comprise:

a. mixed-use development of Tavern Quay
b. mixed-use development at Surrey Quays Leisure site
c. mixed-use development at Canada Water site
d. redevelopment of existing retail warehouses in Canada Water
e. mixed-use development of Quebec Way Industrial Estate
f. mixed-use development of Mulberry Business Park.

22.5.15 The mixed-use developments of Cannon Wharf and Surrey Canal Triangle would also be partially complete and operational by Site Year 1 of construction; however, some phases of these developments would still be under construction in Site Year 1 of construction.

22.5.16 In addition, the development of Marine Wharf West, construction of a five storey building on Yeoman Street, phases 1 and 2 of Convoys Wharf and the Oxestalls Road redevelopment would be under construction in Site Year 1 of construction.

22.5.17 The strategic and local highway modelling has taken these committed developments into consideration.

Local highway modelling

22.5.18 The growth factors for the LB of Lewisham based on ELHAM have been discussed with TfL and the LB of Lewisham and applied equally to all of the baseline traffic flow movements. The growth factors are:

a. Weekday AM Peak growth factor – +3.2%
b. Weekday PM Peak growth factor – +3.8%

22.5.19 Para. 22.3.10 explains the definition of the assessment area for local highway network modelling. At this site, the assessment examines only the nearest junction of the construction vehicle route with the SRN.

22.5.20 The results of the construction base case LinSig model for the junction of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) are shown in Table 22.5.1. The results indicate that the junction would operate within capacity in both peak hours without the Thames Tideway Tunnel project.

Table 22.5.1 Construction base case LinSig model outputs

Approach	Movement	Weekday							
		AM peak hour (08:00-09:00)				PM peak hour (17:00-18:00)			
		Flow (PCU)	DoS	MMQ (PCU)	Delay (seconds per PCU)	Flow (PCU)	DoS	MMQ (PCU)	Delay (seconds per PCU)
Lower Road (A200)	Ahead left	382	22%	2	4	888	50%	4	5
	Ahead right	682	45%	3	5	965	62%	7	6
Plough Way (B206)	Ahead left	101	49%	3	60	76	49%	3	68
Rotherhithe New Road (A2208)	Ahead	316	53%	4	7	425	71%	7	12
		PRC		Total delay (PCU hours)		PRC		Total delay (PCU hours)	
Overall junction performance		+70%		4		+27%		6	

Notes: 1. DoS represents Degree of Saturation; the ratio of flow to capacity. MMQ represents Mean Maximum Queue for the busiest-case 15 minute modelled period (in vehicle lengths). Delay represents the mean delay per PCU. PCU represents Passenger Car Unit. PRC represents Practical Reserve Capacity; measure of how much additional traffic could pass through a junction whilst maintaining a maximum DoS of 90% on all lanes. PCU value for a car is one PCU. Vans and three-axle vehicles are 1.5 PCUs, vehicles with four or more axles are 2.3 PCUs. Buses and coaches are two PCUs. Motorcycles are 0.4 PCUs and pedal cycles are 0.2 PCUs.

2. Assessment has assumed that traffic signal optimisation has been undertaken as detailed in Volume 2 of the ES.

22.5.21 Compared to the baseline situation, there will be a change in queue lengths at the junction of Lower Road (A200) / Plough Way (B206) / Rotherhithe New Road (A2208). In the AM peak hour the only increase in average queue lengths will be on the Rotherhithe New Road (A2208) approach where queues would increase by one vehicle length. In the PM peak hour the greatest increase in queue length will be on the Lower Road (A200) southbound ahead and right movements with a maximum increase of approximately three vehicle lengths.

22.5.22 The results indicate that there will be an additional delay of a maximum of approximately one second in the PM peak hour on the Lower Road (A200) southbound ahead and right movements, and the Rotherhithe New Road (A2208) westbound ahead movement, compared to baseline conditions. In the AM peak hour, there will be no additional delay at Lower Road (A200) / Plough Way (B206) / Rotherhithe New Road (A2208) junction.

22.5.23 The LinSig junction model output shows that total junction delay is four PCU hours in the AM peak period assessed and six PCU hours in the PM peak period assessed. These equate to nine seconds per PCU in the AM and PM peak periods assessed.

Construction development case

22.5.24 This section summarises the findings of the assessment undertaken for the peak year of construction at the Earl Pumping Station site (Site Year 1 of construction).

Pedestrian routes

22.5.25 As discussed in Section 22.2, the pedestrian diversions would result in changes to the pedestrian movements around Earl Pumping Station. The construction phase layout plan in the Earl Pumping Station *Transport Assessment* figures shows the layout of pedestrian footways during construction.

22.5.26 The footways bordering Earl Pumping Station along Croft Street and Yeoman Street would require closure and diversion during phases 1 and 2 of construction. Pedestrians using the western footway of Yeoman Street and the eastern footway of Croft Street would be diverted away from the sections affected by construction works, onto the eastern footway of Yeoman Street and the western footway of Croft Street respectively.

22.5.27 During phase 2 of construction, a part of the southern footway of Chilton Grove would also require closure and pedestrians would be diverted away from the affected section to the northern footway of Chilton Grove.

22.5.28 To assess a busiest case scenario, it has been anticipated that all worker trips would finish their journeys by foot. As a result the 40 worker trips generated by the site have been added to the construction base case pedestrian flows during the AM and PM peak hours.

22.5.29 The pedestrian diversions and additional worker trips during construction would result in changes to pedestrian flows on the footways in the immediate vicinity of the site. However, as existing pedestrian flows on Plough Way (B206) and other routes to the site are relatively low an

additional 40 pedestrian trips could be accommodated within the capacity of the existing pedestrian network.

22.5.30 It is anticipated that the pedestrian diversions around the Earl Pumping Station site would result in a worst case journey time increase of approximately 30 seconds, due to the need for some pedestrians to cross Chilton Grove, Croft Street and Yeoman Street and extension of their journeys by 32m in phase 1 and 48m in phase 2 of construction. In practice given the low traffic flows in these streets it is likely that the additional journey time for most pedestrians would be less than 30 seconds.

22.5.31 The need for pedestrians using the affected footways to make an additional two road crossings to follow the diversion routes could increase pedestrian / vehicle conflicts and therefore increase the risk of accidents occurring to pedestrians. However, traffic flows in these streets are very low and appropriate signage would be provided to warn pedestrians and drivers of the need for caution in and around the temporary traffic management arrangements. The aim of this approach is to minimise any additional risk of accidents to pedestrians.

22.5.32 During all construction work and on any section of road subject to temporary diversions or restriction imposed by roadworks associated with the Earl Pumping Station site, the risk to all road users would be managed by the contractor(s) in accordance with the provisions made under the Traffic Signs Manual Chapter 8 – Traffic Safety Measures and Signs for Road Works (DfT, 2009)[10]. This will include compliance with the Equality Act 2010 (HM Government, 2010)[11] to ensure safe passage for mobility and vision impaired pedestrians.

Cycle routes

22.5.33 Cyclists using the highway would experience an additional delay to journey time as a result of the construction works at the Earl Pumping Station site. The effect on journey times on the highway network is identified in the LinSig modelling.

22.5.34 At the junction of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) this suggests there would be a change in average delay per PCU of no more than five seconds in either peak hour.

22.5.35 Cyclists making these movements could therefore experience additional delays of this order when passing along Lower Road (A200) and through this junction.

22.5.36 Cyclists using Yeoman Street, Croft Street and Chilton Grove would experience a slight delay as a result of an increase in construction traffic flow serving the site. However, given the spare capacity available in the highway network, it is expected that any additional delay would be very small and would be insignificant in the context of the low number of cyclists in the area and the overall length of cycle journeys.

22.5.1 Cyclists using the roads around the site would not be required to make any additional road crossings as a result of the construction works at Earl Pumping Station.

22.5.2 As indicated in paras. 22.2.10 and 22.2.11, the available road width on Croft Street and Chilton Grove would reduce during construction works but a minimum lane width of 3.25m would be retained in each direction. Although these temporary amendments would be made to the highway layout in the immediate vicinity of the site, cyclists would remain on the carriageway. There would be an increase in construction HGV movements of approximately seven movements per hour on the roads in the vicinity of the site and therefore appropriate signage would be provided to warn cyclists of the presence of large vehicles. Overall this would lead to a very minor increase in the risk of accidents to cyclists.

22.5.3 Measures set out in the *CoCP* (Section 5) include increasing driver awareness of restrictions on the road network and marshalling of traffic at the site access. During all construction work and on any section of road subject to temporary diversions or restrictions imposed by roadworks associated with the Earl Pumping Station site, the risk to all road-users would be managed by the contractor(s) in accordance with the provisions made under the Traffic Signs Manual Chapter 8 - Traffic Safety Measures and Signs for Road Works (DfT, 2009)[12]. This would include compliance with TfL guidance (Cyclists at Roadworks – Guidance Document (DfT, 1999)[13]) to ensure safe passage for cyclists.

Bus routes and patronage

22.5.4 No bus services run immediately past the site. However, additional construction vehicles travelling along Plough Way (B206), Lower Road (A200), the A200 gyratory of Bestwood Street and Bush Road, and the gyratory of Rotherhithe New Road (A2208) and Rotherhithe Old Road (A200) may affect some bus journey times along these roads and within the wider area.

22.5.5 The effect on journey times is identified in the LinSig modelling, which suggests an increase of a maximum of one second per PCU in the AM peak hour on Lower Road (A200) and a maximum of two seconds per PCU during the PM peak hour on Plough Way (B206) compared with that in the construction base case. In the context of the local area and general journey times for bus services, this is not considered a significant change for bus users.

22.5.6 It is expected that approximately five additional two-way worker trips would be made by bus during the AM and PM peak hours. The area is served by a number of bus routes with multiple origins and destinations, providing a total of 49 buses within 640m walking distance during the AM and PM peak hours. On this basis the additional worker trips made by bus in peak hours to the Earl Pumping Station would be capable of being accommodated on the base case bus services and would typically be within the normal daily variation in bus patronage on these routes.

London Underground and patronage

22.5.7 No underground stations are directly adjacent to the site and therefore none would be directly affected by the construction site development.

22.5.8 It is anticipated that there would be approximately four additional person trips on London Underground services in each of the AM and PM peak

hours. These additional journeys equate to less than one additional person per train during the AM and PM peak hours based on a frequency of 57 trains per hour available at Canada Water Underground station during the AM and PM peak hours which could be easily accommodated within existing capacity.

London Overground and National Rail and patronage

22.5.9 No London Overground or National Rail stations are directly adjacent to the site and therefore none would be directly affected by the construction site development.

22.5.10 It is anticipated that construction at Earl Pumping Station would result in three additional person trips on National Rail or London Overground services in each of the AM and PM peak hours.

22.5.11 London Overground provides 26 and 24 services per hour at Surrey Quays station during the AM and PM peak hours. In addition, there are 15 National Rail services per hour in the AM and PM peak hours respectively at South Bermondsey station.

22.5.12 The additional worker journeys therefore would result in an insignificant number of additional passengers on London Overground and National Rail services in the local area, which could easily be accommodated within the existing capacity.

River services and patronage

22.5.13 During construction, no river passenger services would be altered as a result of the works at Earl Pumping Station. It is anticipated that few, if any, construction workers and labourers would use the river services to access the construction site, based on the mode shares set out in Table 22.2.3 and therefore there would be no discernible change in river patronage as a result of the construction proposals at this site.

Parking

22.5.14 The area surrounding Earl Pumping Station has on-street car parking available to resident permit holders, together with unrestricted parking space at the kerbside. There are a total of 180 unmarked parking spaces in the immediate vicinity of the site and a total capacity of approximately 375 vehicles is available on the roads between 165m and 700m walking distance from the site in the form of unmarked bays as explained in paras. 22.4.57 and 22.4.59.

22.5.15 To accommodate construction vehicle access to the site, a resident parking bay with capacity for one vehicle on Croft Street would require temporary restriction during phase 1 of construction. This parking bay would be reinstated to its baseline condition following the completion of phase 1 of construction.

22.5.16 During phase 2 of construction, a resident parking bay with capacity for seven vehicles on Chilton Grove would require temporary restriction. This parking bay would be reinstated to its baseline conditions following the completion of phase 2 of construction.

22.5.17 These resident parking bays are located in the LB of Southwark.

22.5.18 The unmarked kerbside parking along the south side of Chilton Grove between the junction with Yeoman Street and Croft Street, and the unmarked kerbside parking along Yeoman Street to the south of the junction with Chilton Grove would be restricted during phases 1 and 2. These unmarked kerbside parking spaces are located in the LB of Lewisham.

22.5.19 The temporary restriction of the resident parking bays and the unmarked kerbside parking along Chilton Grove, Yeoman Street and Croft Street has been discussed with the LB of Lewisham and the LB of Southwark.

22.5.20 Although the construction work at Earl Pumping Station would require the restriction of one resident parking space along Croft Street and seven resident parking spaces along Chilton Grove, there would still be more than sufficient spare capacity to accommodate displaced parking activity. It is noted that residents living one borough cannot park in resident parking bays in the adjacent borough, as permits are not transferable. The highway layout during construction plan in the Earl Pumping Station *Transport Assessment* figures show the proposed temporary restriction of resident and unmarked kerbside parking associated with the construction works at the Earl Pumping Station site.

22.5.21 Parking would be provided for five essential maintenance vehicles within the site. These spaces would not be available for construction worker parking. Measures would be taken for this site to discourage workers from travelling by car, including promoting the use of public transport, walking or cycling through the *Draft Project Framework Travel Plan* and site-specific *Travel Plan*. It is therefore unlikely that a significant number of workers would drive to the site.

22.5.22 However, using the 2001 Census data to ensure a robust assessment at this site, 21 workers could be expected to drive to the Earl Pumping Station site per day. As outlined in Table 22.4.5 there is unrestricted parking on several streets in the surrounding area; parking surveys show that there is ample spare capacity, and therefore if workers do drive to the site (despite *Travel Plan* measures) and park in surrounding streets, this would not significantly reduce the availability of car parking in the local area, even allowing for the temporary restriction of parking spaces on Yeoman Street and Chilton Grove.

22.5.23 There would be no change to the loading bay on Lower Road (A200) to the south of the junction with Cope Street.

Highway assessment

Highway layout

22.5.24 The highway layout during construction plan in the Earl Pumping Station *Transport Assessment* figures show the highway layout during phases 1 and 2 of the construction works at the Earl Pumping Station site.

22.5.25 Phase 1 of construction would take place in the Earl Pumping Station and adjacent land to the south. In addition works would take place in a section of Croft Street. In phase 2 of construction, apart from the works in the Pumping Station and the adjacent land, a section of Chilton Grove would

also be occupied. A short-term lane closure on Chilton Grove outside the Earl Pumping Station access point would be required to make a connection to the existing sewer and for service diversion works.

22.5.26 Speed cushions would also be removed temporarily on roads immediately surrounding the Earl Pumping Station for the duration of the construction works to accommodate construction vehicles arriving and departing the site. These comprise the temporary removal of three speed cushions along Croft Street (outside site access point) during phase 1 of construction, and two along Chilton Grove during phase 2 of construction. During phase 1 of construction three new speed cushions would be installed to the south of the site access point on Croft Street to reduce vehicle speeds. The speed cushions on Croft Street would be reinstated at the end of the phase 1 and those on Chilton Grove would be reinstated at the end of construction period.

22.5.27 The highway layout during construction vehicle swept path analysis plan in the Earl Pumping Station *Transport Assessment* figures shows the swept path movements and shows that the construction vehicles are able to safely enter and leave the site.

Highway network

22.5.28 Construction lorry movements would be limited to the day shift only (08:00 to 18:00 Monday to Friday and 08:00 to 13:00 Saturday). In exceptional circumstances HGV and abnormal load movements could occur up to 22:00 on weekdays for large concrete pours and later at night on agreement with the LB of Lewisham.

22.5.29 Table 22.2.4 in Section 22.2 shows the vehicle movement assumptions for the local peak traffic periods based on the peak months of construction activity at this site.

22.5.30 Based on all materials being transported by road, Table 22.2.4 shows that an average peak flow of 146 vehicle movements a day is expected during the months of greatest activity during Site Year 1 of construction at this site. In the AM and PM peak hours, the Earl Pumping Station site would generate approximately 11 vehicle movements. The site would also generate 25 vehicle trips in the hour prior to the AM peak hour and after the PM peak hour.

22.5.31 The busiest peak in the AM and PM period for each type of movement (construction, other and worker) has been combined in the development case and assessed against the peak hour operation of the highway network. In reality, not all peaks for these movements will occur concurrently and the peak for worker trips would be outside of the highway network peak hour, therefore, the assessment is considered to be robust.

22.5.32 The *Project-wide TA* explains the method used to assign construction traffic to the HAMs, from which the likely changes in turning movements at local junctions have been identified and added to the construction base case flows.

22.5.33 The assignment of construction lorry trips has been undertaken using OmniTrans[iv] software, which enables a fixed assignment to be created for these trips in order to ensure that they are assigned only to the proposed construction routes. The OmniTrans outputs also identify lorry traffic which would be associated with the Earl Pumping Station site, or with other Thames Tideway Tunnel sites, that would use routes in the vicinity of the Earl Pumping Station site. Figure 22.5.1 in the Earl Pumping Station *Transport Assessment* figures shows the OmniTrans plot for the local road network around the Earl Pumping Station site.

22.5.34 It is anticipated that there would be an additional seven two-way HGV movements along the local roads in the immediate vicinity of the site as a result of the construction works at Earl Pumping Station. No other Thames Tideway Tunnel site construction routes pass along these roads; however, in addition to the HGV movements generated by Earl Pumping Station, there would be a further one vehicle movement along Lower Road (A200) during the peak hour in Site Year 1 of construction.

22.5.35 Changes to the highway network during construction and the additional construction traffic generated by the project may lead to local changes in traffic flow and capacity. Local modelling has been undertaken to assess the effect on the highway operation resulting from these changes.

22.5.36 The local LinSig model has been used to apply the construction traffic demands to the construction base case to determine the changes in the highway network operation due to the project (ie, comparison of base and development cases).

22.5.37 The changes to the operation of the Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction have been assessed. A summary of the construction assessment results from the LinSig model for the weekday AM and PM peak hours is presented in Table 22.5.2 and Table 22.5.3.

[iv] OmniTrans is a software package used for multi-modal transport network modelling and in this case has been used to produce assignments of construction traffic across the proposed network of routes to be used for the project.

Table 22.5.2 Construction development case LinSig model outputs (AM peak)

Approach	Arm	Flow (PCU)	Weekday								
			AM peak hour (08:00-09:00)								
			DoS			MMQ (PCU)			Delay (seconds per PCU)		
			Base case	Devt case	Change	Base case	Devt case	Change	Base case	Devt case	Change
Lower Road (A200)	Ahead left	395	22%	23%	+1%	2	2	0	4	5	+1
	Ahead right	677	45%	45%	0%	3	3	0	5	6	+1
Plough Way (B206)	Ahead left	108	49%	49%	0%	3	3	0	60	58	-2
Rotherhithe New Road (A2208)	Ahead	316	53%	53%	0%	4	4	0	7	7	0
			PRC						Total delay (PCU hours)		
Overall junction performance			70%	70%	0%				4	4	0

Notes: 1. DoS represents Degree of Saturation; the ratio of flow to capacity. MMQ represents Mean Maximum Queue for the busiest-case 15 minute modelled period (in vehicle lengths). Delay represents the mean delay per PCU. PCU represents Passenger Car Unit. PRC represents Practical Reserve Capacity; measure of how much additional traffic could pass through a junction whilst maintaining a maximum DoS of 90% on all lanes. PCU value for a car is one PCU. Vans and three-axle vehicles are 1.5 PCUs, vehicles with four or more axles are 2.3 PCUs. Buses and coaches are two PCUs. Motorcycles are 0.4 PCUs and pedal cycles are 0.2 PCUs. Thames Tideway Tunnel construction vehicles would be a mixture of three- and four-axle vehicles and have therefore been given a PCU value of two.

2. Assessment has assumed that traffic signal optimisation has been undertaken as detailed in Volume 2 of the ES.

Table 22.5.3 Construction development case LinSig model outputs (PM peak)

Approach	Arm	Flow (PCU)	Weekday								
			PM peak hour (17:00-18:00)								
			DoS			MMQ (PCU)			Delay (seconds per PCU)		
			Base case	Devt case	Change	Base case	Devt case	Change	Base case	Devt case	Change
Lower Road (A200)	Ahead left	894	50%	50%	0%	4	4	0	5	5	0
	Ahead right	967	62%	62%	0%	7	7	0	6	6	0
Plough Way (B206)	Ahead left	82	49%	53%	+4%	3	3	0	68	70	+2
Rotherhithe New Road (A2208)	Ahead	425	71%	71%	0%	7	7	0	12	12	0
			PRC						Total delay (PCU hours)		
Overall junction performance			27%	27%	0%				6	6	0

Notes: 1. DoS represents Degree of Saturation; the ratio of flow to capacity. MMQ represents Mean Maximum Queue for the busiest-case 15 minute modelled period (in vehicle lengths). Delay represents the mean delay per PCU. PCU represents Passenger Car Unit. PRC represents Practical Reserve Capacity; measure of how much additional traffic could pass through a junction whilst maintaining a maximum DoS of 90% on all lanes. PCU value for a car is one PCU. Vans and three-axle vehicles are 1.5 PCUs, vehicles with four or more axles are 2.3 PCUs. Buses and coaches are two PCUs. Motorcycles are 0.4 PCUs and pedal cycles are 0.2 PCUs. Thames Tideway Tunnel construction vehicles would be a mixture of three- and four-axle vehicles and have therefore been given a PCU value of two.

2. Assessment has assumed that traffic signal optimisation has been undertaken as detailed in Volume 2 of the ES.

22.5.38 The results indicate that in the AM and PM peak hours the project would result in no overall change to the operation of the Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction, which would continue to operate within capacity as in the base case. There would be no change to queue lengths on the individual arms of the junction.

22.5.39 In the construction development case the change in road network delay during the AM and PM peak hours as a result of the additional construction traffic would be a maximum of one second per PCU in the AM peak hour on Lower Road (A200) and a maximum of two seconds per PCU during the PM peak hour on Plough Way (B206).

22.5.40 There would be no change in the total delay at the Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction in the AM and PM peak hours.

22.5.41 The LinSig junction model output shows that total junction delay would be four PCU hours in the AM peak period assessed and six PCU hours in the PM peak period assessed. These equate to nine seconds per PCU in the AM and PM peak periods assessed.

Construction mitigation

22.5.42 The project has been designed to limit the issues arising on transport networks as far as possible and many measures have been embedded directly in the design of the project. These are summarised in Table 22.5.4.

Table 22.5.4 Earl Pumping Station design measures

Phase	Issues	Design measures
Construction	Closure of the footways around the site	• Diversion of pedestrians from the western footway to the eastern footway of Yeoman Street • Diversion of pedestrians from the eastern footway to the western footway of Croft Street • Diversion of pedestrians from the southern footway to the northern footway of Chilton Grove • All pedestrian diversions would be adequately signed • Where necessary pedestrian safety at the site access points could be assisted by a banksman during periods of greater construction activity
	Movement of construction traffic vehicles on the local roads around the site	• Increasing the available carriageway width on Croft Street by the temporary restriction of one resident parking bay • A length of unmarked kerbside parking along Yeoman Street to the south of the junction with Chilton Grove would be temporarily restricted to facilitate construction vehicle movement • To increase the available carriageway width on

Phase	Issues	Design measures
		Chilton Grove and to accommodate construction vehicle access to the site, approximately seven resident parking bays along the north side of the road outside the access point to the pumping station and the unmarked kerbside parking along the south side of Chilton Grove between the junction with Yeoman Street and Croft Street would be restricted • Temporary removal of three speed cushions along Croft Street (outside site access point) during phase 1 of construction, and two along Chilton Grove during phase 2 of construction • To install three new speed cushions to the south of the site access point on Croft Street to reduce vehicle speeds
	Narrowing the carriageway of Croft Street	• Maintaining two-way traffic along Croft Street • Maintaining a minimum lane width of 3.25m • Temporary traffic management would be required to allow two-way traffic

22.5.43 Further mitigation of the issues identified in the assessment, beyond the measures embedded within the design, is not possible because there are no alternative diversion routes within the local area.

22.6 Operational assessment

22.6.1 This section summarises the findings of the assessment undertaken for Year 1 of operation at the Earl Pumping Station site.

22.6.2 The assessment of the operational phase is limited to the physical issues associated with accessing the site from the highway network as outlined in Section 22.2. This has been discussed with the LB of Lewisham and TfL.

Operational base case

22.6.3 The operational assessment year for transport is Year 1 of operation.

22.6.4 As explained in para. 22.2.45, the only elements of the transport network considered in the operational assessment are highway layout and operation. For the purposes of the operational base case, it is anticipated that the highway layout will be as indicated in the construction base case.

Operational development case

22.6.5 The operational development case for the site includes permanent changes in the vicinity of the Earl Pumping Station site as a result of the Thames Tideway Tunnel project and takes into consideration the occasional maintenance activities required at the site.

22.6.6 The transport demands created by the development in the operational phase would be extremely low and limited to occasional maintenance visits every three to six months, and larger cranes and associated support vehicles required for access to the shaft and tunnel every ten years.

22.6.7 The operational assessment has taken into consideration those elements that would be affected, which comprise the short-term changes to the highway layout and operation when maintenance visits are made to the site.

22.6.8 The permanent highway layout plan in the Earl Pumping Station *Transport Assessment* figures shows the highway layout during the operational phase.

22.6.9 When maintenance activity takes place during the operational phase, pedestrians would not be diverted away from the footways around the site but would have to cross the site access points. When large maintenance vehicles are required to access the site, pedestrian movements could be assisted by a banksman in order to ensure pedestrian safety.

Highway layout and operation

22.6.10 As a result of the highway layout changes during the operational phase an assessment has been undertaken to ensure that the highway layout provided is adequate for the large vehicles required to access the site during the operational phase. Swept paths have been undertaken for the largest vehicles including an 11.36m mobile crane, a 10m rigid vehicle and a 10.7m articulated vehicle. The permanent highway layout vehicle swept path analysis plan in the Earl Pumping Station *Transport Assessment* figures indicates the swept path movements during operation.

22.6.11 When larger vehicles are required to serve the site, there may be some temporary, short-term delay to other road users while manoeuvres are made. However it is anticipated that the arrival of large vehicles would normally be scheduled to take place outside of the peak hours to minimise the effect on the local highway network.

22.6.12 Due to the infrequent nature of maintenance trips there is anticipated to be no significant change to the operation of the surrounding highway network during the operational phase at Earl Pumping Station.

22.7 Summary of Transport Assessment findings

22.7.1 The key outcomes of this TA are indicated in Table 22.7.1.

Table 22.7.1 Earl Pumping Station transport assessment results

Phase	Mode of transport	Key Findings
Construction	Pedestrians	A maximum of 30 seconds additional delay to pedestrian journeys due to the need for some pedestrians to cross Chilton Grove, Croft Street and Yeoman Street and extension of the journey by 32m in phase 1 and 48m in phase 2 of construction.
	Cyclists	A small additional delay (less than five seconds) experienced by cyclists as a result of changes to the operation of local junctions on the highway network.
	Bus patronage and operators	Approximately five worker trips would be made by bus which could be accommodated on base case services. A maximum additional average delay of less than five seconds per PCU on bus services at the junction of Lower Road (A200) / Rotherhithe Road (A2208) / Plough Way (B206) would be anticipated in the AM and PM peak hours.
	London Underground, London Overground, and National Rail patronage	Approximately seven worker trips would be made by London Underground, London Overground or National Rail and could be accommodated on base case services.
	Parking	To accommodate the movement of larger construction vehicles, seven resident parking bays along Chilton Grove and one resident parking bay along Croft Street would be restricted temporarily. The unmarked kerbside parking along the south side of Chilton Grove between the junction with Yeoman Street and Croft Street, and along Yeoman Street to the south of the junction with Chilton Grove would also be temporarily restricted. There would be sufficient spare capacity in the area to accommodate displaced demand. If construction workers drive to the site, despite *Travel Plan* measures to discourage them from doing so, any worker parking in surrounding streets could be accommodated within available capacity without displacing other parking activity.

Phase	Mode of transport	Key Findings
	Highway network and operation	The width of Croft Street and Chilton Grove would be reduced during construction and temporary traffic management on this road would be required to allow two-way traffic operation during the construction. Approximately 146 additional daily vehicle movements would be generated by the construction works at Earl Pumping Station in site Year 1 of construction. Approximately 11 vehicle movements are anticipated in each of the AM and PM peak hours. The Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction will be operating below capacity in the construction base case in the AM and PM peak hours. The addition of the Thames Tideway Tunnel project traffic would not materially change operation at this junction and would result in a maximum average increase of less than five seconds per PCU in each of the AM and PM peak hours.
Operation	Highway layout and operation	Some slight network delay may be experienced by other road users when large vehicles are accessing the site; however, this would be infrequent and temporary.

References

[1] Transport for London, *Travel Planning for new development in London*, 2011.

[2] Transport for London, *Assessment Tool for Travel Plan Building Testing and Evaluation*, *(ATTrBuTE)*, 2011. http://www.attrbute.org.uk/.

[3] Greater London Authority, *London Plan*, July 2011.

[4] Transport for London, *Transport Assessment Best Practice guidance,* April 2010.

[5] Transport for London, *Modelling Guidelines*, 2010.

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[7] Department for Transport , *Traffic Signs Manual Chapter 8 - Traffic Safety Measures and Signs for Road Works and Temporary Situations*, 2009.

[8] Transport for London, *London Underground Upgrade Plan*, February 2011. http://www.tfl.gov.uk/assets/downloads/corporate/our-upgrade-plan-london-underground-february-2011.pdf

[9] Greater London Authority, 2011. See citation above

[10] Department for Transport, 2009. See citation above.

[11] HM Government, *Equality Act 2010 – Guidance*, 2010.

[12] Department for Transport, 2009. See citation above.

[13] Department for Transport, *Traffic Advisory Leaflet 15/99 - Cyclists at Road Works,* December 1999.

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Thames Tideway Tunnel
Thames Water Utilities Limited

Application for Development Consent

Application Reference Number: WWO10001

Transport Assessment

Doc Ref: **7.10.19**

Earl Pumping Station

Appendices

APFP Regulations 2009: Regulation **5(2)(q)**

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January 2013

Thames Tideway Tunnel

Creating a cleaner, healthier River Thames

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Thames Tideway Tunnel

Transport Assessment

Section 22 Appendices: Earl Pumping Station

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Appendix A: Policy review

A.1 Introduction

A.1.1 There are a number of documents containing planning policies that are relevant to transport matters for the proposed development at Earl Pumping Station. This includes national, regional and local policies relevant to the site.

A.1.2 This section reviews current documents relevant to the proposed development which is situated within the London Borough (LB) of Lewisham.

A.2 National Policy

National Planning Policy Framework (March 2012)

A.2.1 The Department for Communities and Local Government published the National Planning Policy Framework (NPPF) in March 2012. The NPPF replaces a variety of existing planning guidance, most notable the following document, Planning Policy Guidance 13: Transport (November 2010).

A.2.2 The key objective of the NPPF is to create a policy context to support economic growth. The principle of the guidance is to place an emphasis on sustainable development, where environmental conditions should be considered alongside economical and social matters.

A.2.3 It outlines the importance of local development plans and notes that where development accords with an up to date development plan then the proposals should be approved. Moreover, it suggests that local authorities should follow the approach of the presumption in favour of sustainable development.

A.2.4 With particular reference to transport matters the document states:

"*In preparing local plans, local planning authorities should therefore support a pattern of development which, where reasonable to do so, and facilitates the use of sustainable modes of transport."*

A.2.5 The guidance goes on to advise at paragraph 32:

"All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- *the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;*
- *safe and suitable access to the site can be achieved for all people; and*
- *improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development.*

Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."

A.2.6 The document also states that:

"Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people". Therefore:

"A key tool to facilitate this would be a Travel Pan. *All developments which generate significant amounts of movement should be required to provide a Travel Plan".*

National Policy Statement for Waste Water (March 2012)

A.2.7 The National Policy Statement for Waste Water (NPS) was published by the Department of Environment, Food and Rural Affairs in March 2012. The NPS sets out Government policy for the provision of major waste water infrastructures. The NPS does not recognise the Thames Tideway Tunnel project within the original thresholds which is contained within the Planning Act. However the document indicates that *"the Government has already stated its intention that the project should be considered at a national level"*.

A.2.8 The Secretary of State announced that development consent for the Thames Tideway Tunnel project should also be dealt with under the regime for nationally significant infrastructure projects under the Planning Act 2008.

A.2.9 The NPS seeks a sustainable long term solution to address the untreated sewage discharged into the River Thames and Thames Tideway Tunnel has been considered as the preferred solution.

A.2.10 With particular reference to transport matters the document states:

"The ES should include a transport assessment, using the NATA/WebTAG methodology stipulated in Department for Transport (DfT), or any successor to such methodology. Applicants should consult the Highways Agency and/or the relevant highway authority, as appropriate, on the assessment and on mitigation measures. The assessment should distinguish between the construction, operation and decommissioning project stages as appropriate".

A.2.11 The document states that the impacts on the surrounding transport infrastructure should be mitigated and where the mitigation measures are not sufficient the requirements to mitigate adverse impacts on transport networks should be considered.

A.2.12 Therefore it is advised to prepare a *Travel Plan* which includes demand management measures to mitigate transport impacts, and *"to provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts".*

A.2.13 The NPS prefers water-borne or rail transport over road transport and where there is likely to be substantial HGV traffic, the following measures should be looked:

- *"control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements;*
- *make sufficient provision for HGV parking, either on the site or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and*
- *ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force".*

A.2.14 The proposed development is located at a relatively moderate accessible transport hub and the proposed location has a Public Transport Accessibility Level (PTAL) rating of 3, rated as 'moderate'. However, measures would be incorporated into *Project Framework Travel Plan* and site-specific *Travel Plan* to discourage construction workers from driving to and from the site and encourage the use of public transport, in order to minimise the number of additional worker car journeys.

A.3 Regional policy

The London Plan (July 2011)

A.3.1 The London Plan 2011 is produced by the Greater London Authority (GLA) and sets out the strategic planning guidance for London planning authorities. The Mayor of London is responsible for strategic planning and the production of a Spatial Development Strategy called The London Plan. The London plan sets out the integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years. The Plan takes the year 2031 as its formal end date and its over-arching vision is supported by six detailed objectives for London:

- A city that meets the challenges of economic and population growth;
- An internationally competitive and successful city;
- A city of diverse, strong, secure and accessible neighbourhoods;
- A city that delights the senses;
- A city that becomes a world leader in improving the environment; and
- A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities.

A.3.2 The last objective of the plan relates specifically to transport. Policies within the London Plan of relevance to the proposed development are outlined as follows:

A.3.3 **Policy 6.1 – Strategic Approach** advises that the mayor will work with all relevant partners to encourage the closer integration of transport and development by:

- Encouraging patterns and nodes of development that reduce the need to travel, especially by car;
- Seeking to improve the capacity and accessibility of public transport, walking and cycling, particularly in areas of greater demand;
- Supporting development that generates high levels of trips at locations with high public transport accessibility and/or capacity, either currently or via committed, funded improvement;
- Seeking to increase the use of the Blue Ribbon Network, especially the Thames, for passenger and freight use;
- Facilitating the efficient distribution of freight whilst minimising its impacts on the transport network;
- Supporting measures that encourage shifts to mode sustainable modes and appropriate demand management; and
- Promoting greater use of low carbon technology so that carbon dioxide and other contributors to global warming are reduced.

A.3.4 **Policy 6.2 – Providing public transport capacity and safeguarding land for transport** which notes that development proposals that do not provide adequate safeguarding for the schemes should be refused.

A.3.5 **Policy 6.3 – Assessing effects of development on transport capacity** outlines that development proposals should ensure that impacts on transport capacity and the transport network, at both a corridor and local level, are fully assessed. Development should not adversely affect safety on the transport network. Where existing transport capacity is insufficient for the travel generated by proposed developments, and no firm plans exist for an increase in capacity, boroughs should ensure that the development proposals are phased until it is known that these requirements can be met. The policy notes that the use of Travel Plans and addressing freight issues can help reduce the impact of development on the transport network.

A.3.6 **Policy 6.7 – Better streets and surface transport** notes that high levels of priority should be provided to bus routes and there should be direct, secure, accessible and pleasant walking routes to stops. The development would include provision of transport to and from public transport nodes where sites are at a distance from public transport services.

A.3.7 **Policy 6.9 – Cycling** presents measures to increase cycling mode share in London to 5 percent by 2026. Measures include completing the Cycle Super Highways and expanding the London cycle hire scheme. To support this, developments should provide cycle parking to at least the minimum standards, provide showers and changing facilities and facilitate the major cycling schemes in London (Super Highways / Cycle Hire).

A.3.8 **Policy 6.10 – Walking** recommends the use of shared space principles with simplified streetscape, de-cluttering and access for all. Developments should therefore ensure high quality pedestrian environments and emphasise the quality of pedestrian and street space. It points to the

'Legible London' pedestrian wayfinding system as a successful measure to support walking journeys.

A.3.9 **Policy 6.13 – Parking** outlines the need to seek an appropriate balance between promoting new development and preventing excessive car parking provision that can undermine cycling, walking and public transport use. As such, car parking should reduce as public transport accessibility (measured by PTAL) increases. The policy advises that *Transport Assessments* and *Travel Plans* for major developments should give details of proposed measures to improve non-car based access, reduce parking and mitigate adverse transport impacts.

A.3.10 **Policy 6.14 – Freight** notes that freight distribution should be improved and movement of freight by rail and waterway should be promoted. To support this, developments that generate high number of freight movements should be located close to major transport routes. In addition, the Freight Operators Recognition Scheme, construction logistics plans and delivery and servicing plans should be promoted. The policy also advises the increase in the use of the Blue Ribbon Network for freight transport.

The Mayors Transport Strategy (GLA, 2010)

A.3.11 In addition to the London Plan, the Mayor has prepared a number of strategies that are essentially an extension of the London Plan. Published by the GLA in 2010, the Mayor's Transport Strategy (MTS) (Greater London Authority, May 2010) envisages *"London's Transport system excelling among that of global cities, providing access to opportunities for all people and enterprises while achieving the highest environmental standards and leading the world in its move towards tackling the urban transport challenges of the 21st century"*.

A.3.12 The MTS sets out a number of policy commitments or requirements which have implications for TfL and a range of other delivery partners including the GLA and the London boroughs. The policies that are relevant to the proposed development are:

- **Policy 4** indicating that the Mayor will seek *"to improve people's access to jobs, business' access to employment markets, business to business access, and freight access by seeking to ensure appropriate transport capacity and connectivity is provided on radial corridors into central London";*
- **Policy 5** seeks *"to ensure efficient and effective access for people and goods within central London";*
- **Policy 8** supports *"a range of transport improvements within metropolitan town centres for people and freight that help improve connectivity and promote the vitality and viability of town centres, and that provide enhanced travel facilities for pedestrians and cyclists";*
- **Policy 9** states that the Mayor *"will use the local and strategic development control processes";*

- **Policy 11** specifies that the Mayor will *"encourage the use of more sustainable, less congesting modes of transport, set appropriate parking standards, and aim to increase public transport, walking and cycling mode share";*
- **Policy 12** states that the Mayor *"will seek to improve the distribution of freight through the provision of better access to/from Strategic Industrial Locations, delivery and servicing plans, and other efficiency measures across London"; and*
- **Policy 15** and **Policy 16** indicate that the Mayor will seek to reduce emissions of air pollutants and noise impacts from transport respectively.

A.3.13 The *London Freight Plan, Sustainable Freight Distribution: a Plan for London* (TfL, June 2008) sets out the steps that have to be taken over the next five to ten years to identify and begin to address the challenge of delivering freight sustainably in the capital. Principles set in that document are expected to be relevant to the consideration of the construction logistics strategy for the proposed development.

A.4 Local policy

A.4.1 The LB of Lewisham has a number of policies relevant to transport. These are the Local Development Framework (LDF) and the Unitary Development Plan (UDP). Both reflects regionally focused policies and are referred to where appropriate.

Local Development Framework – Core strategy (June 2011)

A.4.2 The Lewisham LDF – Core Strategy was adopted in June 2011. It forms the key planning document that manages development and regeneration in the borough until 2026.

A.4.3 Transport policies within this document are concerned with ensuring improvements are made to the environment, and encouraging the use of sustainable transport.

A.4.4 **Policy 7 – Climate Change and Adapting to the Effects** aims to address climate change and adapt to its effects. This will be achieved by "*b. promoting the sustainable and efficient use of land and improving the integration of land use and transport in accordance with national and regional requirements".*

A.4.5 **Policy 8 – Sustainable Design and Construction and Energy Efficiency** seeks to promote energy efficiency, sustainable design and sustainable construction.

A.4.6 **Policy 9 – Improving Local Air Quality** states that the council will manage and improve air quality along traffic corridors and congestion points. This will be achieved by *"working with Transport for London to manage and improve air quality along transport corridors and traffic congestion points".*

A.4.7 **Policy 14 – Sustainable Movement and Transport** is concerned with promoting the use of sustainable modes of transport. This will be achieved through a number of measures, including:

- Promoting safety and access for pedestrians and cyclists;
- Maintaining and improving key walking and cycling links including the Thames Path;
- Requiring Travel Plans for developments that exceed the Department for Transport's (DfT's) threshold;
- Supporting the use of the River Thames for passenger transport and transport of construction materials to and from development sites;
- By supporting the use of the River Thames to transport freight.

Unitary Development Plan (July 2004)

A.4.8 The Unitary Development Plan (UDP) was adopted by the LB of Lewisham in July 2004, it is a technical town planning document that acts as a land use strategy document and also sets out policies that planning applications will be considered against.

A.4.9 The transport related policies are mainly focused on environmental protection including reducing levels of congestion and pollution within the borough. It is envisaged that by mitigating these factors, improvements can be made to the local economy, as well as the health and quality of life of local residents. This will be achieved by a number of measures such as: integrating development with public transport; and encouraging walking and cycling.

A.4.10 **Policy URB3 – Urban Design** aims to encourage good practise design within the borough. There are a number of elements relevant to transport, including:

- *"(b) layout and access arrangements, which may include the avoidance of large areas of parking and servicing uninterrupted by landscaping"; and*
- *"(f) where justified new building frontages should clearly delineate public routes where appropriate, and design should ensure that convenient and safe pedestrian access to local facilities and the public transport network are taken into account, including the needs of disabled people"*.

A.4.11 **Policy HSG4 - Residential Amenity** aims to improve and safeguard the character and amenities of residential areas in the borough, by:

- Calming and reducing extraneous traffic;
- Restricting parking provision;
- Banning lorries;
- Improving the pedestrian environment; and
- Improving access to public transport.

A.4.12 **Policy STR.TRN 1** seeks to reduce the need to travel in order to protect the environment and quality of life of residents.

A.4.13 **Policy STR.TRN 3** requires that provision is made for the safety of pedestrians, cyclists and people with disabilities.

A.4.14 **Policy TRN 2 – Travel Impact Statements** states that developers are required to produce a travel impact statement for major developments. They assess the impact of all modes and their affects on congestion, safety and the environment.

A.4.15 **Policy TRN 3 – Developer Contributions** details that developer contributions may be required facilitate the following improvements:

- Highway improvements;
- Traffic management measures;
- Public transport services; and
- Accessibility for pedestrians and cyclists.

A.4.16 **Policy TRN 5 – Green Travel Plans** will be encouraged by the council and in some circumstances will be required by a S106 agreement. They are intended to encourage a number of outcomes:

- Increased use of public transport;
- Walking;
- Cycling;
- Car sharing;
- Flexible working hours;
- Home working; and
- Controls on car parking.

A.4.17 **Policy TRN 8 - Use of the River Thames** makes it clear that developments using the river for freight will be supported, providing that environmental considerations are taken into account.

A.4.18 **Policy TRN 17 – Protecting Cyclists and Pedestrians** is concerned with protecting the safety of pedestrians, cyclists and those with disabilities.

A.4.19 **Policy TRN 18 – The Road Hierarchy** states that the council will manage the use of roads by establishing a road hierarchy in order to channel traffic onto the most appropriate road. Four levels of road have been established:

- Strategic roads;
- London distributor roads;
- Local distributor roads; and
- Local access roads.

A.4.20 **Policy TRN 20 – Improving Road Safety** involves reducing the number of road accidents within the borough, for which developer contributions may be required.

A.4.21 **Policy TRN 21** - **Traffic Management** details that the council will introduce traffic calming measures, with the aim to:

- Reduce traffic to a level appropriate to the position of the road in the hierarchy
- Re-allocate road space to essential traffic and more environmentally friendly modes
- Reflect the requirements of land use along the road
- In residential areas reduce motorised traffic and improve the environment for residents
- Take into account the needs of public transport operators.

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Appendix B: PTAL analysis

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PTAI Study Report File Summary

PTAI Run Parameters

PTAI Run: 20122709095307
Description: 20122709095307
Run by user: PTAL web application
Date and time: 27/09/2012 09:53

Walk File Parameters

Walk File: PLSQLTest
Day of Week: M-F
Time Period: AM Peak
Walk Speed: 4.8 kph
BUS Walk Access Time (mins): 8
BUS Reliability Factor: 2.0
LU LRT Walk Access Time (mins): 12
LU LRT Reliability Factor: 0.75
NATIONAL_RAIL Walk Access Time (mins): 12
NATIONAL_RAIL Reliability Factor: 0.75
Coordinates: 536192, 178783

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Weight	Walk time (mins)	SWT (mins)	TAT (mins)	EDF	AI
BUS	LOWER ROAD PLOUGH WAY	188	384.94	8.0	0.5	4.81	5.75	10.56	2.84	1.42
BUS	LOWER ROAD PLOUGH WAY	47	384.94	6.0	0.5	4.81	7.0	11.81	2.54	1.27
BUS	PLOUGH WAY ROPE STREET	199	188.18	5.0	1.0	2.35	8.0	10.35	2.9	2.9
BUS	LOWER ROAD PLOUGH WAY	225	384.94	4.0	0.5	4.81	9.5	14.31	2.1	1.05
LT	SAP Points Not Found									
NATIONAL_RAIL	SURREY QUAYS	CRYSTAL PALACE to HIGHBURY AND ISLINGTON BR	704.69	4.0	1.0	8.81	8.25	17.06	1.76	1.76
NATIONAL_RAIL	SURREY QUAYS	WEST CROYDON to DALSTON	704.69	4.0	0.5	8.81	8.25	17.06	1.76	0.88
NATIONAL_RAIL	SURREY QUAYS	NEW CROSS to HIGHBURY AND ISLINGTON BR	704.69	4.0	0.5	8.81	8.25	17.06	1.76	0.88

Total AI for this POI is 10.16.
PTAL Rating is 3.

Appendix C – Local modelling outputs

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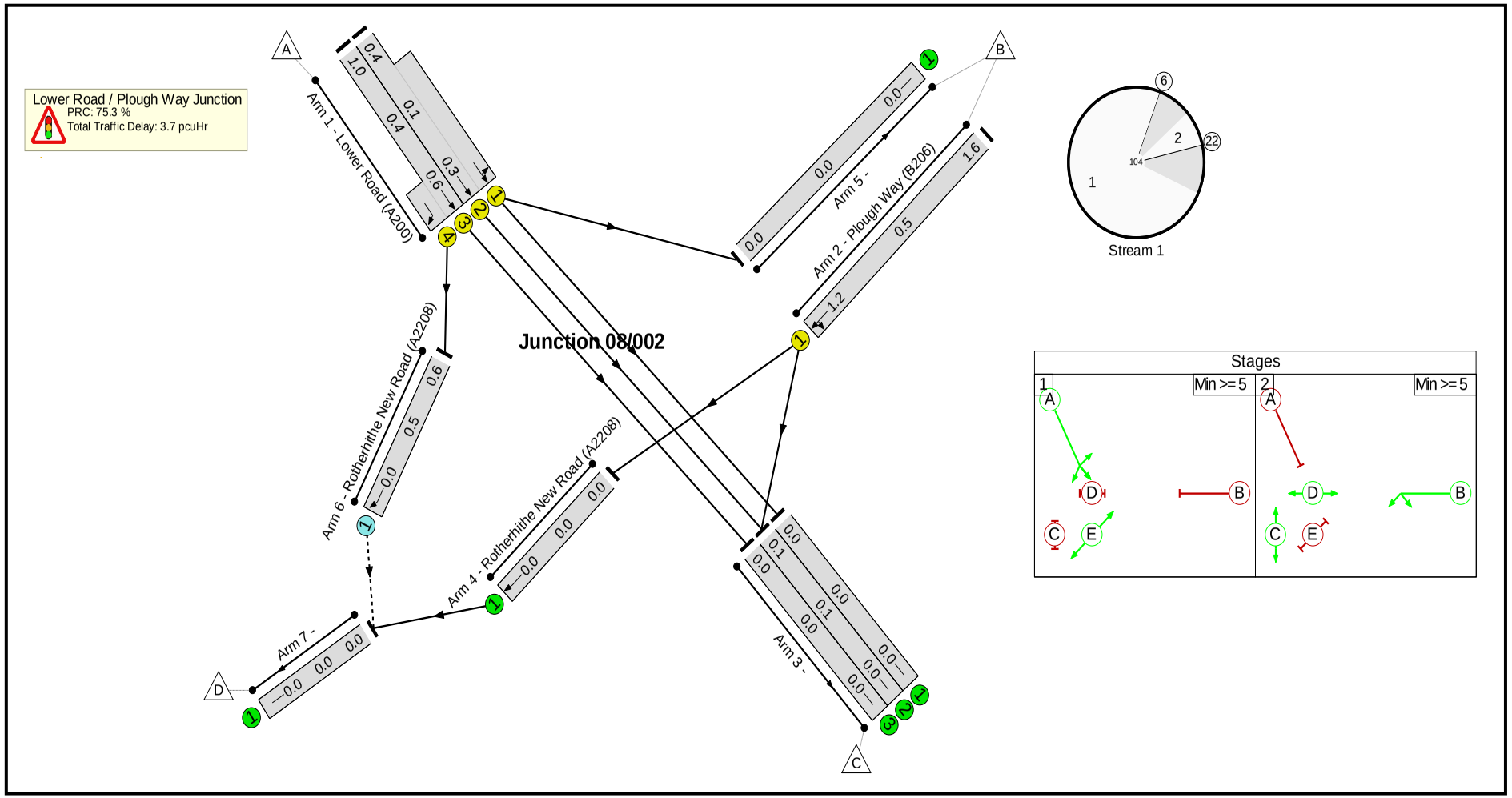
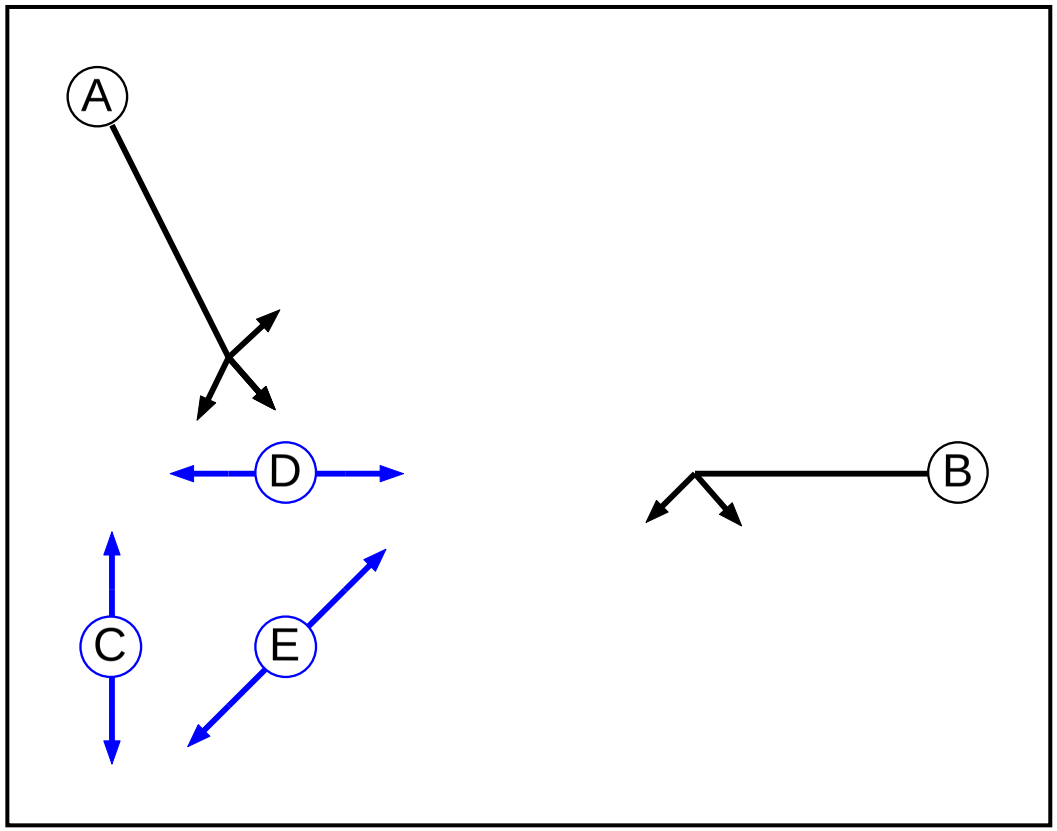
C.1 Baseline results, AM peak hour

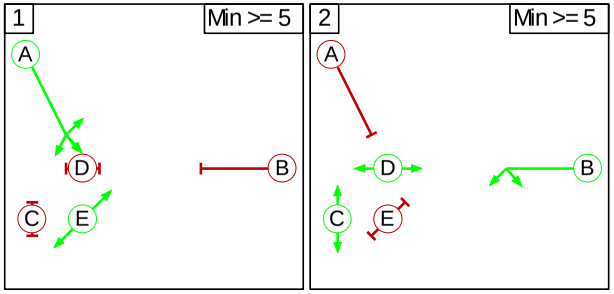
Network Layout Diagram



Phase Diagram



Stage Diagram



Phases in Stage

Stage No.	Phases in Stage
1	A E
2	B C D

Phase Intergreens Matrix

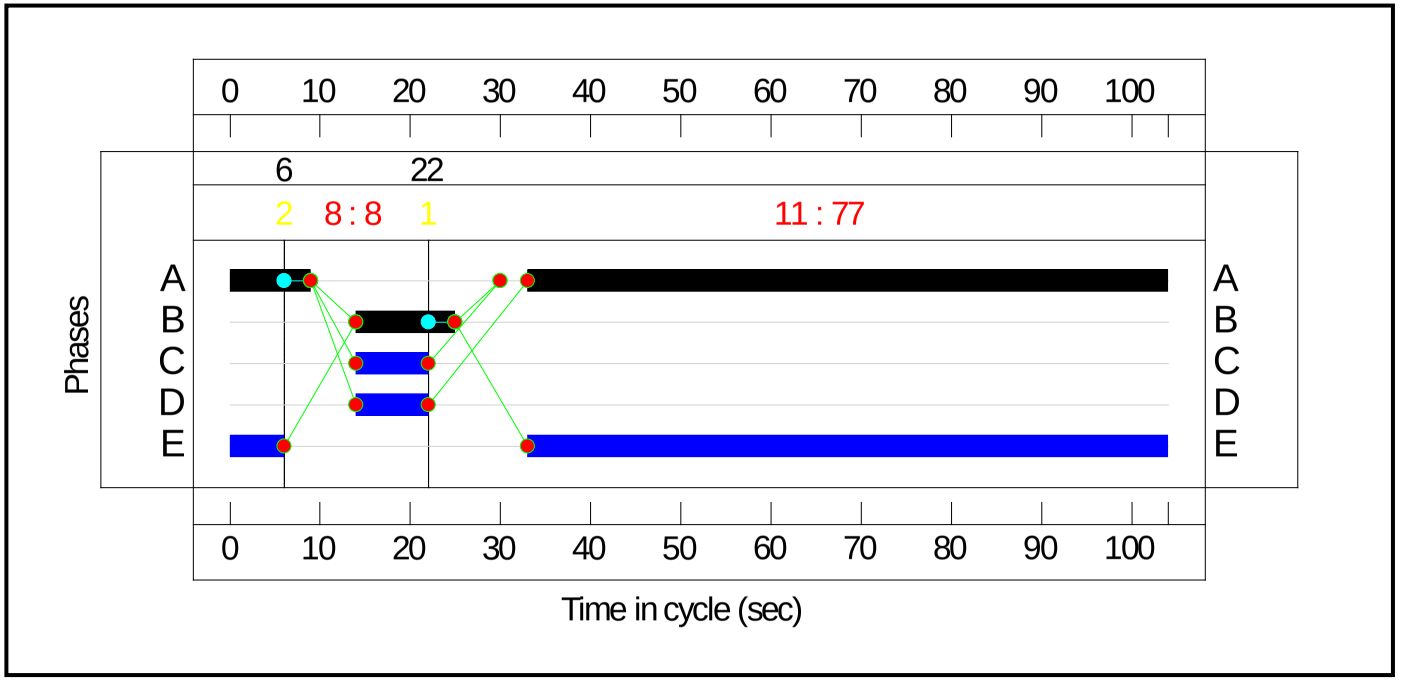
Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		5	5	5	-
	B	5		-	-	8
	C	8	-		-	-
	D	11	-	-		-
	E	-	8	-	-	

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	81	643	306	1030
	B	0	0	78	20	98
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	81	721	326	1128

Signal Timings Diagram



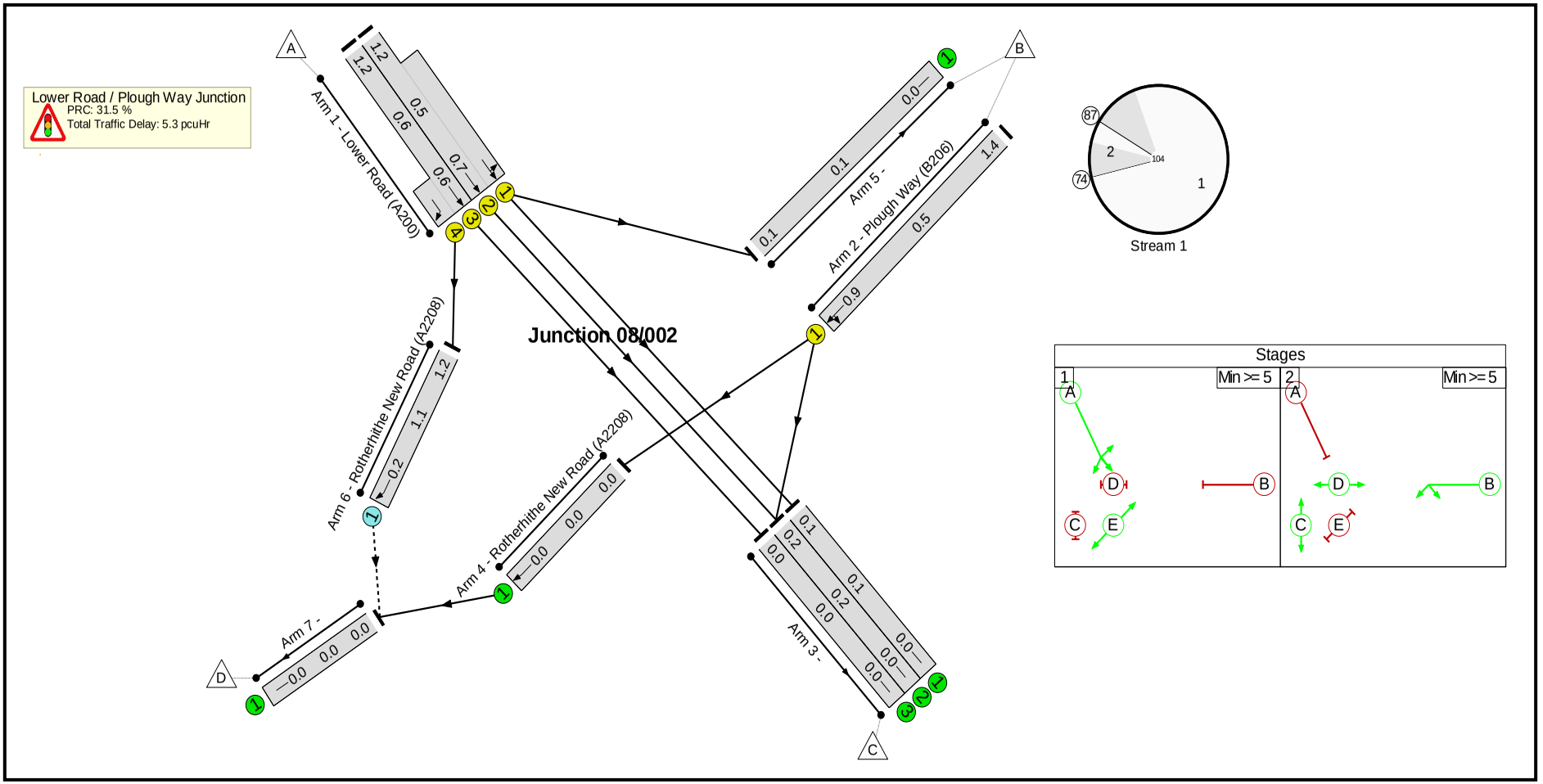
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Earl Pumping Station	-	-	-		-	-	-	-	-	-	**51.3%**	**306**	**0**	**0**	**3.7**	-	-
Lower Road / Plough Way Junction	-	-	-		-	-	-	-	-	-	**51.3%**	**306**	**0**	**0**	**3.7**	-	-
1/2+1/1	Lower Road (A200) Ahead Left	U	A		1	80	-	363	2045:1657	1718	21.1%	-	-	-	0.4	4.2	1.5
1/3+1/4	Lower Road (A200) Ahead Right	U	A		1	80	-	667	1875:1800	1519	43.9%	-	-	-	1.0	5.2	3.2
2/1	Plough Way (B206) Left Ahead	U	B		1	11	-	98	1782	206	47.7%	-	-	-	1.6	59.7	3.1
3/1		U	-		-	-	-	111	1800	1800	6.2%	-	-	-	0.0	1.1	0.0
3/2		U	-		-	-	-	249	1800	1800	13.8%	-	-	-	0.1	1.2	0.1
4/1	Rotherhithe New Road (A2208) Ahead	U	-		-	-	-	20	1800	1800	1.1%	-	-	-	0.0	1.0	0.0
5/1		U	-		-	-	-	81	1800	1800	4.5%	-	-	-	0.0	1.0	0.0
6/1	Rotherhithe New Road (A2208) Ahead	O	-		-	-	-	306	1800	596	51.3%	306	0	0	0.6	6.7	3.4

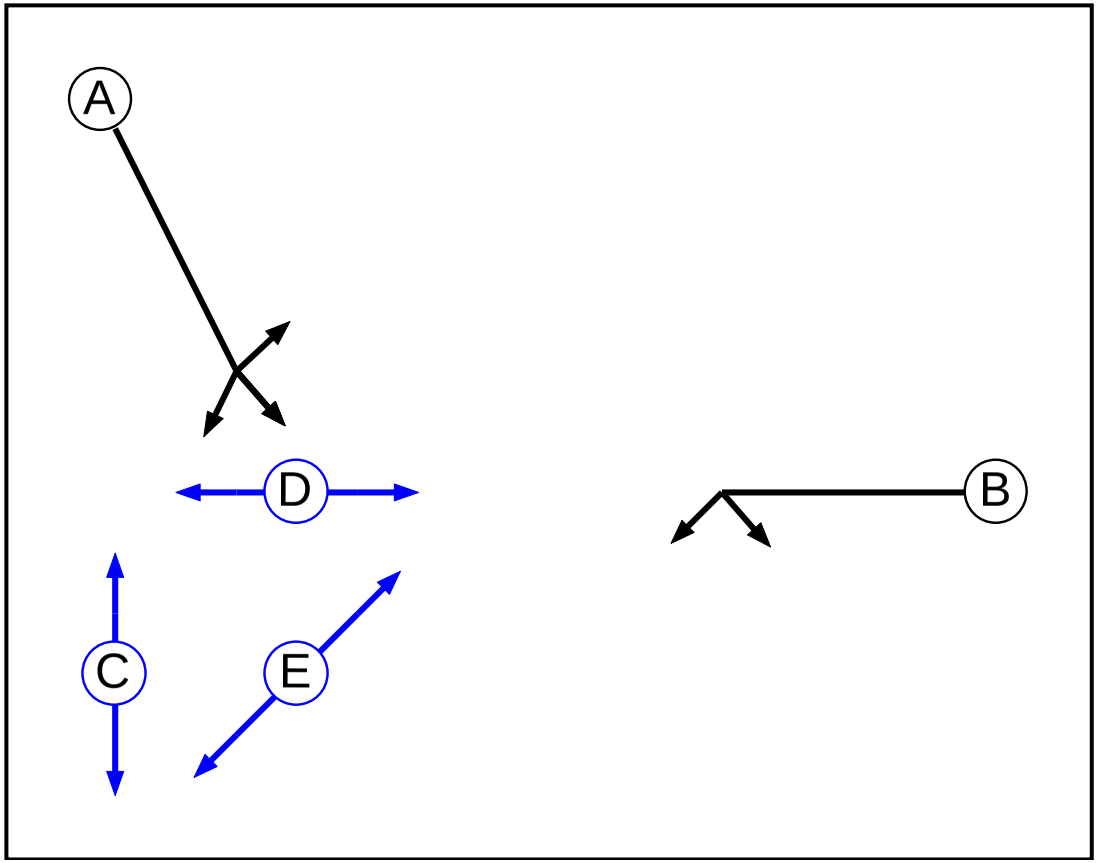
C1 PRC for Signalled Lanes (%): 88.8 Total Delay for Signalled Lanes (pcuHr): 3.01 Cycle Time (s): 104
PRC Over All Lanes (%): 75.3 Total Delay Over All Lanes(pcuHr): 3.73

C.2 Baseline results, PM peak hour

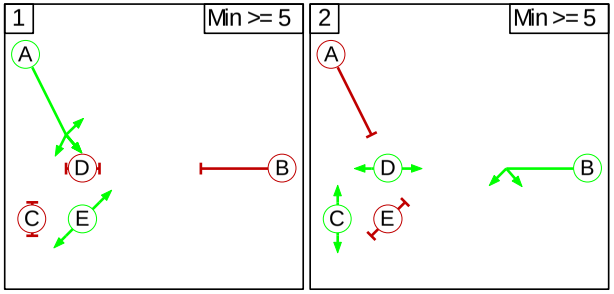
Network Layout Diagram



Phase Diagram



Stage Diagram



Phases in Stage

Stage No.	Phases in Stage
1	A E
2	B C D

Phase Intergreens Matrix

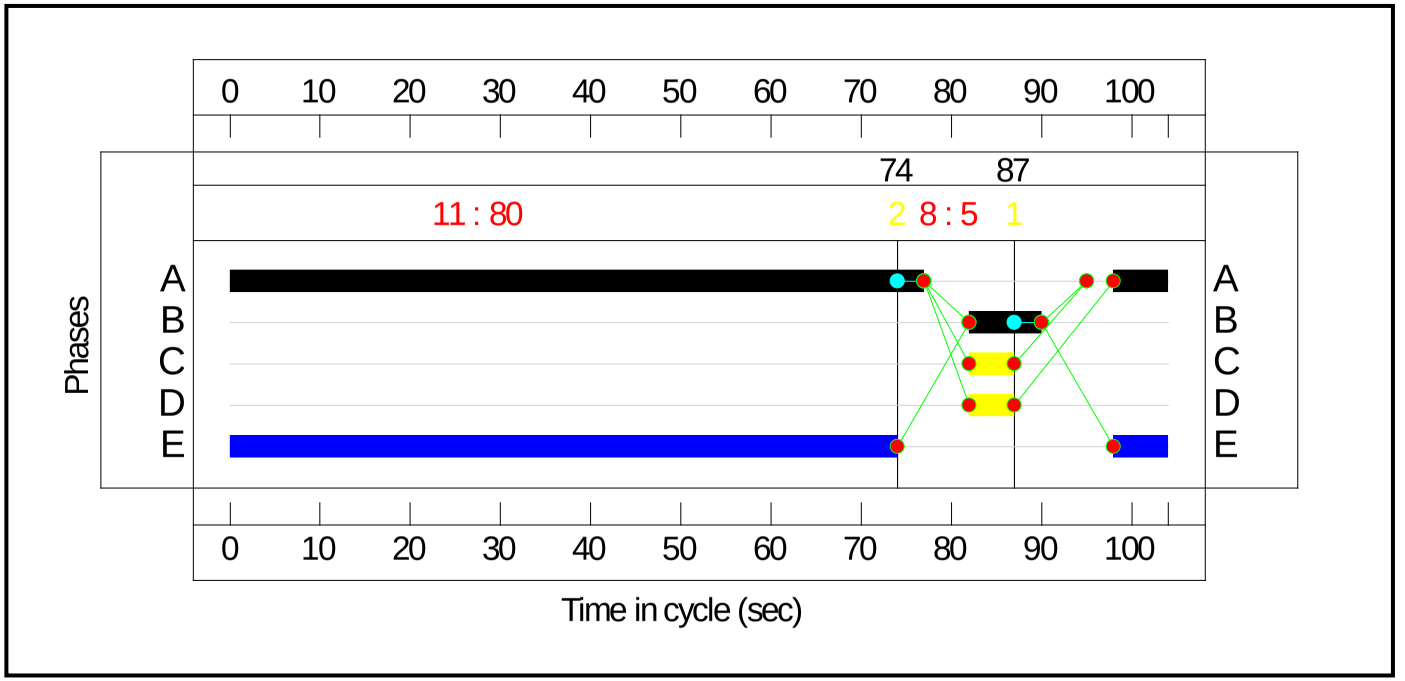
Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		5	5	5	-
	B	5		-	-	8
	C	8	-		-	-
	D	11	-	-		-
	E	-	8	-	-	

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	256	1119	409	1784
	B	0	0	63	11	74
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	256	1182	420	1858

Signal Timings Diagram



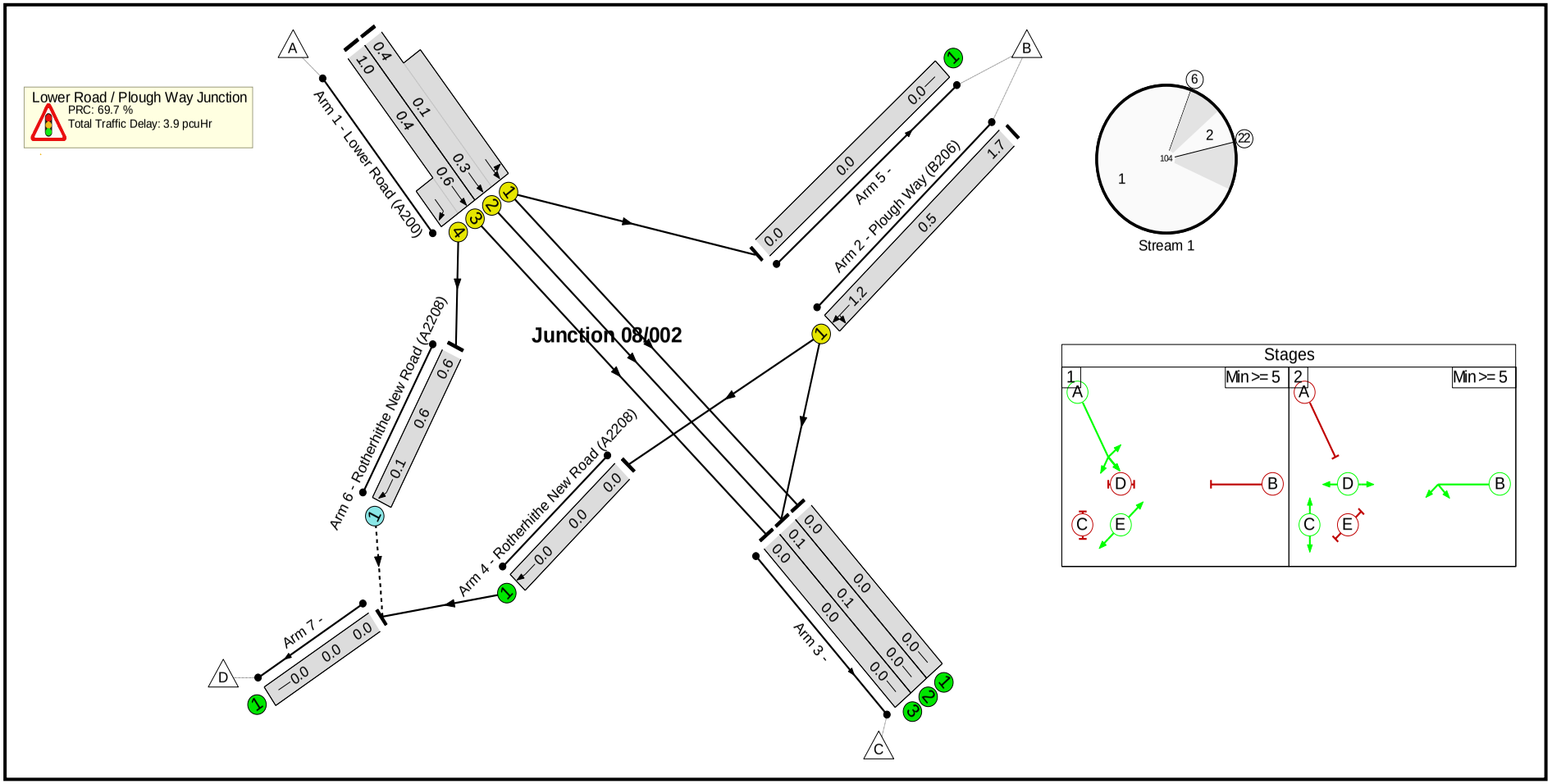
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Earl Pumping Station	-	-	-		-	-	-	-	-	-	**68.4%**	**409**	**0**	**0**	**5.3**	-	-
Lower Road / Plough Way Junction	-	-	-		-	-	-	-	-	-	**68.4%**	**409**	**0**	**0**	**5.3**	-	-
1/2+1/1	Lower Road (A200) Ahead Left	U	A		1	83	-	934	2045:1657	1837	50.8%	-	-	-	1.2	4.6	4.0
1/3+1/4	Lower Road (A200) Ahead Right	U	A		1	83	-	850	1875:1800	1579	53.8%	-	-	-	1.2	5.0	4.3
2/1	Plough Way (B206) Left Ahead	U	B		1	8	-	74	1782	154	48.0%	-	-	-	1.4	67.5	2.5
3/1		U	-		-	-	-	195	1800	1800	10.8%	-	-	-	0.1	1.1	0.1
3/2		U	-		-	-	-	546	1800	1800	30.3%	-	-	-	0.2	1.4	0.2
4/1	Rotherhithe New Road (A2208) Ahead	U	-		-	-	-	11	1800	1800	0.6%	-	-	-	0.0	1.0	0.0
5/1		U	-		-	-	-	256	1800	1800	14.2%	-	-	-	0.1	1.2	0.1
6/1	Rotherhithe New Road (A2208) Ahead	O	-		-	-	-	409	1800	598	68.4%	409	0	0	1.2	10.8	6.4

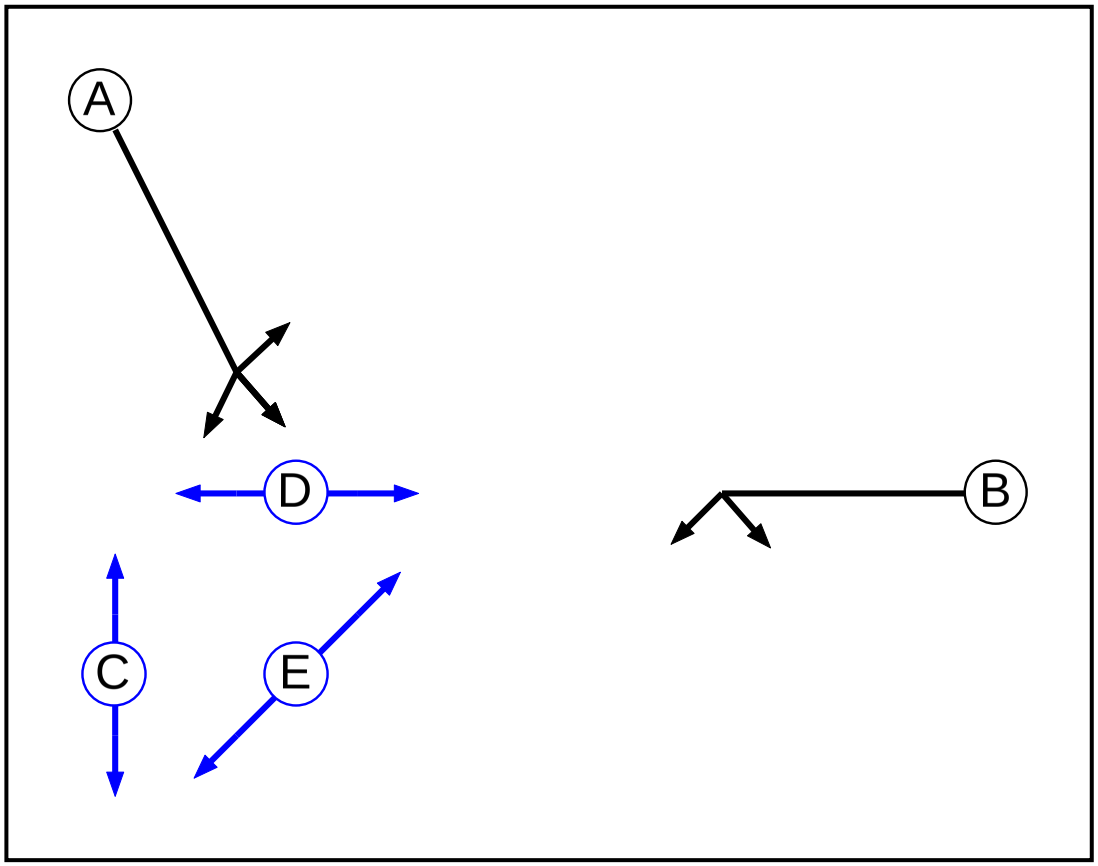
C1 PRC for Signalled Lanes (%): 67.2 Total Delay for Signalled Lanes (pcuHr): 3.75 Cycle Time (s): 104
PRC Over All Lanes (%): 31.5 Total Delay Over All Lanes(pcuHr): 5.34

C.3 Construction base case results, AM peak hour

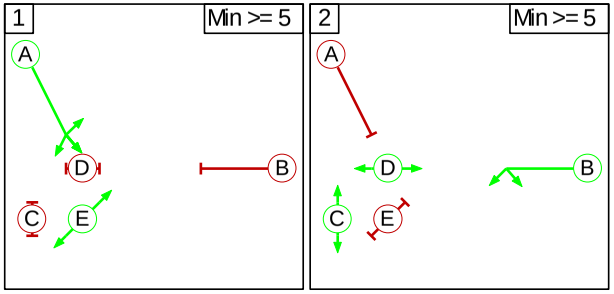
Network Layout Diagram



Phase Diagram



Stage Diagram



Phases in Stage

Stage No.	Phases in Stage
1	A E
2	B C D

Phase Intergreens Matrix

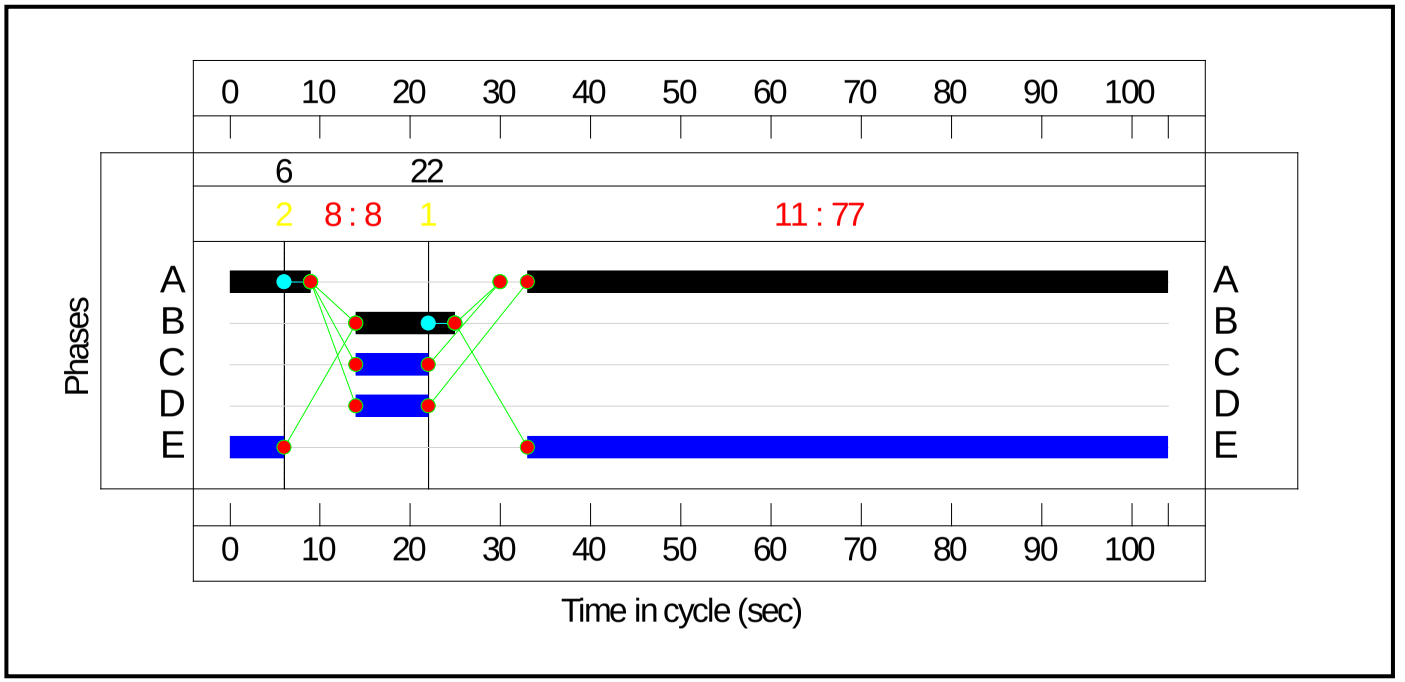
Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		5	5	5	-
	B	5		-	-	8
	C	8	-		-	-
	D	11	-	-		-
	E	-	8	-	-	

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	84	664	316	1064
	B	0	0	80	21	101
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	84	744	337	1165

Signal Timings Diagram



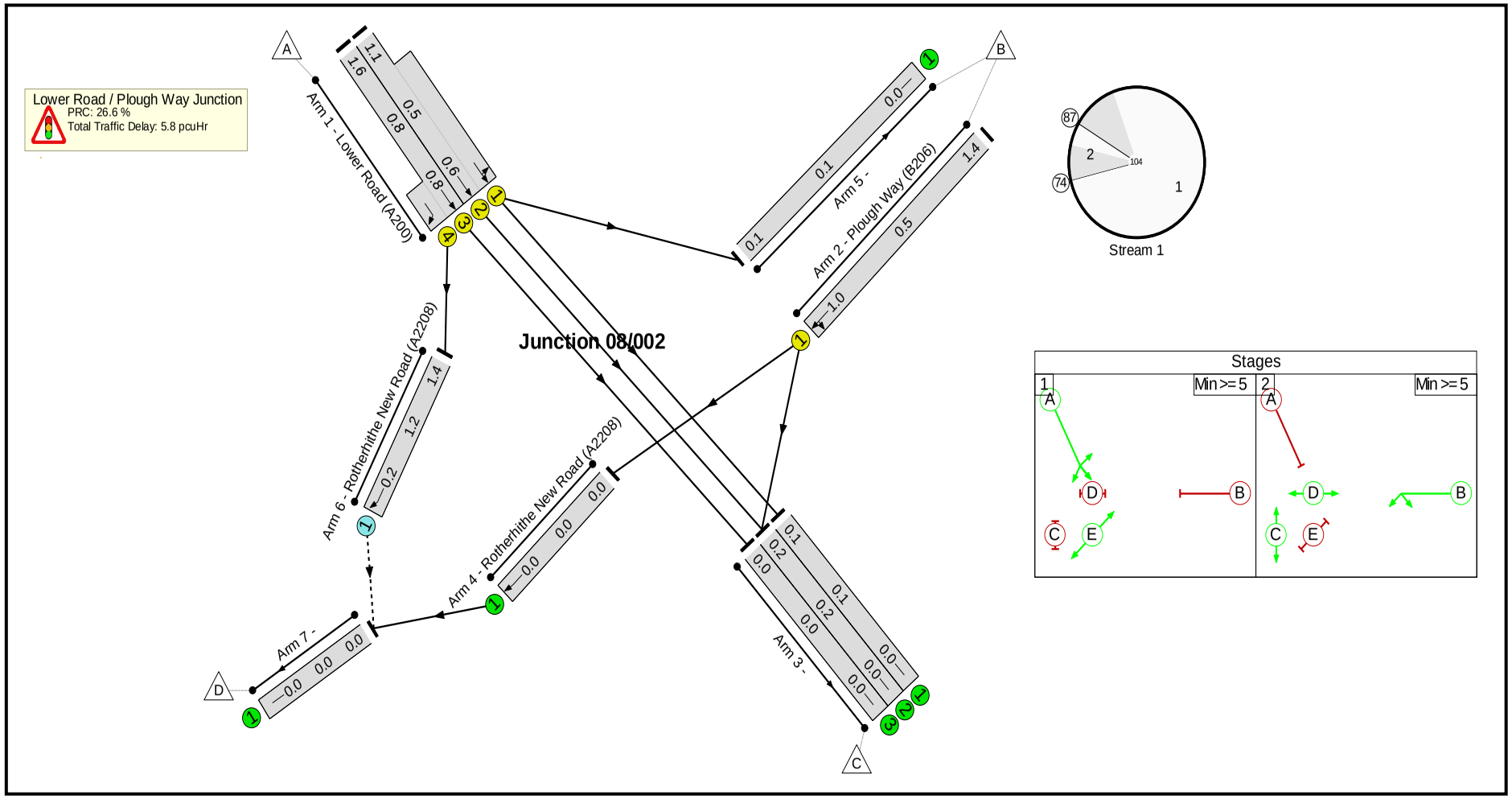
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Earl Pumping Station	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**53.0%**	**316**	**0**	**0**	**3.9**	**-**	**-**
Lower Road / Plough Way Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**53.0%**	**316**	**0**	**0**	**3.9**	**-**	**-**
1/2+1/1	Lower Road (A200) Ahead Left	U	A		1	80	-	382	2045:1657	1722	22.2%	-	-	-	0.4	4.2	1.6
1/3+1/4	Lower Road (A200) Ahead Right	U	A		1	80	-	682	1875:1800	1520	44.9%	-	-	-	1.0	5.3	3.3
2/1	Plough Way (B206) Left Ahead	U	B		1	11	-	101	1782	206	49.1%	-	-	-	1.7	60.2	3.2
3/1		U	-		-	-	-	117	1800	1800	6.5%	-	-	-	0.0	1.1	0.0
3/2		U	-		-	-	-	261	1800	1800	14.5%	-	-	-	0.1	1.2	0.1
4/1	Rotherhithe New Road (A2208) Ahead	U	-		-	-	-	21	1800	1800	1.2%	-	-	-	0.0	1.0	0.0
5/1		U	-		-	-	-	84	1800	1800	4.7%	-	-	-	0.0	1.0	0.0
6/1	Rotherhithe New Road (A2208) Ahead	O	-		-	-	-	316	1800	596	53.0%	316	0	0	0.6	7.0	3.6

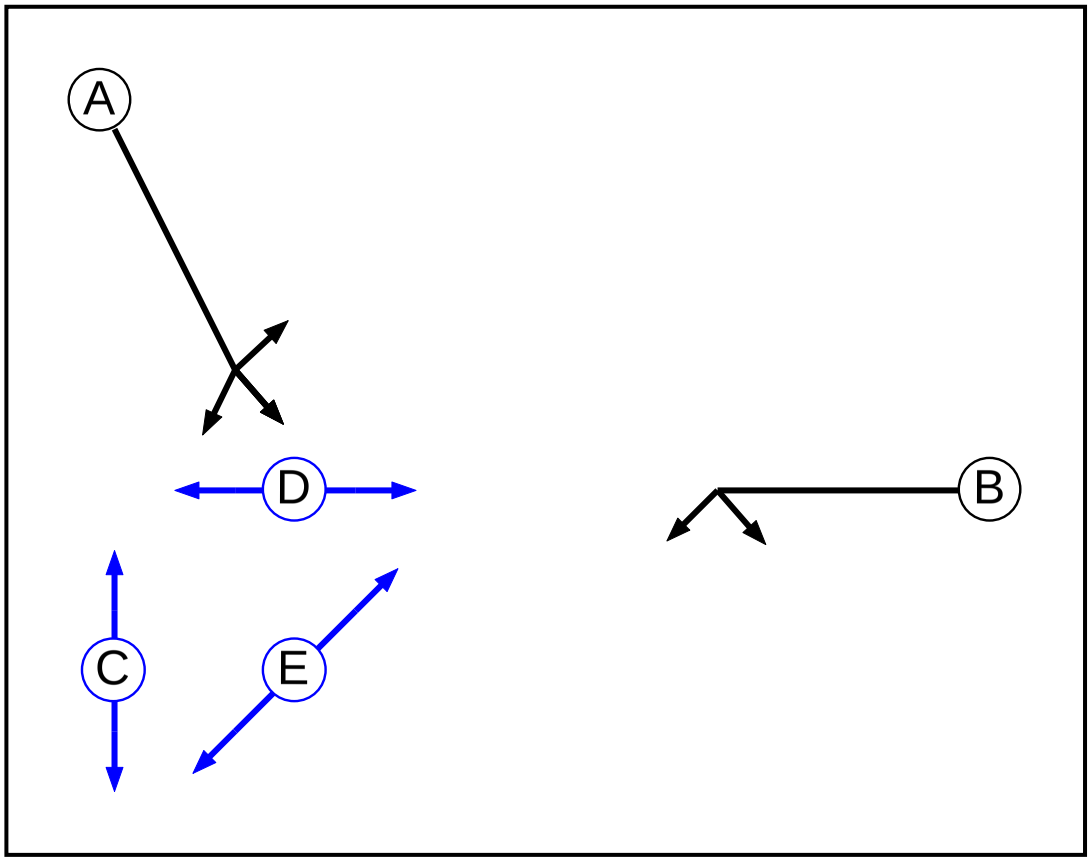
C1 PRC for Signalled Lanes (%): 83.2 Total Delay for Signalled Lanes (pcuHr): 3.13 Cycle Time (s): 104
PRC Over All Lanes (%): 69.7 Total Delay Over All Lanes(pcuHr): 3.90

C.4 Construction base case results, PM peak hour

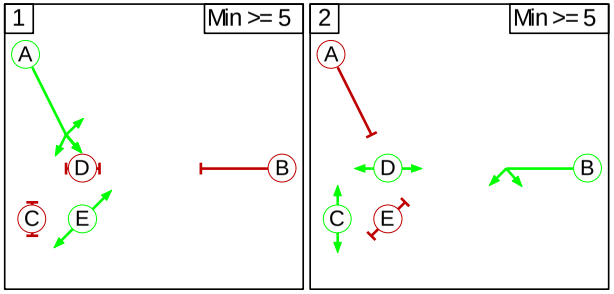
Network Layout Diagram



Phase Diagram



Stage Diagram



Phases in Stage

Stage No.	Phases in Stage
1	A E
2	B C D

Phase Intergreens Matrix

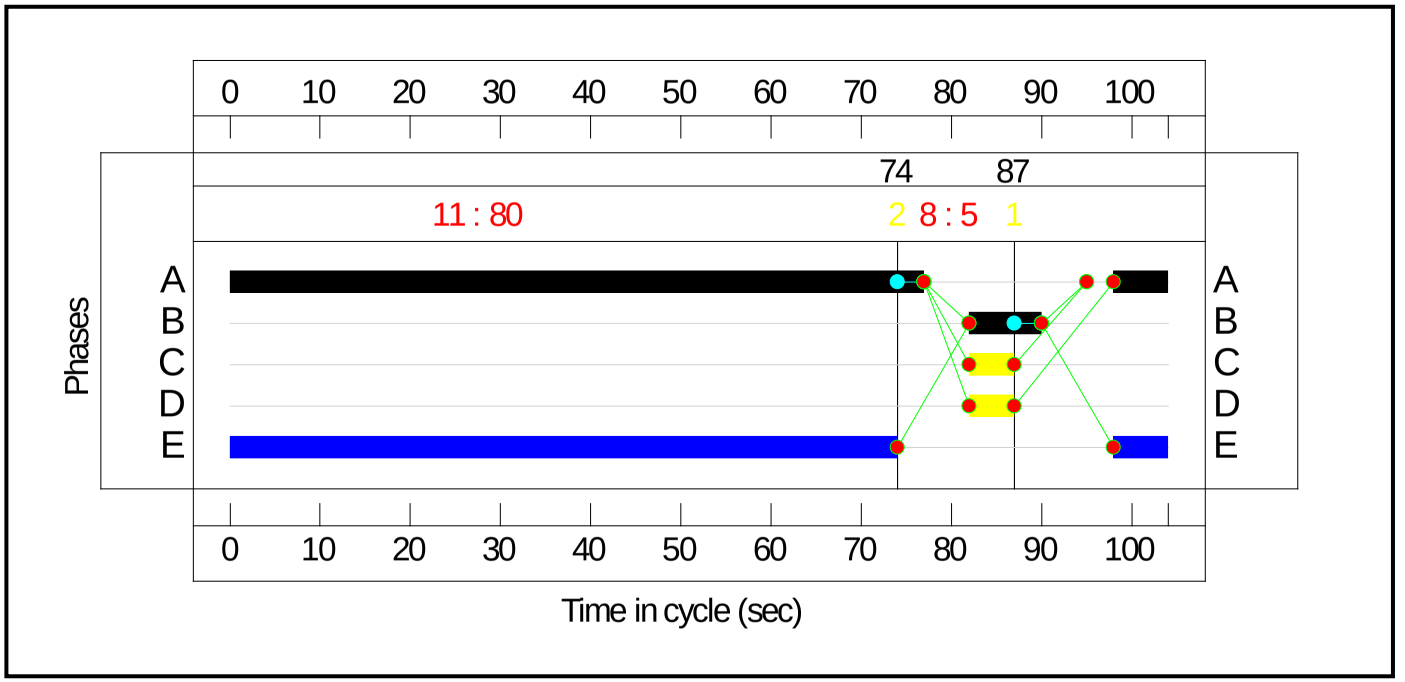
Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		5	5	5	-
	B	5		-	-	8
	C	8	-		-	-
	D	11	-	-		-
	E	-	8	-	-	

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	266	1162	425	1853
	B	0	0	65	11	76
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	266	1227	436	1929

Signal Timings Diagram



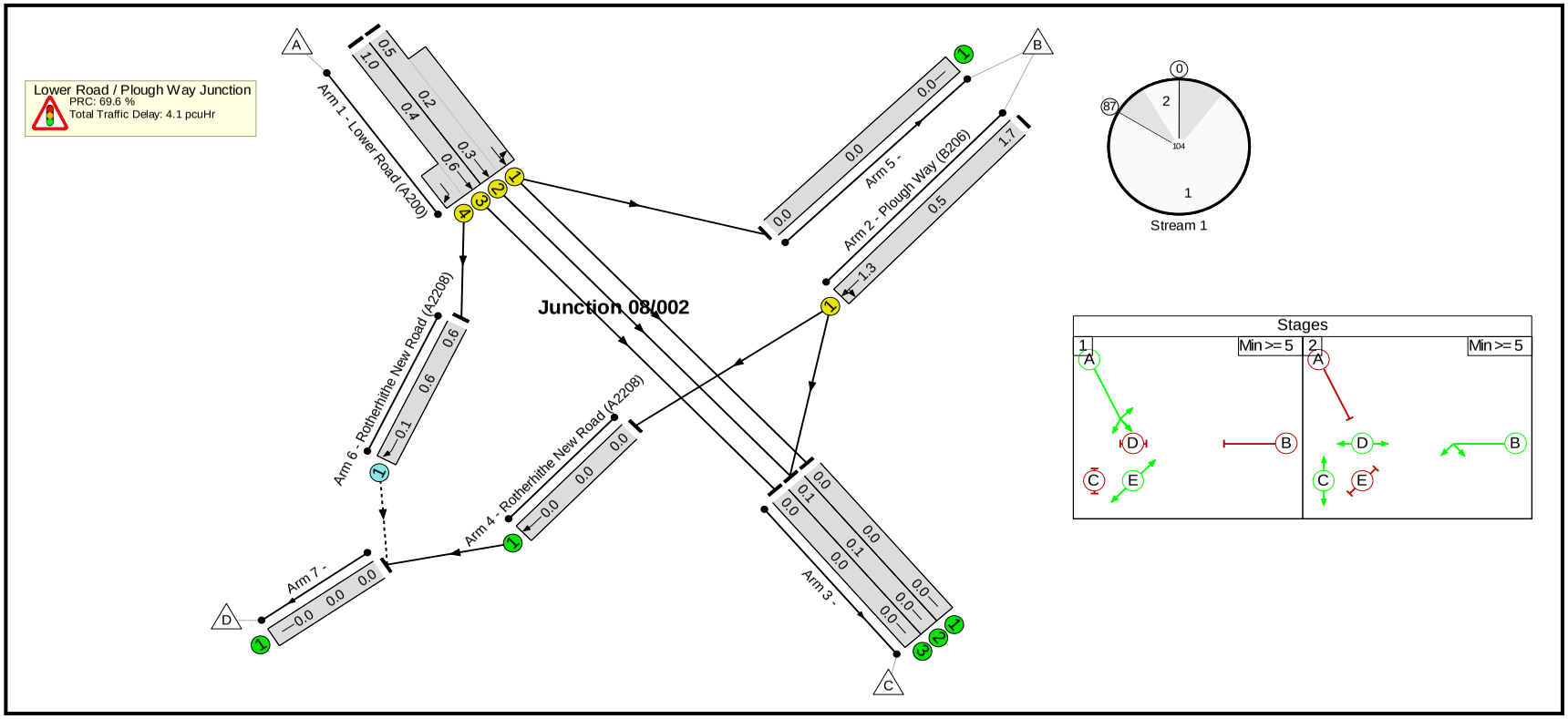
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Earl Pumping Station	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.1%**	**425**	**0**	**0**	**5.8**	**-**	**-**
Lower Road / Plough Way Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.1%**	**425**	**0**	**0**	**5.8**	**-**	**-**
1/2+1/1	Lower Road (A200) Ahead Left	U	A		1	83	-	888	2045:1657	1778	49.9%	-	-	-	1.1	4.6	4.0
1/3+1/4	Lower Road (A200) Ahead Right	U	A		1	83	-	965	1875:1800	1566	61.6%	-	-	-	1.6	5.8	7.0
2/1	Plough Way (B206) Left Ahead	U	B		1	8	-	76	1782	154	49.3%	-	-	-	1.4	68.1	2.6
3/1		U	-		-	-	-	199	1800	1800	11.1%	-	-	-	0.1	1.1	0.1
3/2		U	-		-	-	-	488	1800	1800	27.1%	-	-	-	0.2	1.4	0.2
4/1	Rotherhithe New Road (A2208) Ahead	U	-		-	-	-	11	1800	1800	0.6%	-	-	-	0.0	1.0	0.0
5/1		U	-		-	-	-	266	1800	1800	14.8%	-	-	-	0.1	1.2	0.1
6/1	Rotherhithe New Road (A2208) Ahead	O	-		-	-	-	425	1800	598	71.1%	425	0	0	1.4	11.8	7.2

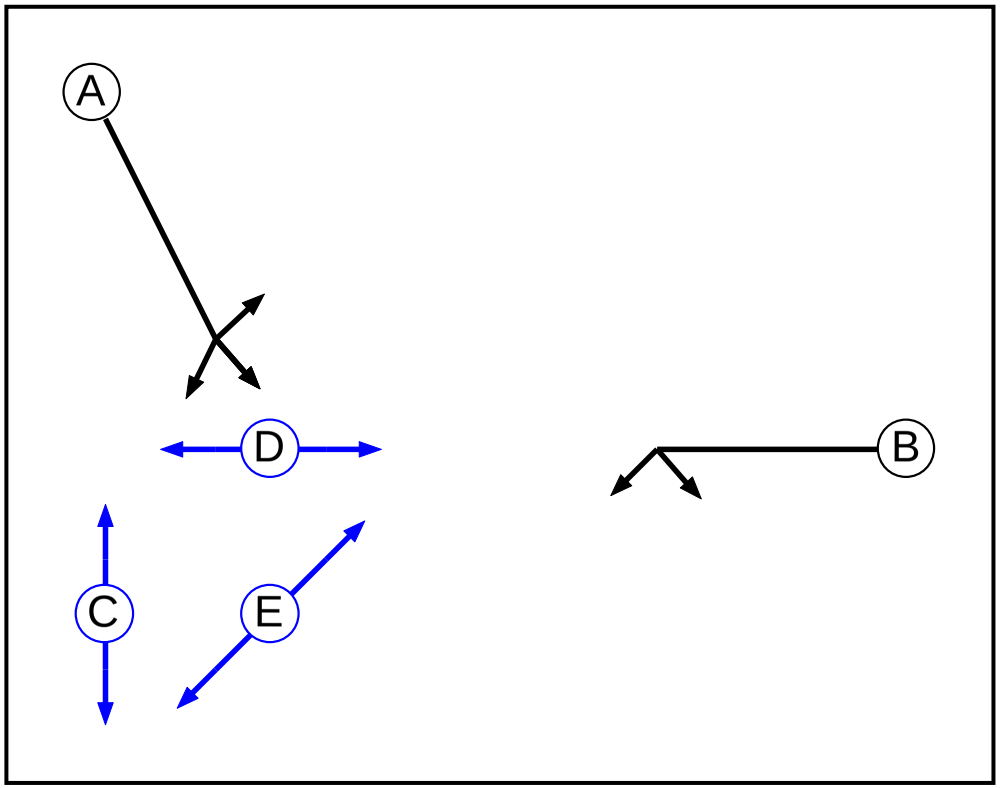
C1 PRC for Signalled Lanes (%): 46.1 Total Delay for Signalled Lanes (pcuHr): 4.12 Cycle Time (s): 104
PRC Over All Lanes (%): 26.6 Total Delay Over All Lanes(pcuHr): 5.84

C.5 Construction development case results, AM peak hour

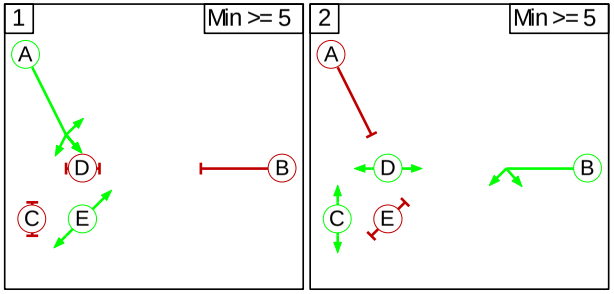
Network Layout Diagram



Phase Diagram



Stage Diagram



Phases in Stage

Stage No.	Phases in Stage
1	A E
2	B C D

Phase Intergreens Matrix

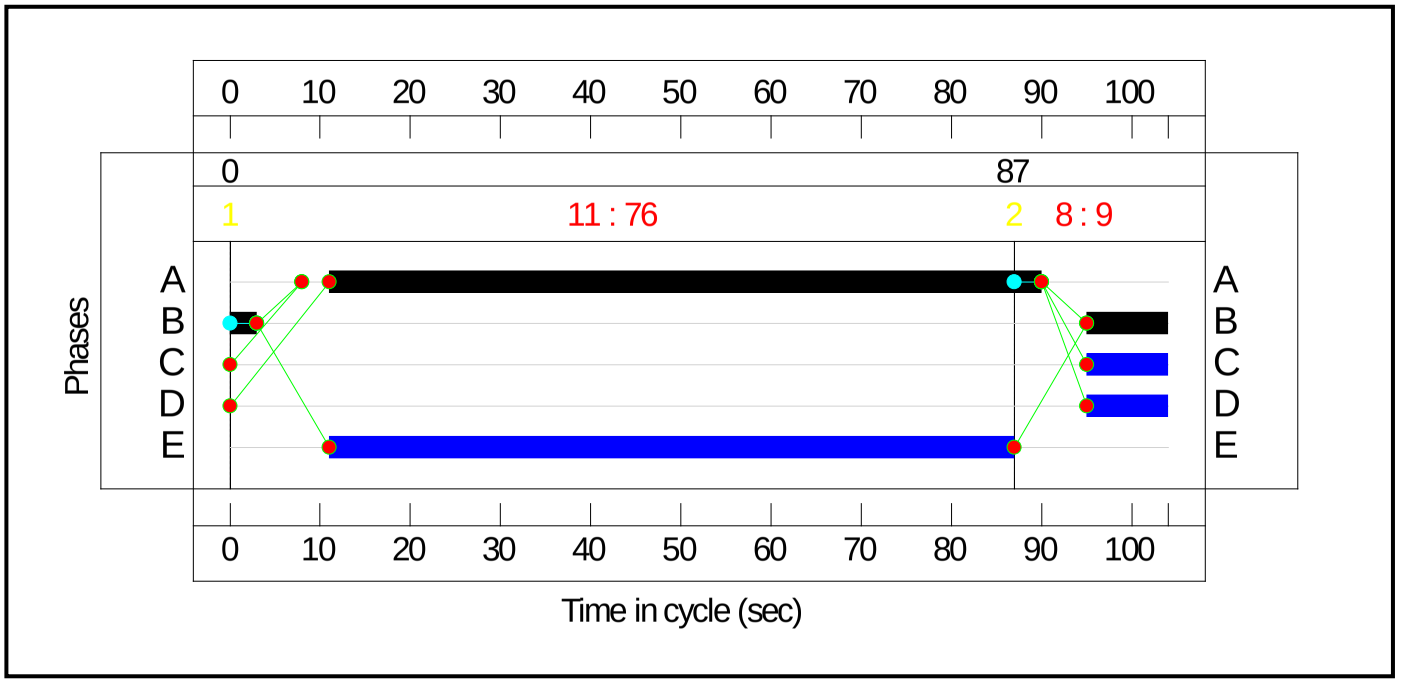
Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		5	5	5	-
	B	5		-	-	8
	C	8	-		-	-
	D	11	-	-		-
	E	-	8	-	-	

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	90	666	316	1072
	B	0	0	86	22	108
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	90	752	338	1180

Signal Timings Diagram



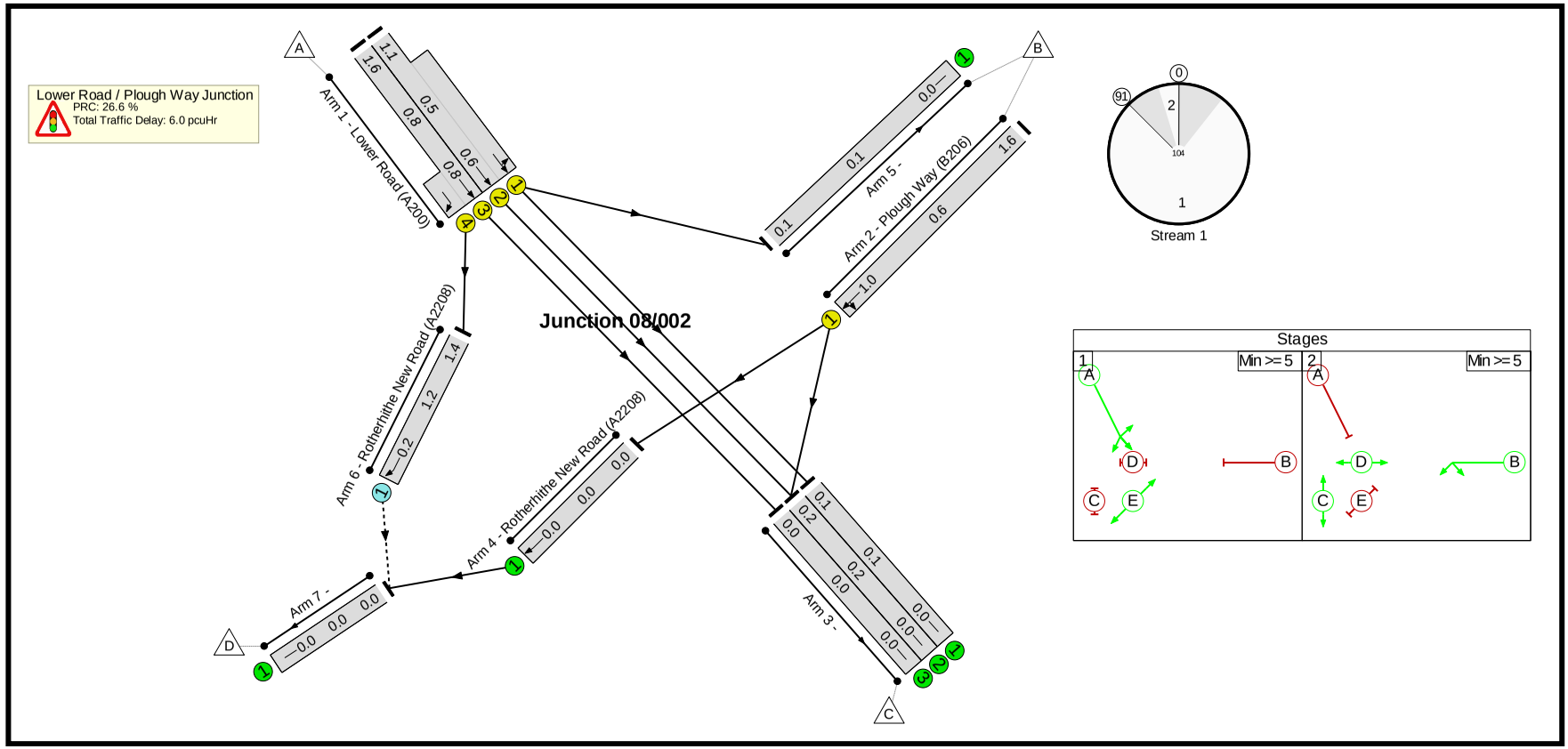
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Earl Pumping Station	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**53.1%**	**316**	**0**	**0**	**4.1**	**-**	**-**
Lower Road / Plough Way Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**53.1%**	**316**	**0**	**0**	**4.1**	**-**	**-**
1/2+1/1	Lower Road (A200) Ahead Left	U	A		1	79	-	395	2045:1657	1707	23.1%	-	-	-	0.5	4.5	1.7
1/3+1/4	Lower Road (A200) Ahead Right	U	A		1	79	-	677	1875:1800	1503	45.0%	-	-	-	1.0	5.6	3.3
2/1	Plough Way (B206) Left Ahead	U	B		1	12	-	108	1782	223	48.5%	-	-	-	1.7	57.9	3.3
3/1		U	-		-	-	-	117	1800	1800	6.5%	-	-	-	0.0	1.1	0.0
3/2		U	-		-	-	-	274	1800	1800	15.2%	-	-	-	0.1	1.2	0.1
4/1	Rotherhithe New Road (A2208) Ahead	U	-		-	-	-	22	1800	1800	1.2%	-	-	-	0.0	1.0	0.0
5/1		U	-		-	-	-	90	1800	1800	5.0%	-	-	-	0.0	1.1	0.0
6/1	Rotherhithe New Road (A2208) Ahead	O	-		-	-	-	316	1800	596	53.1%	316	0	0	0.6	7.2	3.8

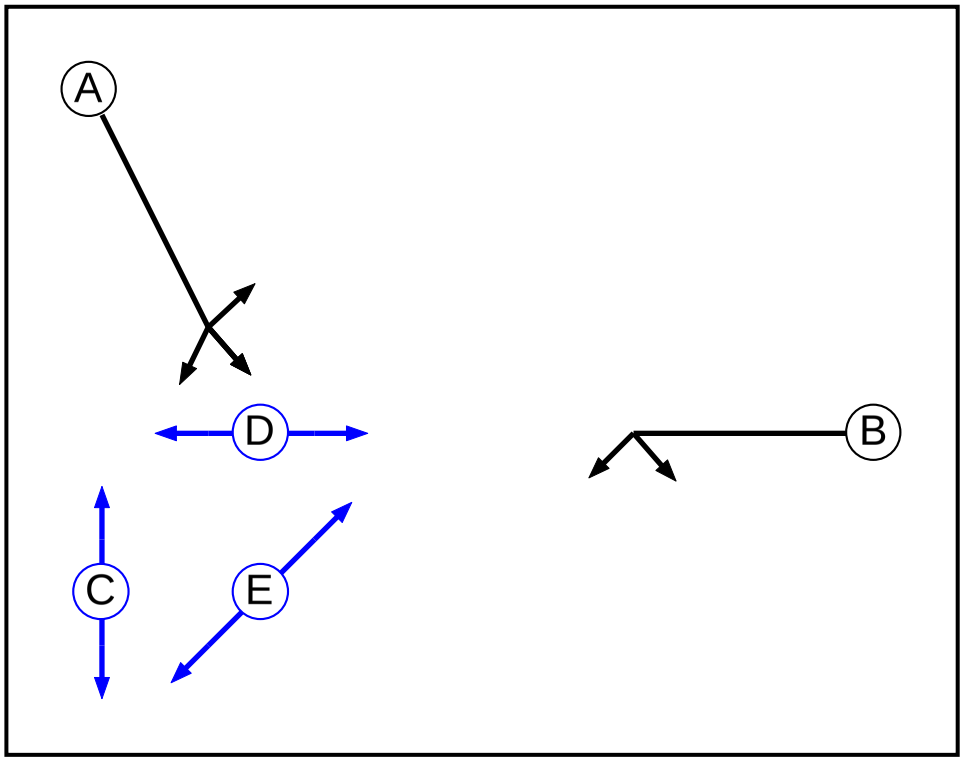
C1 PRC for Signalled Lanes (%): 85.6 Total Delay for Signalled Lanes (pcuHr): 3.28 Cycle Time (s): 104
PRC Over All Lanes (%): 69.6 Total Delay Over All Lanes(pcuHr): 4.06

C.6 Construction development case results, PM peak hour

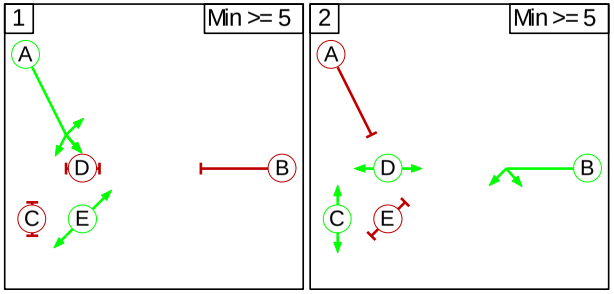
Network Layout Diagram



Phase Diagram



Stage Diagram



Phases in Stage

Stage No.	Phases in Stage
1	A E
2	B C D

Phase Intergreens Matrix

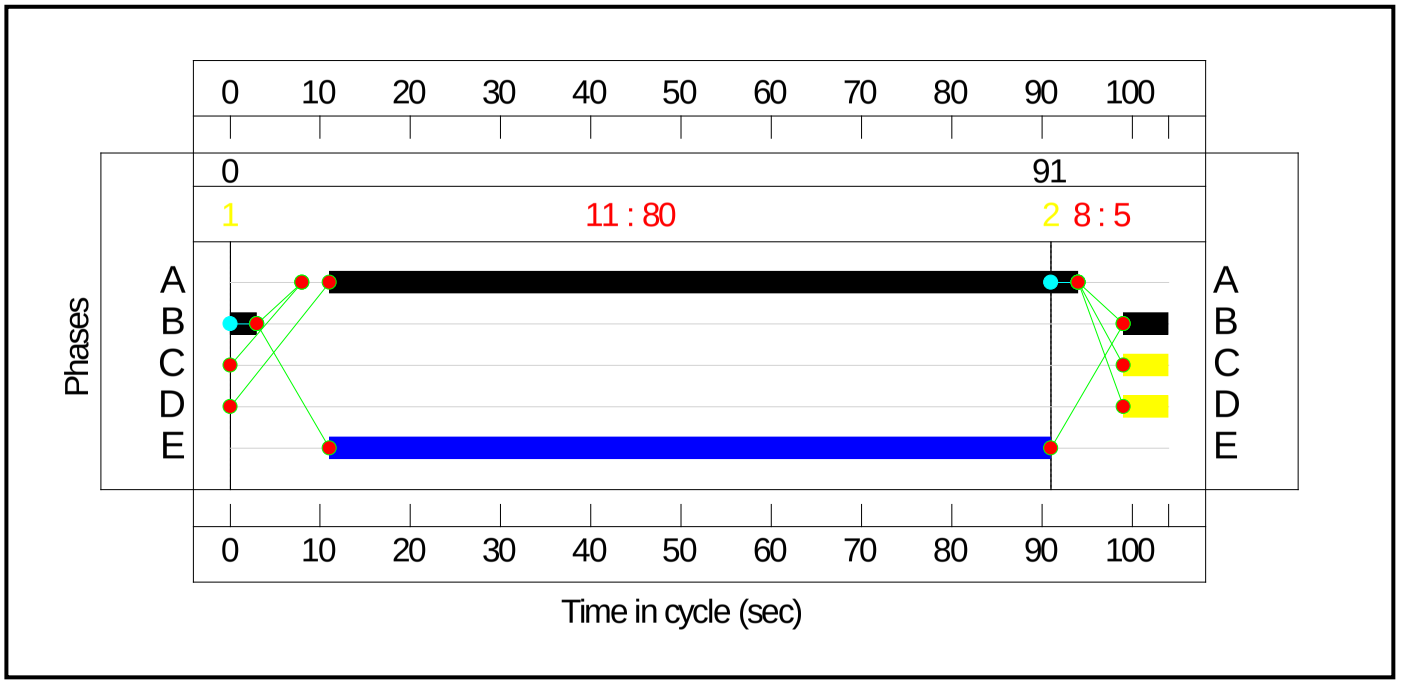
Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		5	5	5	-
	B	5		-	-	8
	C	8	-		-	-
	D	11	-	-		-
	E	-	8	-	-	

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	272	1164	425	1861
	B	0	0	71	11	82
	C	0	0	0	0	0
	D	0	0	0	0	0
	Tot.	0	272	1235	436	1943

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Earl Pumping Station	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.1%**	**425**	**0**	**0**	**6.0**	**-**	**-**
Lower Road / Plough Way Junction	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.1%**	**425**	**0**	**0**	**6.0**	**-**	**-**
1/2+1/1	Lower Road (A200) Ahead Left	U	A		1	83	-	894	2045:1657	1775	50.4%	-	-	-	1.1	4.6	4.0
1/3+1/4	Lower Road (A200) Ahead Right	U	A		1	83	-	967	1875:1800	1566	61.7%	-	-	-	1.6	5.8	7.0
2/1	Plough Way (B206) Left Ahead	U	B		1	8	-	82	1782	154	53.2%	-	-	-	1.6	70.1	2.8
3/1		U	-		-	-	-	198	1800	1800	11.0%	-	-	-	0.1	1.1	0.1
3/2		U	-		-	-	-	495	1800	1800	27.5%	-	-	-	0.2	1.4	0.2
4/1	Rotherhithe New Road (A2208) Ahead	U	-		-	-	-	11	1800	1800	0.6%	-	-	-	0.0	1.0	0.0
5/1		U	-		-	-	-	272	1800	1800	15.1%	-	-	-	0.1	1.2	0.1
6/1	Rotherhithe New Road (A2208) Ahead	O	-		-	-	-	425	1800	598	71.1%	425	0	0	1.4	11.7	7.2
			C1		PRC for Signalled Lanes (%):			45.8	Total Delay for Signalled Lanes (pcuHr):			4.30	Cycle Time (s):	104			
					PRC Over All Lanes (%):			26.6	Total Delay Over All Lanes(pcuHr):			6.03					

Appendix D – Accident analysis

D.1 Existing highway safety analysis

D.1.1 Details of road traffic accident within the vicinity of the site have been obtained from Transport for London (TfL) and have been reviewed to determine whether there are particular problems or trends on the local highway network.

D.1.2 Data on accidents for the most recent five-year period from April 2006 until March 2011 has been analysed for the following junctions and surrounding roads:

- Croft Street
- Yeoman street
- Chilton Grove
- Plough Way (B206) between the junction with Yeoman Street and the junction with Lower Road (A200) and Rotherhithe New Road (A2208)
- Lower Road (A200) between the junction with Rotherhithe New Road (A2208) and Plough Way (B206) and the junction with Bestwood Street (A200) and Evelyn Street (A200)
- Chilton Grove / Yeoman Street junction
- Chilton Grove / Croft Street junction
- Croft Street / Woodcroft Mews junction
- Plough Way (B206) / Yeoman Street junction
- Plough Way (B206) / Greenland Quay junction
- Plough Way (B206) / Trident Street junction
- Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction
- Lower Road (A200) / Chilton Grove junction
- Lower Road (A200) / Croft Street junction
- Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200) junction.

D.1.3 Based on the DfT Design Manual for Roads and Bridges, Volume 13 Economic Assessment of Road Schemes, accidents have been analysed according to the method outlined in this guidance which states that accidents that have occurred within 20m of each junction are associated with that specific junction, and the remaining accidents are grouped to the relevant links.

D.1.4 The area of interest together with the locations of the recorded road traffic accidents and the severity of the accidents are indicated in Table D.1.

Vol 4 Table D.1 Accident severity 2006 to 2011

Location	Slight	Serious	Fatal	Total
Croft Street	0	0	0	0
Yeoman Street	0	0	0	0
Chilton Grove	0	0	0	0
Plough Way (B206)*	3	1	0	4
Lower Road (A200)**	4	0	0	4
Chilton Grove / Yeoman Street junction	0	0	0	0
Chilton Grove / Croft Street junction	1	0	0	1
Croft Street / Woodcroft Mews junction	0	0	0	0
Plough Way (B206) / Yeoman Street junction	0	1	0	1
Plough Way (B206) / Greenland Quay junction	0	0	0	0
Plough Way (B206) / Trident Street junction	1	0	0	1
Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction	7	0	0	7
Lower Road (A200) / Chilton Grove junction	3	0	0	3
Lower Road (A200) / Croft Street junction	2	0	0	2
Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200) junction	8	1	0	9
Total	**29**	**3**	**0**	**32**

** Plough Way (B206) between the junction with Yeoman Street and the junction with Lower Road (A200) and Rotherhithe New Road (A2208)*
*** Lower Road (A200) between the junction with Rotherhithe New Road (A2208) and Plough Way (B206) and the junction with Bestwood Street (A200) and Evelyn Street (A200).*

D.1.5 A total of 32 road traffic accidents have occurred in the area of interest. Of these accidents, 29 were classified as slight and three are classified as serious. There were no fatal accidents.

D.1.6 Road traffic accident analysis for individual junctions and roads within the vicinity of the site is discussed below.

Yeoman Street

D.1.7 Yeoman Street is a two-way road located to the east of the site with a 20mph speed limit. Yeoman Street links to Plough Way (B206) to the north and a service yard to the south. Traffic calming is provided between the T-junction of Plough Way (B206) with Yeoman Street and Chilton Grove to promote low traffic speeds and to improve safety for pedestrians.

D.1.8 From April 2006 until March 2011, no accidents occurred along Yeoman Street.

Croft Street

D.1.9 Croft Street is located to the west of the site providing a north-south link between Plough Way (B206) and the site and an east-west link between Lower Road (A200) and the site. Croft Street is a one-way road northbound from the eastbound section of Croft Street to Chilton Grove. Traffic calming is also provided along Croft Street which is subject to a 20mph speed limit.

D.1.10 From April 2006 until March 2011, no accidents occurred along Croft Street.

Chilton Grove

D.1.11 Chilton Grove is located to the north of the site and provides an east-west link between Lower Road (A200) to the west and Yeoman Street and Croft Street to the east. Traffic calming is also provided along Chilton Grove and the road is subject to a 20mph speed limit.

D.1.12 In total, one accident occurred along Chilton Grove at the junction with Croft Street and it involved two cars. The accident was recorded as slight and mainly caused by not looking properly and poor manoeuvre, and not as a result of the road geometry.

Plough Way (B206)

D.1.13 To the north of the site, Plough Way (B206) provides an east-west link between Lower Road (A200) and Rotherhithe New Road (A2208) to the west and Grove Street to the east. A 30mph speed limit applies on this road. Plough Way (B206) within the study area is between the junction with Yeoman Street and the junction with Lower Road (A200) and Rotherhithe New Road (A2208).

D.1.14 In total, six accidents have occurred along Plough Way (B206) in the local area and at the junctions associated. Those junctions included within this analysis are as follow:

- Plough Way (B206) / Yeoman Street
- Plough Way (B206) / Greenland Quay junction
- Plough Way (B206) / Trident Street junction.

D.1.15 Of the total accidents, two were recorded as serious and four as slight.

D.1.16 One of the serious accidents occurred at the junction of Plough Way (B206) / Yeoman Street which involved a motorcycle and a motor vehicle.

The accident caused by the road users not looking properly and failing to judge another person's path or speed.

D.1.17 The other serious accident happened along Plough Way (B206) to the west of the junction with Yeoman Street. The accident involved a car and a minor pedestrian who walked across the road into path of the car. The accident happened on the AM peak hour of a week day and caused by failing to look properly and the car driver being a learner driver.

D.1.18 The remaining four accidents were classified as slight, with one accident occurred at the junction of Plough Way (B206) / Trident Street and three accidents occurred along Plough Way (B206), two to the west of the junction with Yeoman Street and one to the west of the junction with Trident Street.

D.1.19 Three of the slight accidents involved pedestrians, one recorded as a minor pedestrian and the other two were adults. All the pedestrians were hit by cars and the accidents mainly caused by the pedestrians not looking properly and walking across the road into the path of the oncoming cars.

D.1.20 The other slight accident involved two cars and occurred to the east of Plough Way (B206) / Lower Road (A200) / Rotherhithe New Road (A2208) junction. The accident caused by not looking properly and failing to signal.

D.1.21 Of the slight accidents occurred along Plough Way (B206) and at the junctions associated, none happened as a result of the road geometry.

Lower Road (A200)

D.1.22 Lower Road (A200) runs in a north-south direction to the west of the site with a 30mph speed limit. Lower Road (A200) is a one-way southbound carriageway between the junctions with Rotherhithe Old Road (A200) / Hawkstone Road (A2208) and Evelyn Street (A200) / Bestwood Street (A200).

D.1.23 Lower Road (A200) leads to Jamaica Road (A200), Brunel Road (B205), and Rotherhithe Tunnel (A101) to the north, meeting them at a large roundabout approximately 1.5km to the northwest of the site. To the south, Lower Road (A200) links to Evelyn Street (A200) and Bestwood Street (A200) at a priority T-junction.

D.1.24 Lower Road (A200) within the study area is between the junction with Rotherhithe New Road (A2208) and Plough Way (B206) and the junction with Bestwood Street (A200) and Evelyn Street (A200).

D.1.25 In total, 25 accidents occurred along Lower Road (A200) and at the junctions associated. The junctions included within this analysis are as follow:

- Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction;
- Lower Road (A200) / Chilton Grove junction;
- Lower Road (A200) / Croft Street junction; and
- Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200) junction.

D.1.26 The majority of the accidents occurred at the junction of Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200), and the junction of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206).

D.1.27 Of the total accidents, one was classified as serious which occurred at the junction of Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200). The accident involved a car and a motorcycle and caused by not looking properly, making poor manoeuvres, and failing to judge another person's path or speed.

D.1.28 The remaining 24 accidents were classified as slight, with four accidents occurred along Lower Road (A200) away from junctions and 20 accidents happened at the junctions associated with Lower Road (A200) in the local area.

D.1.29 Of the total slight accidents, five involved pedestrians who were hit by vehicles including cars and a taxi. Three of the pedestrians were hit at the junction of Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200), one was hit at the junction of Lower Road (A200) / Chilton Grove, and one was hit along Lower Road (A200) to the south of the junction with Chilton Grove.

D.1.30 Four of the pedestrians were adults and one was minor. The major contributory factors to these accidents were drivers and pedestrians not looking properly and the pedestrians recklessly crossing the road and disobeying pedestrian crossing facility.

D.1.31 Five of the slight accidents involved pedal cycles, all were collided with cars. One of these accidents occurred to the south of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206) junction, one at the junction of Lower Road (A200) / Chilton Grove, two at the junction of Lower Road (A200) / Croft Street, and one at the junction of Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200). Not looking properly, making poor manoeuvres and driving recklessly were the main causes of these accidents.

D.1.32 Of the five year accident data analysed, one accident involved goods vehicle. The accident occurred at the junction of Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200) where a medium goods vehicle (MGV) and a motorcycle collided. The accident caused by driving recklessly and one vehicle following another too closely and travelling too fast for the conditions.

D.1.33 The remaining 13 slight accidents involved cars, motorcycles, and buses/coaches. The major contributory factors to these accidents were not looking properly, reckless driving and poor manoeuvre.

D.1.34 Of the slight accidents occurred along Lower Road (A200) and at the junctions associated, none happened as a result of the road geometry.

D.2 Summary and conclusion

D.2.1 Of the five year accident data analysed, the largest number of road traffic accidents occurred at the junction of Lower Road (A200) / Evelyn Street

(A200) / Bestwood Street (A200), and the junction of Lower Road (A200) / Rotherhithe New Road (A2208) / Plough Way (B206), with one serious accident and 15 slight accidents occurred at both junctions.

D.2.2 In total, three serious accidents occurred in the vicinity of the site. One of the serious accidents involved a pedestrian who was hit by a car along Plough Way (B206). The other serious accidents, which did not involve pedestrians or cyclists, involved motor vehicles. Not looking properly and failing to judge another person's path or speed were the main causes of the serious accidents, which were not considered to be as a result of the road geometry.

D.2.3 Of the total accident, nine accidents involved pedestrians with the majority occurring along Plough Way (B206) and the junction of Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200). Three of the pedestrians involved in the accidents were minors and six were adults. The accidents were primarily caused by drivers or pedestrians not looking properly and reckless driving.

D.2.4 Five of the total accidents involved pedal cycles, all of which involved collisions with cars. The accidents occurred along Lower Road (A200) and the junction with Chilton Grove, Croft Street, and Evelyn Street (A200) and Bestwood (A200). These accidents were caused by road users not looking properly, making poor manoeuvres and driving recklessly.

D.2.5 One accident involved a goods vehicle which happened at the junction of Lower Road (A200) / Evelyn Street (A200) / Bestwood Street (A200) where the goods vehicle and a motorcycle collided. The accident was caused by one vehicle following another too closely and travelling too fast for the conditions.

D.2.6 In the majority of the accidents occurred in the vicinity of the site, not looking properly, reckless driving, poor manoeuvres and travelling too fast for the conditions were the main causes of the accidents. Based on the information available, none of the accidents were considered to be as a result of the road geometry or failure of infrastructure.

Appendix E– Road Safety Audits

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Thames Water Utilities

Thames Tideway Tunnel - Earl Pumping Station

Stage 1 Road Safety Audit

Project Ref: 27016/033

Doc Ref: 001

February 2013

Peter Brett Associates LLP
11 Prospect CourtCourteenhall RoadBlisworthNorthamptonNN7 3DGT: 01604 878300F: 01604 878333E: northampton@peterbrett.com

Document Control Sheet

Project Name: **Thames Tideway Tunnel - Earl Pumping Station**

Project Ref: **27016/033**

Report Title: **Stage 1 Road Safety Audit**

Doc Ref: **001**

Date: **February 2013**

	Name	Position	Signature	Date
Prepared by:	James Horne	Senior Engineer	James Horne	14th February 2013
Reviewed by:	Philip Edwards	Principal Engineer	PEdwards	14th February 2013
Approved by:	Alan Fry	Divisional Director	PP PEdwards	14th February 2013
For and on behalf of Peter Brett Associates LLP				

Revision	Date	Description	Prepared	Reviewed	Approved

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2	**Items Raised from this Stage 1 Road Safety Audit**	**3**
3	**Audit Team Statement**	**6**

Appendices

Appendix A - Information Utilised in this Stage 1 Road Safety Audit

Appendix B - Site Reference Plan

1 Introduction

1.1 Peter Brett Associates LLP have been commissioned to undertake a series of Stage 1 Road Safety Audits on proposals associated with the construction of the Thames Tideway Tunnel project in London.

1.2 This Audit has been undertaken on the highway aspects of the proposals at the existing Earl Pumping Station site in Chilton Grove which straddles the Lewisham / Southwark boundary and considers both the situation during the construction phase and post construction. Works are being carried out at the existing pumping station as part of the Thames Tideway Tunnel Works.

1.3 The immediate surrounding highway network is urban in nature, and within a 20mph speed zone, is illuminated by a system of street lighting, with footways on both sides of the carriageway. Further afield the speed limit increases to a 30mph speed limit.

1.4 The scheme proposals that affect the existing highway consist of the following design aspects:-

- Construction Phases:-
    - Suspending some existing parking bays, temporary stopping up of small lengths of the highway and the introduction of temporary parking restrictions in order to accommodate the passage of construction vehicles accessing the site;
    - Removing of length of footway adjacent to the site to facilitate access as well as temporarily relocating existing speed cushions within the construction area within Croft Street;
    - Lengths of road closures or traffic management to facilitate construction within the existing highway;
- Operational Phase:-
    - Highway layout to be returned to its current layout i.e. parking bays reinstated, parking restrictions removed and speed cushions reinstated in the original location;
    - 6 monthly maintenance access required by transit van;
    - 10 yearly maintenance required by rigid HGV / mobile crane – parking bays suspended as required for short term maintenance activity;

1.5 The Audit Team Membership was as follows:-

Audit Team Leader:-

James Horne Peter Brett Associates, Northampton

Team member:-

Philip Edwards Peter Brett Associates, Northampton

The Audit Team are independent of the Design Team.

1.6 The Audit took place during December 2012 / January / February 2013. The Audit Team visited the site on 6th December 2012 between 12:30 and 13:15. The weather during the site visit was cold but sunny. The Audit comprises of an examination of the documents listed in Appendix A.

1.7 The Audit Team have not been made aware of any Departure from Standards identified with this proposed scheme. The Audit Team have not been provided with a specific Audit Brief but have received a number of documents that are describing the proposed works.

1.8 The Audit Team have received a document summarising the recorded collision data within the surrounding highway network for a 5 year period (April 2006 to March 2011). The Audit Team have not been provided with the raw collision data, therefore, a full review and analysis of the recorded collisions cannot be undertaken as part of this Audit. Furthermore, no traffic flows associated with the construction works have been provided.

1.9 The Terms of Reference of this Audit are as described in Transport for London (TfL) Procedure SQA-0170. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical Audit.

1.10 This Audit has a maximum shelf life of 2 years. Should the scheme not progress to the next stage in its development within this period it should be re-audited.

1.11 Problems identified in the report are indicated by location and are shown on the site reference plan in Appendix B.

2 Items Raised from this Stage 1 Road Safety Audit

Construction Phase

2.1 Problem

Location - General

Summary - Access to Site Potentially Restricted

The proposals indicate that the existing parking bays along Chilton Grove and Croft Street will be temporarily suspended during the Construction phases in order to facilitate access to the site for large vehicles. However, it is unclear how the proposals will prevent on-street parking within these temporarily suspended parking bays and maintain an unobstructed route to the site.

Similar to the above, proposals indicate lengths of 'parking' restrictions along Chilton Grove and Yeoman Street that will be provided in order to allow unrestricted access to the site for construction vehicles. However, it is unclear whether these proposed waiting restrictions include any restrictions to loading. During the site visit, Yeoman Street was particularly busy, with multiple large vehicles undertaking deliveries to the adjacent commercial properties.

Recommendation

Temporary Traffic Regulation Orders should be made and waiting restrictions applied within the appropriate lengths of Chilton Grove and Croft Street in order to ensure access to site is not restricted by parked vehicles.

Access to the site may become blocked by other vehicles undertaking deliveries to the adjacent commercial properties along Yeoman Street. A methodology to coordinate / facilitate these other vehicles should be developed alongside the access proposals associated with the proposed scheme.

2.2 Problem

Location - General

Summary - Issues with Swept Paths Analysis

The swept path analysis undertaken for both the Construction and the Operational phases indicates that the Design Vehicles, when performing some manoeuvres, will overhang the adjacent footway thus potentially endangering pedestrians. Also, these swept paths indicate that the construction vehicles may not be able to enter the site (off Yeoman Way) and return to the highway (on Chilton Grove) without striking the existing entrance / exit gates. It is noted that the speed at which the swept path analysis has been carried out at is 5kph. This is a very slow speed. Whilst it is accepted that at some locations such as turning into and out from the site this may be realistic, for other locations it would appear likely that site delivery vehicles will be travelling at a higher speed. There is a risk of large vehicles overrunning the footway and braking unexpectedly at pinch points.

Recommendation

Notwithstanding that the swept path analysis has been undertaken using Ordnance Survey data, (not topographical survey) the effect on the swept paths of vehicles travelling at a more realistic speed should be checked. Where necessary, measures should be provided to prevent large vehicles overrunning the footway and to protect pedestrians. It may also be necessary to review the extent of the proposed parking bay suspensions.

The entry / exit points of the pumping station should be reviewed and increased in size if required.

2.3 Problem

Location	-	Lower Street / Plough Way / Rotherhithe New Road Signalised Junction
Summary	-	Potential for Side Swipe Type Collisions at Junction

It appears that due to existing one way traffic management affecting Lower Road, all traffic will have to approach the site via Lower Road south eastbound, before turning left into Plough Way.

The cross section of the Lower Road south-eastbound approach arm has been provided with 3 running lanes. Lane 1 is a part time (7am to 7pm) bus lane (taxi and cycles permitted also). Lane 1 also displays a left turn into Plough Lane. This part time bus lane has a road marking to indicate an *"interruption of a with-flow lane at a left turn* (Diag. 1010)*"*. This road marking allows vehicles in Lane 2 to enter the bus lane (Lane 1) in order to perform the left turn manoeuvre into Plough Way. However, the current road layout is not as clear as it could be to all motorists. This problem is made worse by the partially worn condition of the existing road markings.

Also, notwithstanding the left turn arrow in Lane 1, buses, taxis and cyclists using the Lane 1 bus lane are likely to remain in this lane even if they are undertaking the straight ahead manoeuvre for Lower Road. The scheme proposals will increase the number and frequency of large construction vehicles turning left from Lower Road into Plough Way. This may increase the potential for conflict between left turning construction vehicles and cyclist travelling straight ahead.

Recommendation

Measures should be provided in order to mitigate the risk of collisions between cyclists and left turning vehicles. This could include the provision of additional temporary signs advising cyclist of 'construction traffic' turning left at this junction should be provided, as well as additional cycle awareness signs for motorists.

The existing road markings should be refurbished and amended as necessary to reflect the requirements of Para 17.9 and the layout as detailed in Figure 17-1 of the Traffic Signs Manual Chapter 5, along with appropriate associated traffic signs and to make clear provision made for both left turners and vehicles going ahead.

2.4 Problem

Location - Croft Street

Summary - Potential Vehicle turning

Construction vehicles re-entering the highway, from the pumping station site, onto Croft Street may be unaware that this road is a one way street, potentially resulting in head on collisions.

Recommendation

Appropriate traffic signage should be erected opposite the site entrance onto Croft Street in order to inform construction traffic of the permitted travel direction.

Operational Phase (Post Construction)

No problems identified that this stage.

3 Audit Team Statement

We certify that we have examined the drawings and documents listed in Appendix A to this Road Safety Audit Report. The Road Safety Audit has been carried out within the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the scheme. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.

No one on the Audit Team has been involved with the design of the measures.

Audit Team Leader:

Name:	James Horne	Signed: James Horne
Position:	Senior Engineer	Date: 14th February 2013
Organisation:	Peter Brett Associates	
Address:	11 Prospect Court Courteenhall Road Blisworth Northamptonshire NN7 3DG	

Audit Team Members:

Name:	Philip Edwards	Signed: PEdwards
Position:	Principal Engineer	Date: 14th February 2013
Organisation:	Peter Brett Associates	
Address:	11 Prospect Court Courteenhall Road Blisworth Northamptonshire NN7 3DG	

Appendix A

Appendix A

Information Utilised in this Stage 1 Road Safety Audit:-

- Figure 22.2.1 – Site Location Plan;
- Figure 22.2.2 – Construction Traffic Routes;
- Figure 22.4.9 – Accident Locations;
- DCO-PP-21X-EARPS-220003 – Access Plan;
- DCO-PP-21X-EARPS-220007 – Permanent Works Layout;
- DCO-PP-21X-EARPS-220012 – Construction Phase 1 Site Set Up and Shaft Construction
- DCO-PP-21X-EARPS-220013 – Construction Phase 2 Construction of Other Structures;
- DCO-PP-21X-EARPS-220015 - Existing Highway layout;
- DCO-PP-21X-EARPS-220016 – Highway Layout During Construction Phase 1;
- DCO-PP-21X-EARPS-220017 – Highway Layout During Construction Phase 2;
- DCO-PP-21X-EARPS-220018 – Permanent Highway Layout;
- DCO-PP-21X-EARPS-220019 – Highway Layout During Construction Vehicle Swept Path Analysis;
- DCO-PP-21X-EARPS-220020– Permanent Highway Layout Vehicle Swept Path Analysis;
- 213601-01 – Earl Pumping Station, Facility and Amenity Map;
- Highway Mitigation Plans;
- Technical Memorandum – Earl Pumping Station – Accident Analysis;

NB Some of the above drawings indicate a note that states ‘See Schedule of Works’. The Audit Team have not been provided with this Schedule.

Appendix B

Appendix B

Site Reference Plan – Figure 1

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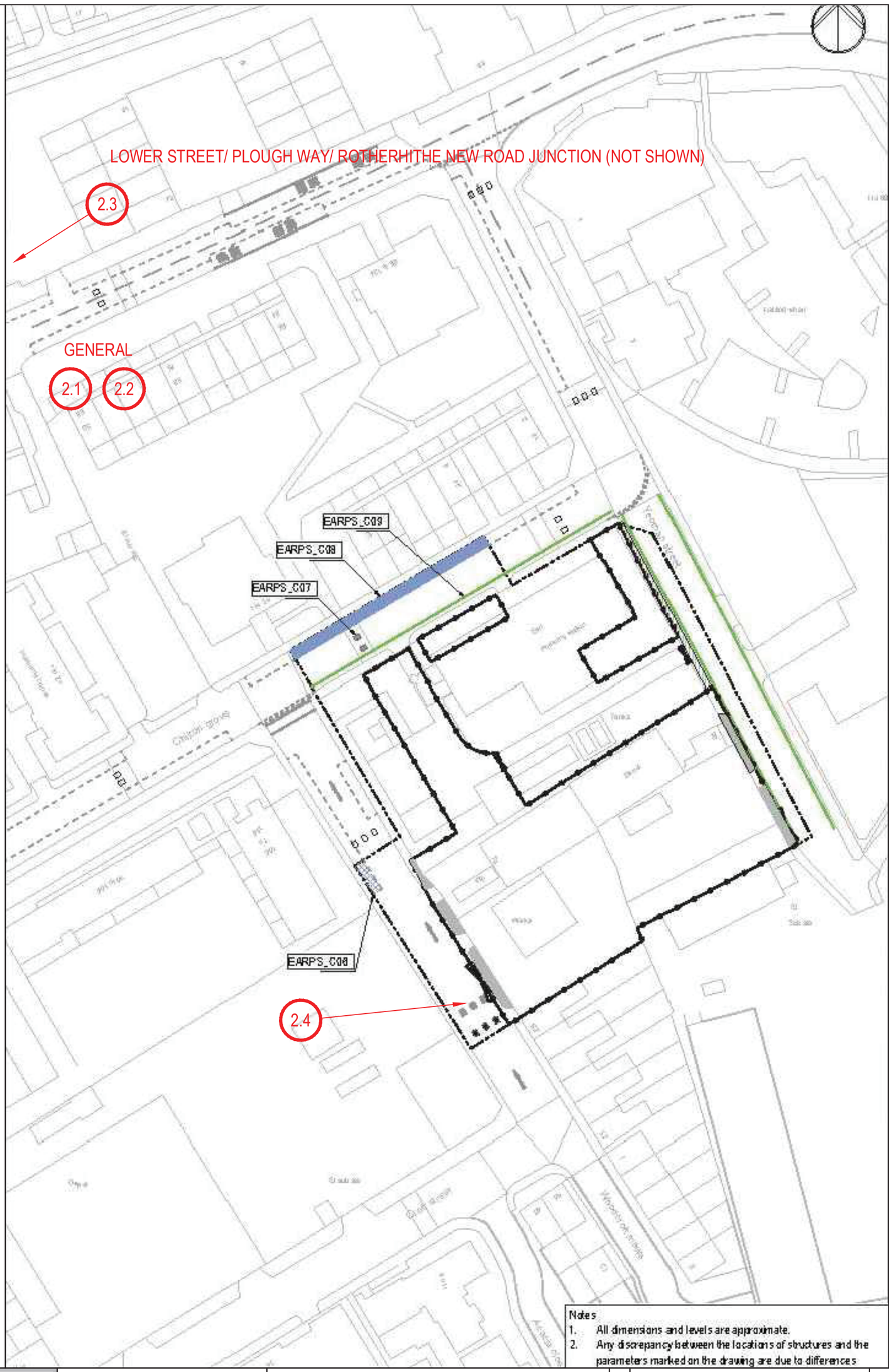

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Client

THAMES WATER UTILITIES

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake his own investigation where the presence of any existing sewers, services, plant or apparatus may affect his operations.

THAMES TIDEWAY TUNNEL
EARL PUMPING STATION

SITE REFERENCE PLAN

Mark	Revision	Drawn	Date	Chkd

Drawing Status: STAGE 1 ROAD SAFETY AUDIT

Date of 1st Issue	15/02/13
A3 Scale	NTS
Drawn by	SB
Checked by	PE

Drawing Number: FIGURE 1
J:\Safety Audits\27016 Thames Tunnel\Acad\dwg\27016_S1RSA_003 - FIGURE 1.dwg

Revision: -

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Technical Note

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Project title	Thames Tideway Tunnel	Job number	211146-04
cc		File reference	211146
Prepared by	G Wicks (4/13)	Date	15 February 2013
Subject	RSA Stage 1 - Designers response for Earl Pumping Station		

1 Introduction

This report is the Designer's response to the Stage 1 Road Safety Audit Report for Earl Pumping Station completed in February 2013.

2 Responses to the items arising from the Stage 1 Road Safety Audit

2.1 Problem – Site Access Restricted

Location: General

Summary: Access to Site Potentially Restricted

The proposals indicate that the existing parking bays along Chilton Grove and Croft Street will be temporarily suspended during the Construction phases in order to facilitate access to the site for large vehicles. However, it is unclear how the proposals will prevent on-street parking within these temporarily suspended parking bays and maintain an unobstructed route to the site.

Similar to the above, proposals indicate lengths of 'parking' restrictions along Chilton Grove and Yeoman Street that will be provided in order to allow unrestricted access to the site for construction vehicles. However, it is unclear whether these proposed waiting restrictions include any restrictions to loading. During the site visit, Yeoman Street was particularly busy, with multiple large vehicles undertaking deliveries to the adjacent commercial properties.

Recommendation

Temporary Traffic Regulation Orders should be made and waiting restrictions applied within the appropriate lengths of Chilton Grove and Croft Street in order to ensure access to site is not restricted by parked vehicles.

Access to the site may become blocked by other vehicles undertaking deliveries to the adjacent commercial properties along Yeoman Street. A methodology to coordinate / facilitate these other vehicles should be developed alongside the access proposals associated with the proposed scheme.

Designer's response

Agree with the recommendation. Exact type and length of traffic restrictions would be agreed at the detail design (stage 2) of the project to enable construction vehicle access.

2.2 Problem – Vehicle Access to Yeoman Street

Location: General

Summary: Issues with Swept Paths

The swept path analysis undertaken for both the Construction and the Operational phases indicates that the Design Vehicles, when performing some manoeuvres, will overhang the adjacent footway thus potentially endangering pedestrians. Also, these swept paths indicate that the construction vehicles may not be able to enter the site (off Yeoman Way) and return to the highway (on Chilton Grove) without striking the existing entrance / exit gates. It is noted that the speed at which the swept path analysis has been carried out at is 5kph. This is a very slow speed. Whilst it is accepted that at some locations such as turning into and out from the site this may be realistic, for other locations it would appear likely that site delivery vehicles will be travelling at a higher speed. There is a risk of large vehicles overrunning the footway and braking unexpectedly at pinch points.

Recommendation

Notwithstanding that the swept path analysis has been undertaken using Ordnance Survey data, (not topographical survey) the effect on the swept paths of vehicles travelling at a more realistic speed should be checked. Where necessary, measures should be provided to prevent large vehicles overrunning the footway and to protect pedestrians. It may also be necessary to review the extent of the proposed parking bay suspensions.

Designer's response

Recommendation noted. The vehicle swept path analysis will be amended in detail design (stage 2) to ensure all manoeuvres can be completed without overhanging the adjacent footways.

2.3 Problem – Lower Road / Plough junction vehicle conflict

Location: Lower Street / Plough Way / Rotherhithe New Road signalised junction

Summary: Potential for side swipe type collisions at junction

It appears that due to existing one way traffic management affecting Lower Road, all traffic will have to approach the site via Lower Road south eastbound, before turning left into Plough Way.

The cross section of the Lower Road south eastbound approach arm has been provided with 3 running lanes. Lane 1 is a part time (7am to 7pm) bus lane (taxi and cyclist permitted also). Lane 1 also displays a left turn into Plough Lane. This part time bus lane has a road marking to indicate an "interruption of a with-flow lane at a left turn (Diag. 1010)". This road marking allows vehicles in Lane 2 to enter the bus lane (Lane 1) in order to perform the left turn manoeuvre into Plough Way. However, the current road layout is not as clear as it could be to all motorists. This problem is made worse by the partially worn condition of the existing road markings.

Also, notwithstanding the left turn arrow in Lane 1, buses, taxis and cyclists using the Lane 1 bus lane are likely to remain in this lane even if they are undertaking the straight ahead manoeuvre for Lower Road. The scheme proposals will increase the number and frequency of large construction vehicles turning left from Lower Road into Plough Way. This may increase the potential for conflict between left turning construction vehicles and cyclist travelling straight ahead.

Recommendation

Measures should be provided in order to mitigate the risk of collisions between cyclists and left turning vehicles. This could include the provision of additional temporary signs advising cyclist of 'construction traffic' turning left at this junction should be provided, as well as additional cycle awareness signs for motorists.

The existing road markings should be refurbished and amended as necessary to reflect the requirements of Para 17.9 and the layout as detailed in Figure 17-1 of the Traffic Signs Manual Chapter 5, along with appropriate associated traffic signs and to make clear provision made for both left turners and vehicles going ahead.

Designer's response

Recommendation noted. Measures set out in the CoCP described in the Earl Pumping Station *Transport Assessment* include increasing driver awareness of restrictions on the road network and marshalling of traffic at the site access. During all construction work and on any section of road subject to temporary diversions or restrictions imposed by roadworks associated with the Chambers Wharf site, the risk to all road-users would be managed by the contractor(s) in accordance with the provisions made under the Traffic Signs Manual Chapter 8 - Traffic Safety Measures and Signs for Road Works. This would include compliance with TfL guidance (Cyclists at Roadworks – Guidance) to ensure safe passage for cyclists.

2.4 Problem – HGV exiting site incorrectly

Location: Croft Street

Summary: Potential vehicle turning

Construction vehicles re-entering the highway, from the pumping station site, onto Croft Street may be unaware that this road is a one way street, potentially resulting in head on collisions.

Recommendation

Appropriate traffic signage should be erected opposite the site entrance onto Croft Street in order to inform construction traffic of the permitted travel direction.

Technical Note

211146-04 15 February 2013

Designer's response

Recommendation noted. As noted in Problem 2.3 the CoCP outlines that measures shall be undertaken to ensure safety to other road users is ensured. This includes provision of additional signage and road markings where necessary to inform both construction and general vehicles and will be reviewed at detailed design stage.

DOCUMENT CHECKING (not mandatory for File Note)

	Prepared by	Checked by	Approved by
Name	G Wicks (4/13)	G Wicks (PM)	S Jenkins (PD)
Signature			

Thames Tideway Tunnel
Thames Water Utilities Limited

Application for Development Consent

Application Reference Number: WWO10001

Transport Assessment

Doc Ref: **7.10.19**

Earl Pumping Station

Figures

APFP Regulations 2009: Regulation **5(2)(q)**

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January 2013

Thames Tideway Tunnel

Creating a cleaner, healthier River Thames

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Thames Tideway Tunnel

Transport Assessment

Section 22: Earl Pumping Station figures

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Plans

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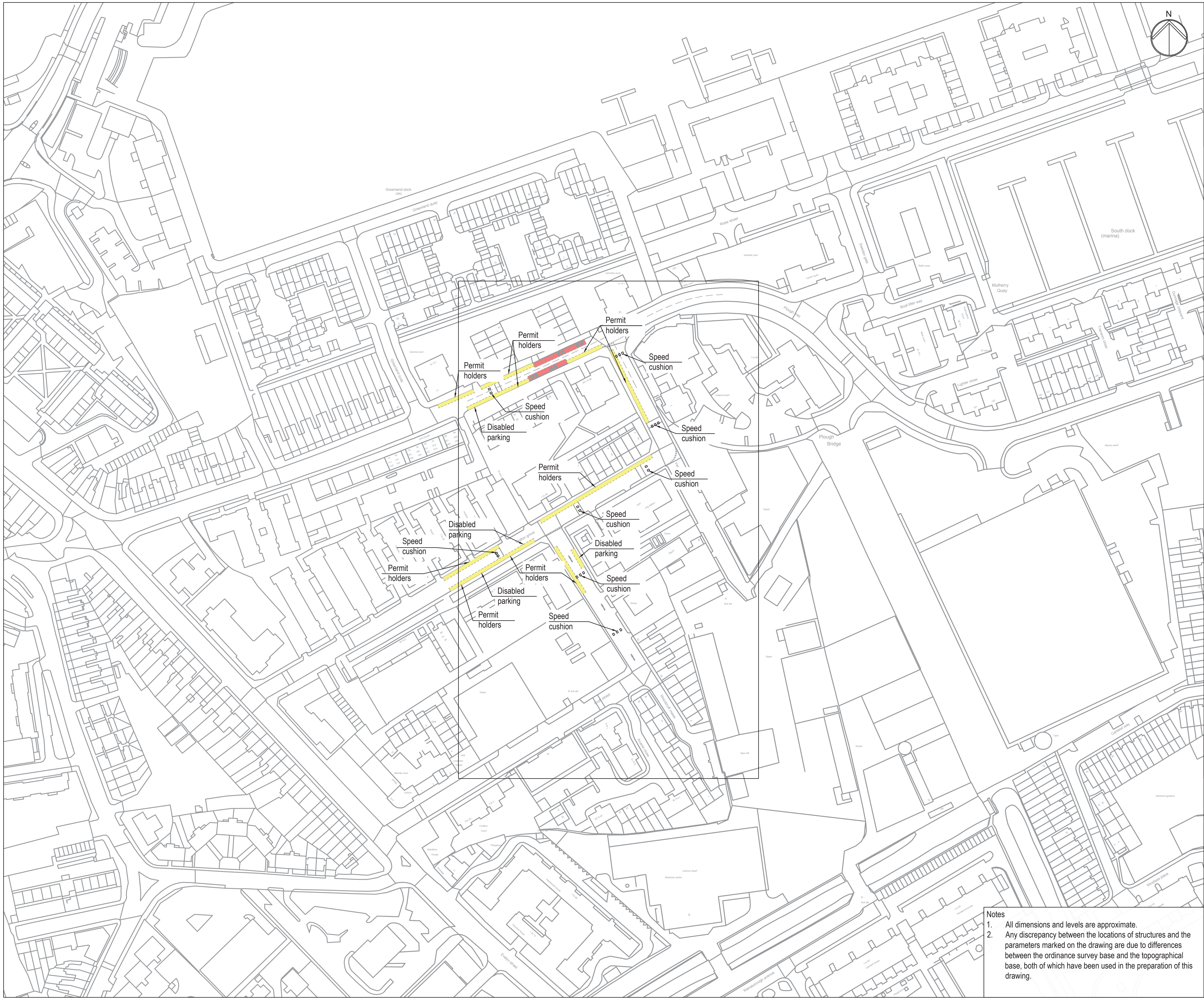
Earl Pumping Station

THAMES TIDEWAY TUNNEL - SCHEDULE OF ASSOCIATED HIGHWAY WORKS

Drawing Number	Works Reference	Location	Item of Work	Date of Implementation
DCO-PP-18X-EARPS-220016	EARPS_C01	Croft Street	Remove existing speed cushion (3no.) and resurface carriageway	TBC
	EARPS_C02	Croft Street	Suspension of parking bay (1 No. Approximately 6m)	TBC
	EARPS_C03	Chilton Grove	Temporary parking restrictions. Approximate length 40m.	TBC
	EARPS_C04	Yeoman Street	Temporary parking restrictions on both sides of Yeoman Street. Approximate length 140m. Includes temporary footway restriction on western footway. Approximate length 40m.	TBC
	EARPS_C05	Croft Street	Install speed cushion (3no.)	TBC
DCO-PP-18X-EARPS-220017	EARPS_C06	Croft Street	Re-provision of parking bay (1 No. Approximately 6m)	TBC
	EARPS_C07	Chilton Grove	Remove existing speed cushion (2no.) and resurface carriageway	TBC
	EARPS_C08	Chilton Grove	Temporary parking restrictions. Approximate length 50m.	TBC
	EARPS_C09	Chilton Grove	Temporary parking restrictions. Approximate length 20m.	TBC
DCO-PP-18X-EARPS-220018	EARPS_P01	Chilton Grove	Reinstate existing speed cushion (2no.)	TBC
	EARPS_P02	Chilton Grove	Reinstate residential parking bay. Approximate length 50m.	TBC
	EARPS_P03	Chilton Grove	Remove traffic restriction. Approximately 60m.	TBC
	EARPS_P04	Yeoman Street	Remove traffic and footway restrictions. Approximately 140m traffic restriction and 40m footway restriction.	TBC
	EARPS_P05	Yeoman Street	Remove construction access and reinstate footway	TBC
	EARPS_P06	Croft Street	Provision of dropped kerbs / strengthened footway for site access points.	TBC
	EARPS_P07	Croft Street	Install speed cushion (3no.)	TBC
	EARPS_P08	Croft Street	Remove existing speed cushion (3no.) and resurface carriageway	TBC



Keyplan:

This drawing

Coordinates are to be Ordance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

On street parking
Bus stop / stand

On street parking

Disabled parking
disabled parking only

Permit holders
resident permit holders only
mon - fri 8:00am - 6.30pm

Car club
car club users only

On street parking
unrestricted parking at all times

Standards

- Design manual for roads and bridges, Dft, 1992
- Traffic signs regulations & general directions, TSO, 2002
- Traffic signs manual, Dft, 2006
- Manual for streets, Dft, 2007
- Manual for streets 2, CIHT, 2010
- Designing for deliveries, Fta, 1998
- Cycle infrastructure design Ltn 2/08, Dft, 2008
- Design of pedestrian crossings Ltn 2/95, Dft, 1995
- Guidance for the use of tactile paving, Dft, 1998
- Accessible bus stop design guidance, TfL, 2006

Stage
Existing

10m 0 100m

Scale 1:1000 at A1
1:2000 if reproduced at A3

FOR INFORMATION

Location
Earl pumping station
London Borough of Lewisham

Document Information
Application for Development Consent
Existing highway layout

DCO-PP-21X-EARPS-220015
January 2013

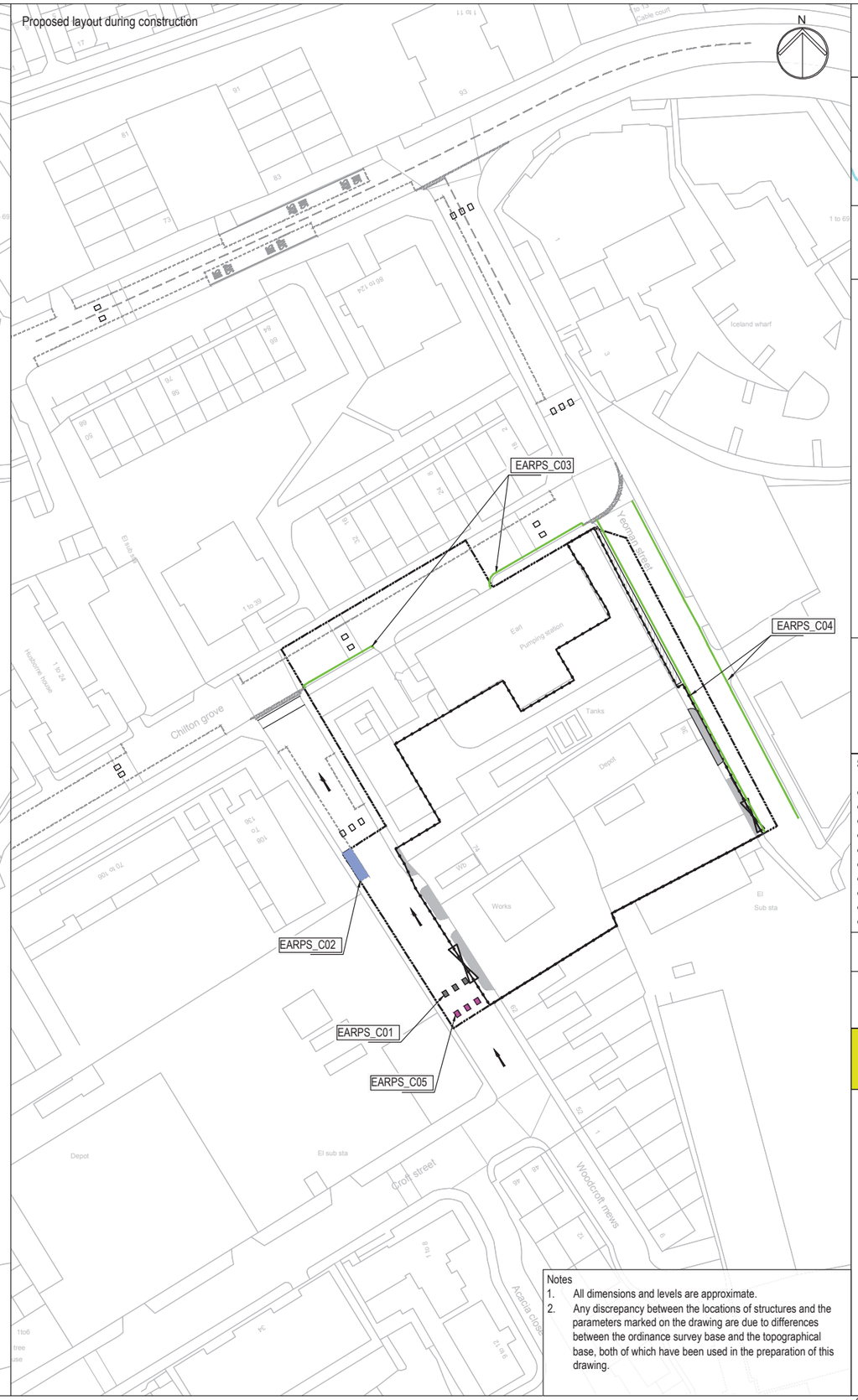
Notes
1. All dimensions and levels are approximate.
2. Any discrepancy between the locations of structures and the parameters marked on the drawing are due to differences between the ordinance survey base and the topographical base, both of which have been used in the preparation of this drawing.

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

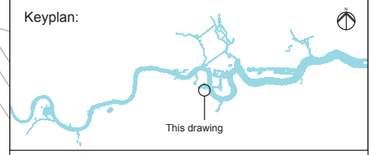
Existing highway layout

Proposed layout during construction



Notes
1. All dimensions and levels are approximate.
2. Any discrepancy between the locations of structures and the parameters marked on the drawing are due to differences between the ordinance survey base and the topographical base, both of which have been used in the preparation of this drawing.

Keyplan:



Coordinates are to be Ordance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Existing
- On street parking
- Bus stop / stand
- Pedestrian crossing

Revised
- L.L.A.U.
- Removal of footway
- Suspended on street parking
- EARPS_C00 See schedule of works
- Hoarding line
- Site access
- Removal of speed cushion
- Temporary parking restrictions
- New speed cushion
- Temporary footway restrictions

Car club
car club users only

On street parking
unrestricted parking at all times

Disabled parking
disabled parking only

Permit holders
resident permit holders only
mon - fri 8:00am - 6.30pm

Standards

- Design manual for roads and bridges, dft, 1992
- Traffic signs regulations & general directions, tso, 2002
- Traffic signs manual, dft, 2006
- Manual for streets, dft, 2007
- Manual for streets 2, ciht, 2010
- Designing for deliveries, fta, 1998
- Cycle infrastructure design ltn 2/08, dft, 2008
- Design of pedestrian crossings ltn 2/95, dft, 1995
- Guidance for the use of tactile paving, dft, 1998
- Accessible bus stop design guidance, tfl, 2006

Stage
Construction phases

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location
Earl pumping station
London Borough of Lewisham

Document Information
Application for Development Consent
Highway layout during construction - Phase 1

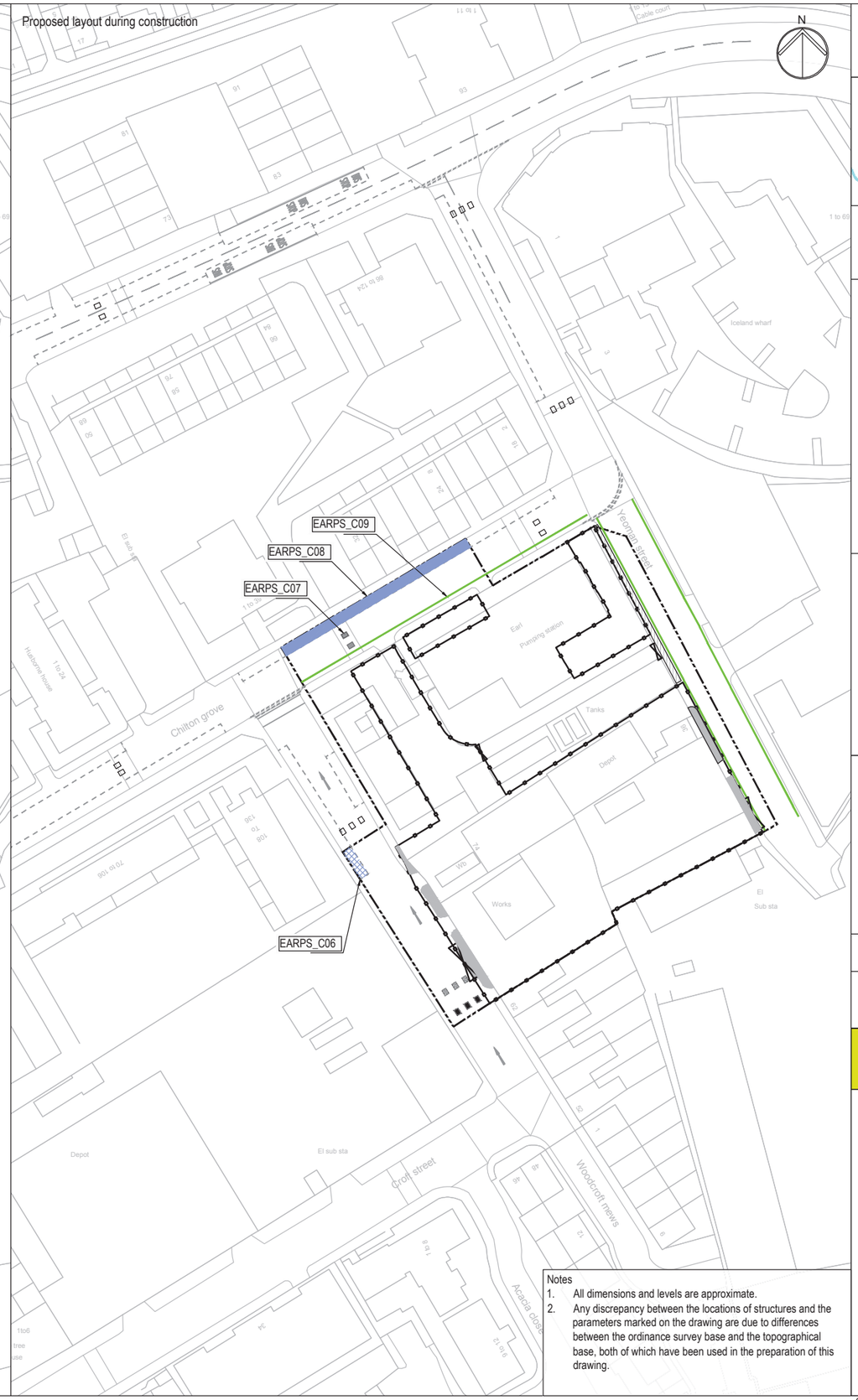
DCO-PP-21X-EARPS-220016
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

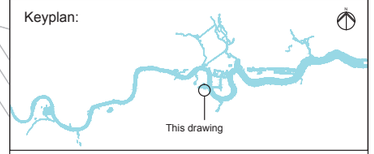
Thames Water

Existing highway layout

Proposed layout during construction



Keyplan:



Coordinates are to be Ordance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Existing
- On street parking
- Bus stop / stand

Revised
- L.L.A.U.
- Reinstated on street parking
- Suspended on street parking
- EARPS_C00 See schedule of works
- Hoarding line
- Site access
- Removal of speed cushion
- Temporary parking restrictions
- Temporary footway restrictions
- Removal of footway

On street parking

Disabled parking
disabled parking only

Permit holders
resident permit holders only
mon - fri 8:00am - 6.30pm

Car club
car club users only

On street parking
unrestricted parking at all times

Standards

- Design manual for roads and bridges, Dft, 1992
- Traffic signs regulations & general directions, TSO, 2002
- Traffic signs manual, Dft, 2006
- Manual for streets, Dft, 2007
- Manual for streets 2, CIHT, 2010
- Designing for deliveries, Fta, 1998
- Cycle infrastructure design Ltn 2/08, Dft, 2008
- Design of pedestrian crossings Ltn 2/95, Dft, 1995
- Guidance for the use of tactile paving, Dft, 1998
- Accessible bus stop design guidance, TfL, 2006

Stage
Construction phases

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location
Earl pumping station
London Borough of Lewisham

Document Information
Application for Development Consent
Highway layout during construction - Phase 2

DCO-PP-21X-EARPS-220017
January 2013

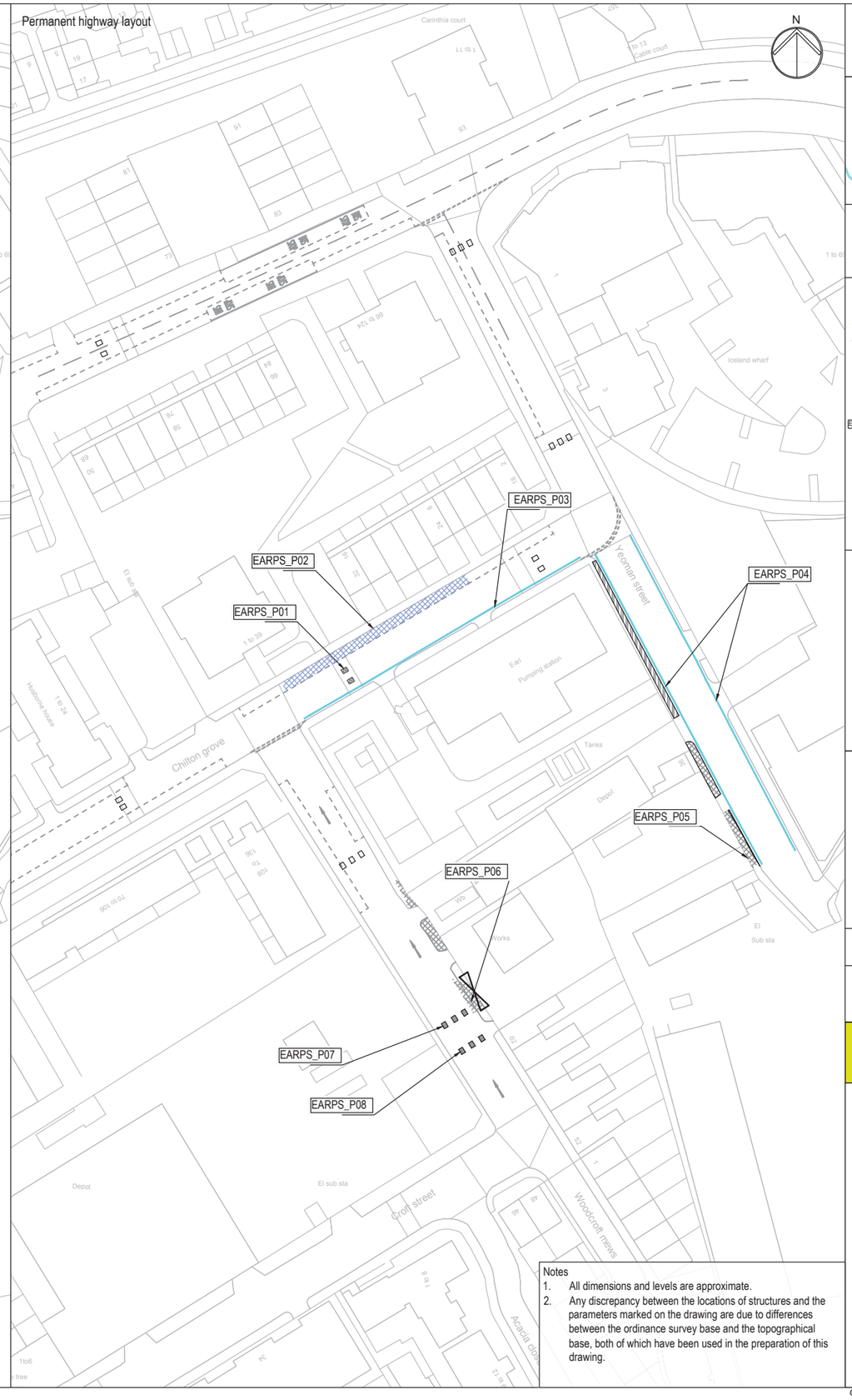
Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

Notes
1. All dimensions and levels are approximate.
2. Any discrepancy between the locations of structures and the parameters marked on the drawing are due to differences between the ordinance survey base and the topographical base, both of which have been used in the preparation of this drawing.

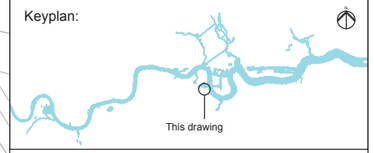
Existing highway layout

Permanent highway layout



Notes
1. All dimensions and levels are approximate.
2. Any discrepancy between the locations of structures and the parameters marked on the drawing are due to differences between the ordinance survey base and the topographical base, both of which have been used in the preparation of this drawing.

Keyplan:



Coordinates are to be Ordance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Existing
- On street parking
- Bus stop / stand

Revised
- Reinstated footway
- Reinstated carriageway
- Reinstated on street parking
- EARPS_P00 See schedule of works
- Reinstated speed cushion
- Remove temporary parking restrictions
- Site access
- Removal of speed cushion
- Remove temporary footway restrictions

On street parking

Disabled parking
disabled parking only

Permit holders
resident permit holders only
mon - fri 8:00am - 6.30pm

Car club
car club users only

On street parking
unrestricted parking at all times

Standards

- Design manual for roads and bridges, Dft, 1992
- Traffic signs regulations & general directions, TSO, 2002
- Traffic signs manual, Dft, 2006
- Manual for streets, Dft, 2007
- Manual for streets 2, CIHT, 2010
- Designing for deliveries, Fta, 1998
- Cycle infrastructure design Ltn 2/08, Dft, 2008
- Design of pedestrian crossings Ltn 2/95, Dft, 1995
- Guidance for the use of tactile paving, Dft, 1998
- Accessible bus stop design guidance, TfL, 2006

Stage
Permanent

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location
Earl pumping station
London Borough of Lewisham

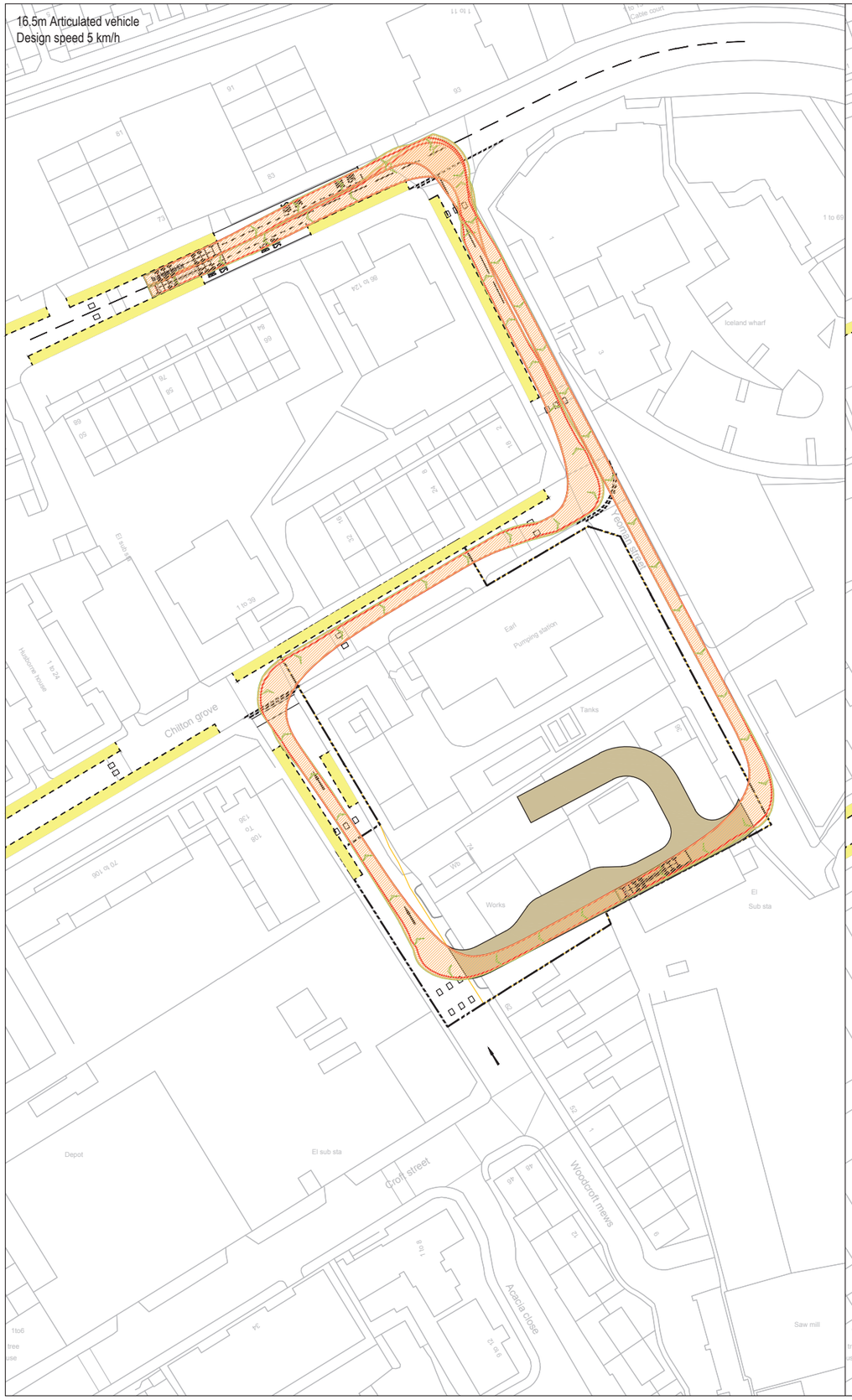
Document Information
Application for Development Consent
Permanent highway layout

DCO-PP-21X-EARPS-220018
January 2013

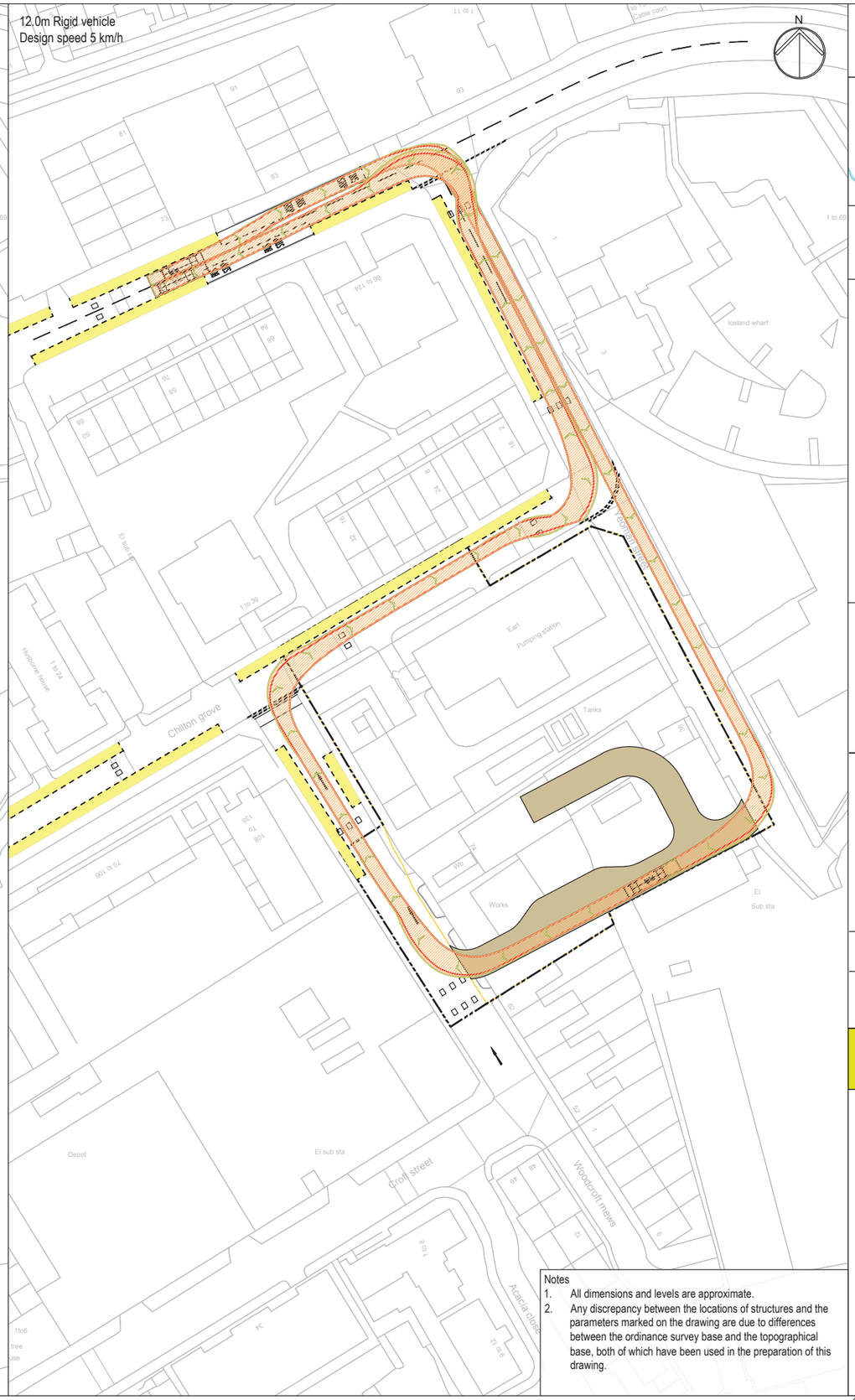
Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

16.5m Articulated vehicle
Design speed 5 km/h



12.0m Rigid vehicle
Design speed 5 km/h



Notes
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Keyplan:

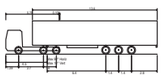
Coordinates are to be Ordance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Revised
- Illustrative on-site manoeuvring zone

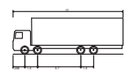
Vehicle swept path analysis
- Vehicle body outlines
- Vehicle chassis outline
- Vehicle swept path
- L.L.A.U.

16.5m Articulated vehicle



Max Legal Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.500m
Overall Body Height	3.623m
Min Body Ground Clearance	0.396m
Max Track Width	2.500m
Lock to Lock Time	4.00 sec
Kerb to Kerb Turning Radius	6.870m
Design Speed	5km/h

12.0m Rigid vehicle



Rigid Truck	
Overall Length	12.000m
Overall Width	2.500m
Overall Body Height	3.503m
Min Body Ground Clearance	0.412m
Track Width	2.497 m
Lock to Lock Time	4.00 sec
Kerb to Kerb Turning Radius	11.900m
Design Speed	5km/h

Standards

- Design manual for roads and bridges, Dft, 1992
- Traffic signs regulations & general directions, TSO, 2002
- Traffic signs manual, Dft, 2006
- Manual for streets, Dft, 2007
- Manual for streets 2, CIHT, 2010
- Designing for deliveries, Fta, 1998
- Cycle infrastructure design Ltn 2/08, Dft, 2008
- Design of pedestrian crossings Ltn 2/95, Dft, 1995
- Guidance for the use of tactile paving, Dft, 1998
- Accessible bus stop design guidance, TfL, 2006

Stage
Construction phases

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location
Earl pumping station
London Borough of Lewisham

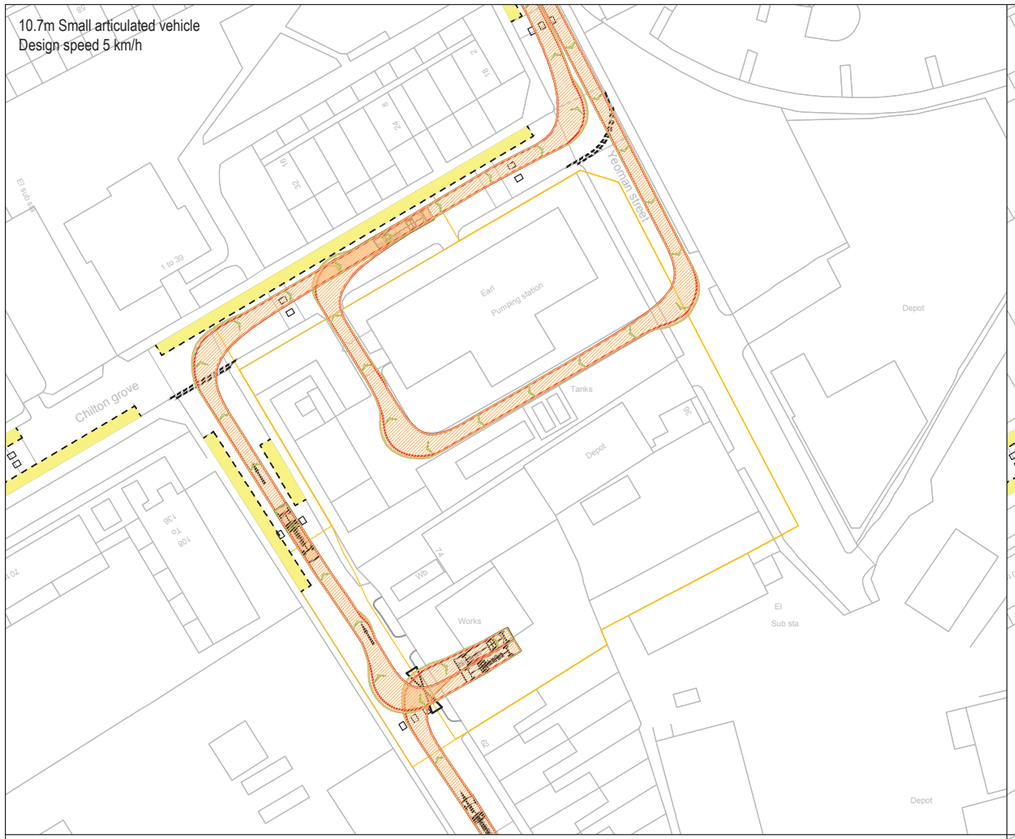
Document Information
Application for Development Consent
Highway layout during construction
Vehicle swept path analysis

DCO-PP-21X-EARPS-220019
January 2013

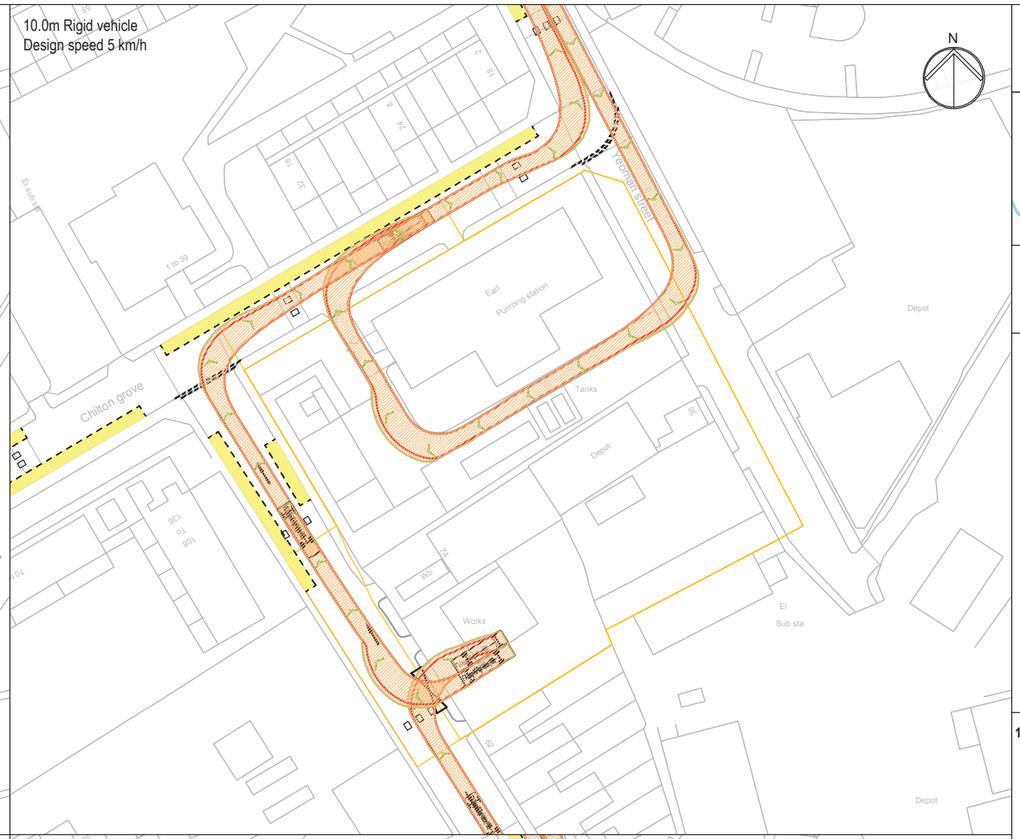
Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

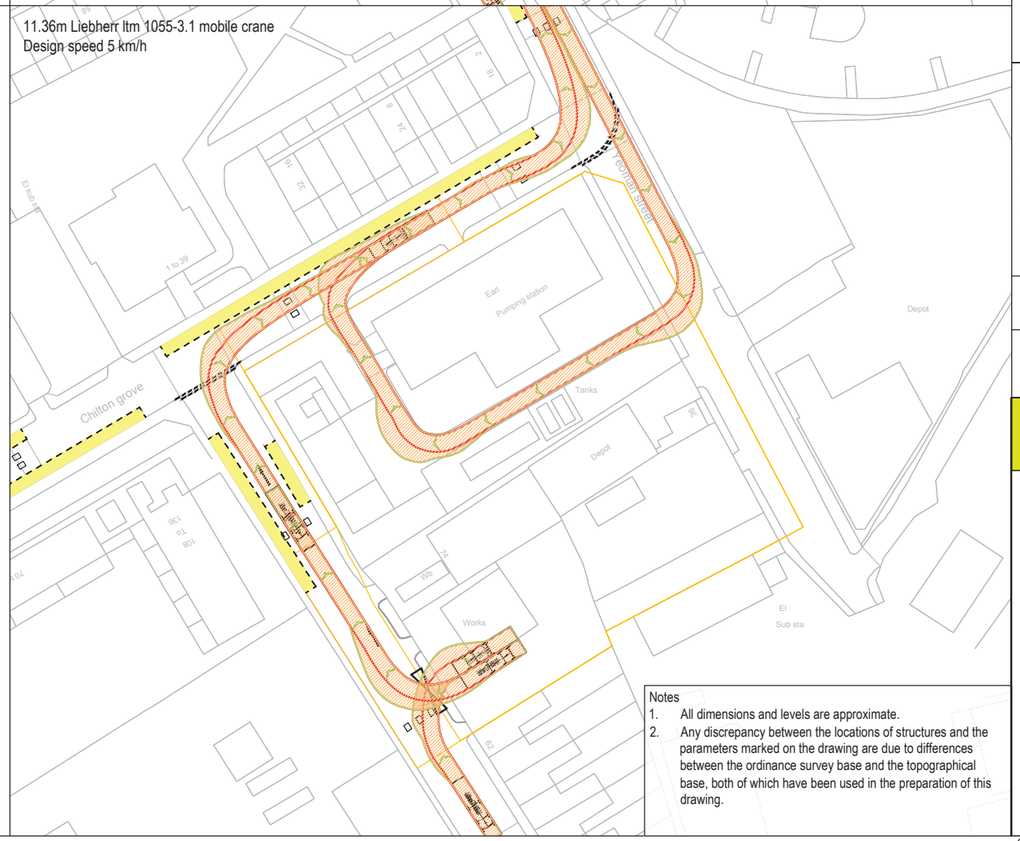
10.7m Small articulated vehicle
Design speed 5 km/h



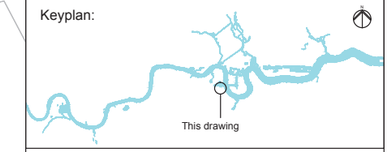
10.0m Rigid vehicle
Design speed 5 km/h



11.36m Liebherr ltm 1055-3.1 mobile crane
Design speed 5 km/h



Keyplan:



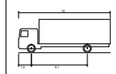
Coordinates are to be Ordance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Vehicle swept path analysis

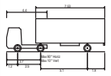
- Vehicle body outlines
- Vehicle chassis outline
- Vehicle swept path

10.0m Rigid vehicle



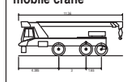
FTA Design HG Rigid Vehicle (1998)	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.640m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to Lock Time	3.00 sec
Kerb to Kerb Turning Radius	9.400m
Design Speed	9km/h

10.7m Small articulated vehicle



Small Articulated Vehicle	
Overall Length	10.700m
Overall Width	2.360m
Overall Body Height	3.604m
Min Body Ground Clearance	0.382m
Track Width	2.360m
Lock to Lock Time	6.00 sec
Kerb to Kerb Turning Radius	5.740m
Design Speed	9km/h

11.36m Liebherr ltm 1055-3.1 mobile crane



Liebherr LTM 1055-3.1 Mobile Crane	
Overall Length	11.360m
Overall Width	2.822m
Overall Body Height	3.772m
Min Body Ground Clearance	0.353m
Track Width	2.822m
Lock to Lock Time	4.60 sec
Wall to Wall Turning Radius	8.170m
Design Speed	9km/h

Standards

- Design manual for roads and bridges, Dft, 1992
- Traffic signs regulations & general directions, TSO, 2002
- Traffic signs manual, Dft, 2006
- Manual for streets, Dft, 2007
- Manual for streets 2, CIHT, 2010
- Designing for deliveries, Fta, 1998
- Cycle infrastructure design Ltn 2/08, Dft, 2008
- Design of pedestrian crossings Ltn 2/95, Dft, 1995
- Guidance for the use of tactile paving, Dft, 1998
- Accessible bus stop design guidance, TfL, 2006

Stage
Permanent phases

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location
Earl pumping station
London Borough of Lewisham

Document Information
Application for Development Consent
Permanent highway layout
Vehicle Swept Path Analysis

DCO-PP-21X-EARPS-220020
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Notes
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Transport assessment figures

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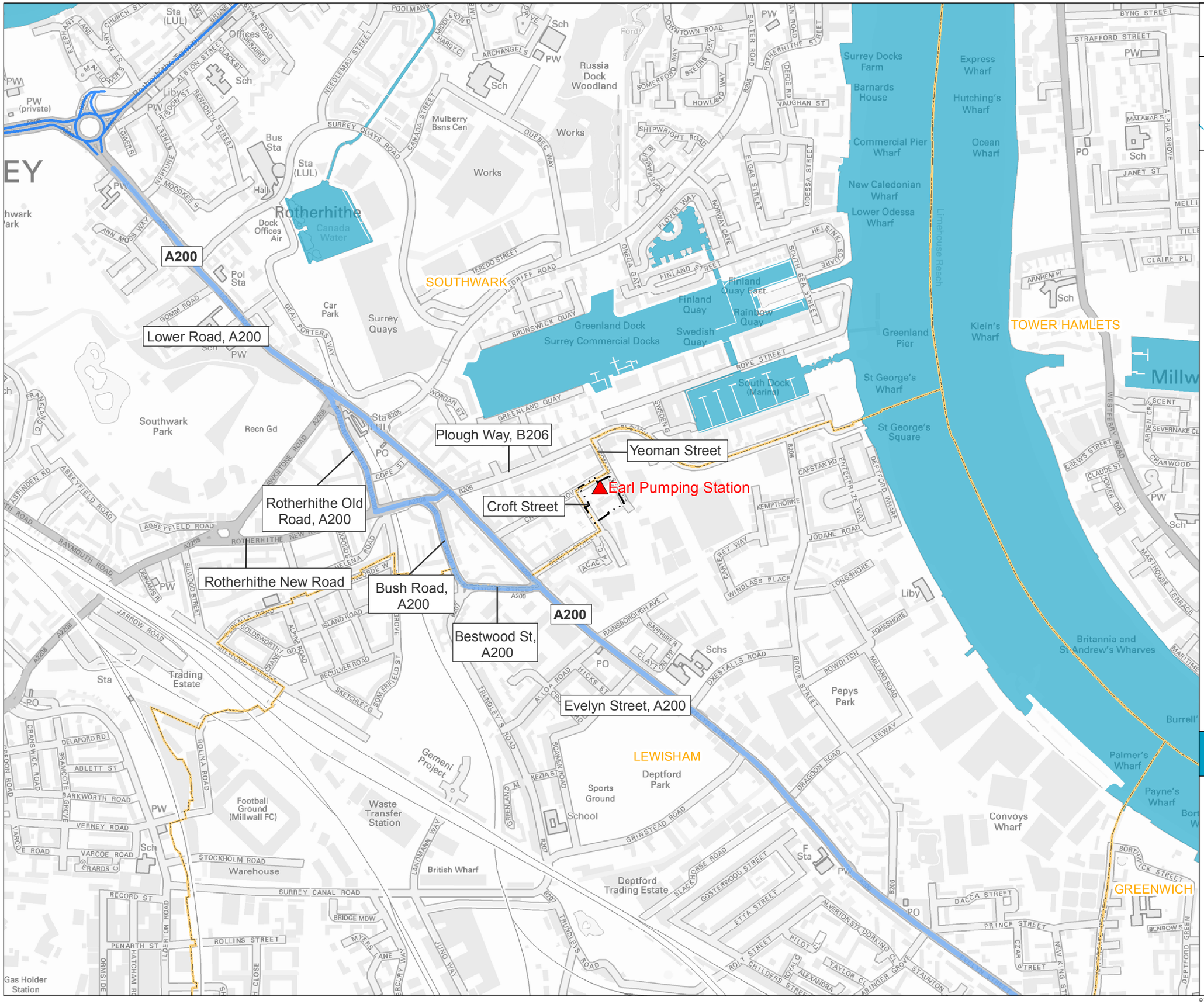


FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

Transport Assessment

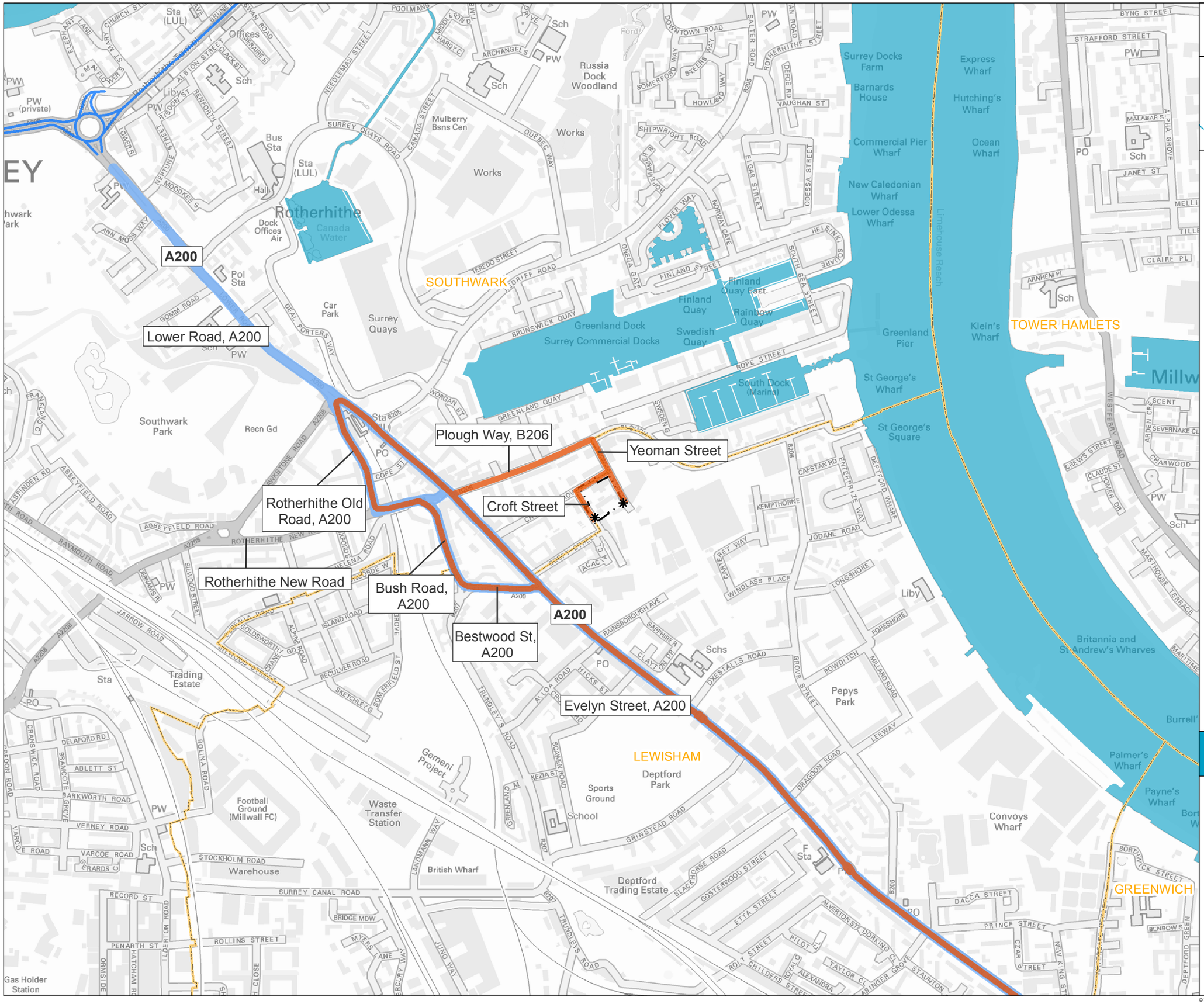
Transport - site location plan

Figure 22.2.1

1PL03-TT-50709
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

Key

- Site access
- TFL road network
- Strategic road network
- Primary construction route
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

Transport Assessment

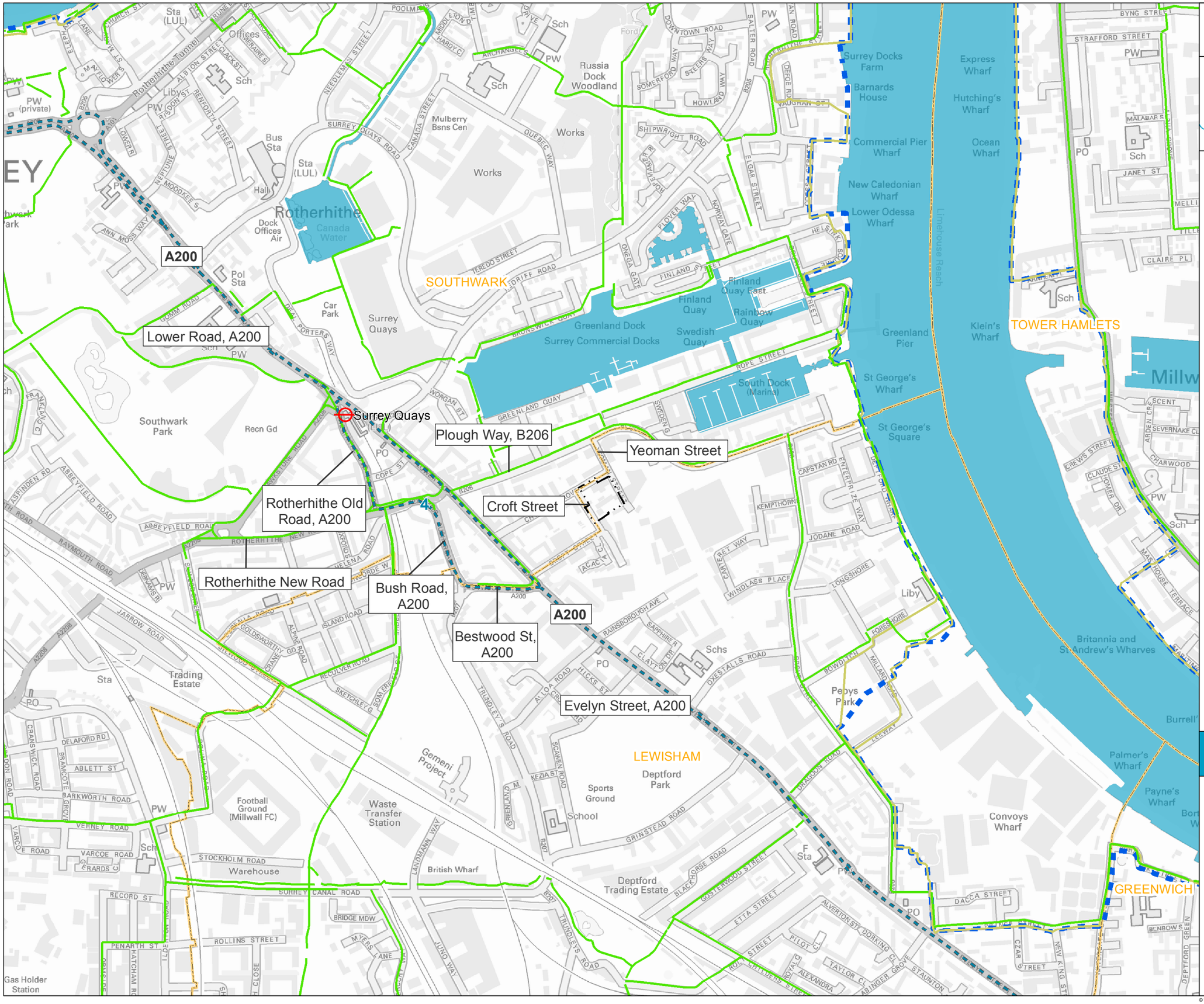
Transport - construction traffic routes

Figure 22.2.2

1PL03-TT-50701
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

Key

- Overground stations with cycle parking
- Cycle superhighway (open 2015)
- London cycle routes
- Thames path
- London strategic walk network

National cycle network

Route Type

- Open Traffic Free
- Open on-road
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

Transport Assessment

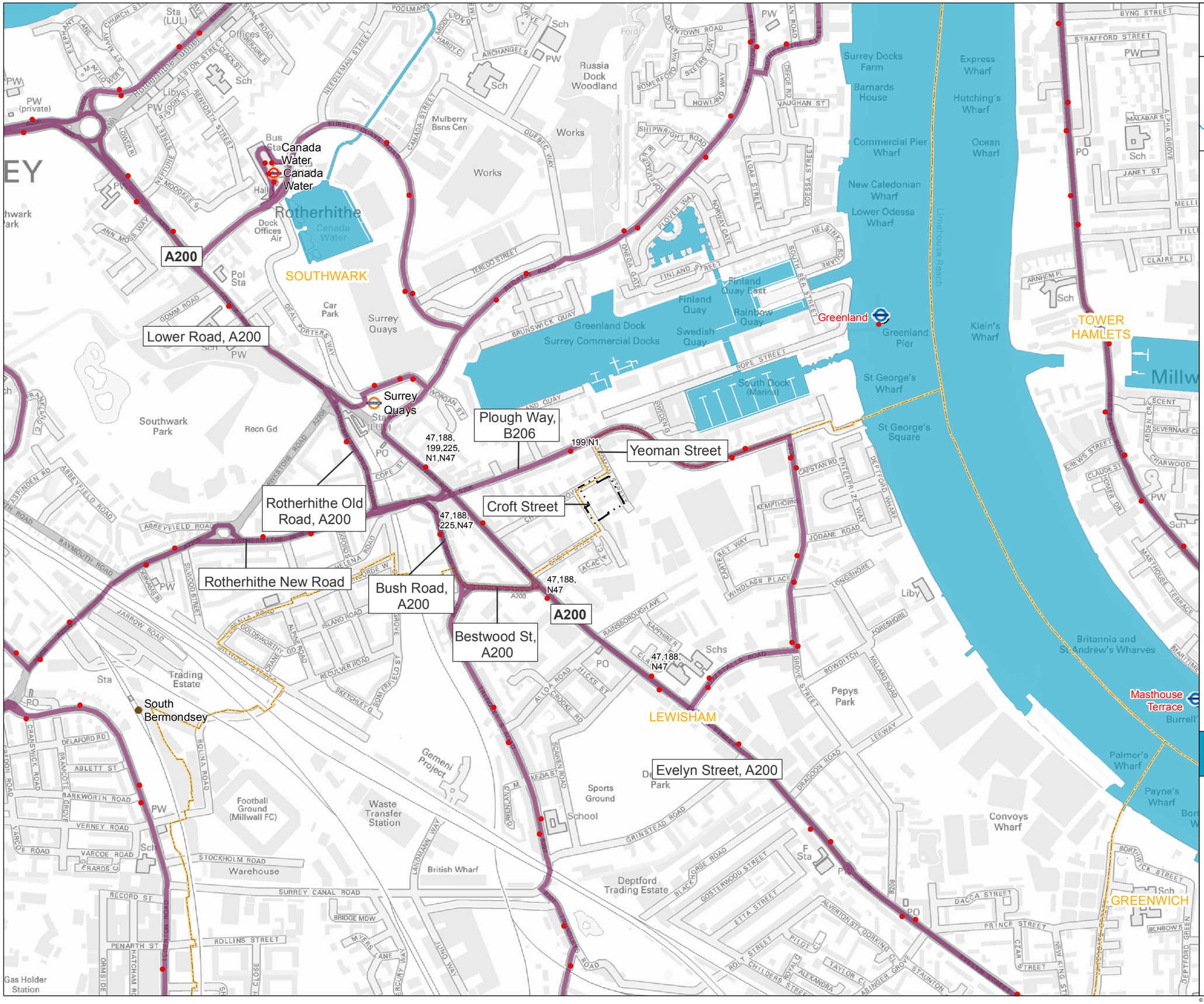
Transport - pedestrian and cycle network

Figure 22.4.1

1PL03-TT-50717
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



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Keyplan:

Key

- TFL bus stops
- London overground stations
- Docklands light railway stations
- Pier locations
- National rail stations
- London underground stations
- TfL bus routes
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

Transport Assessment

Transport - public transport

Figure 22.4.2

1PL03-TT-50725
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

Keyplan:

Key

- Private car parking
- Coach parking
- City Car
- Zip Car
- Controlled Parking Zones and Hours of Operation
- Limits of Land to be Acquired or Used
- Local authority boundary

Mon - Fri: 8:00am - 6:30pm

Mon - Fri: 8am - 6:30pm

SOUTHWARK

LEWISHAM

TOWER HAMLETS

GREENWICH

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

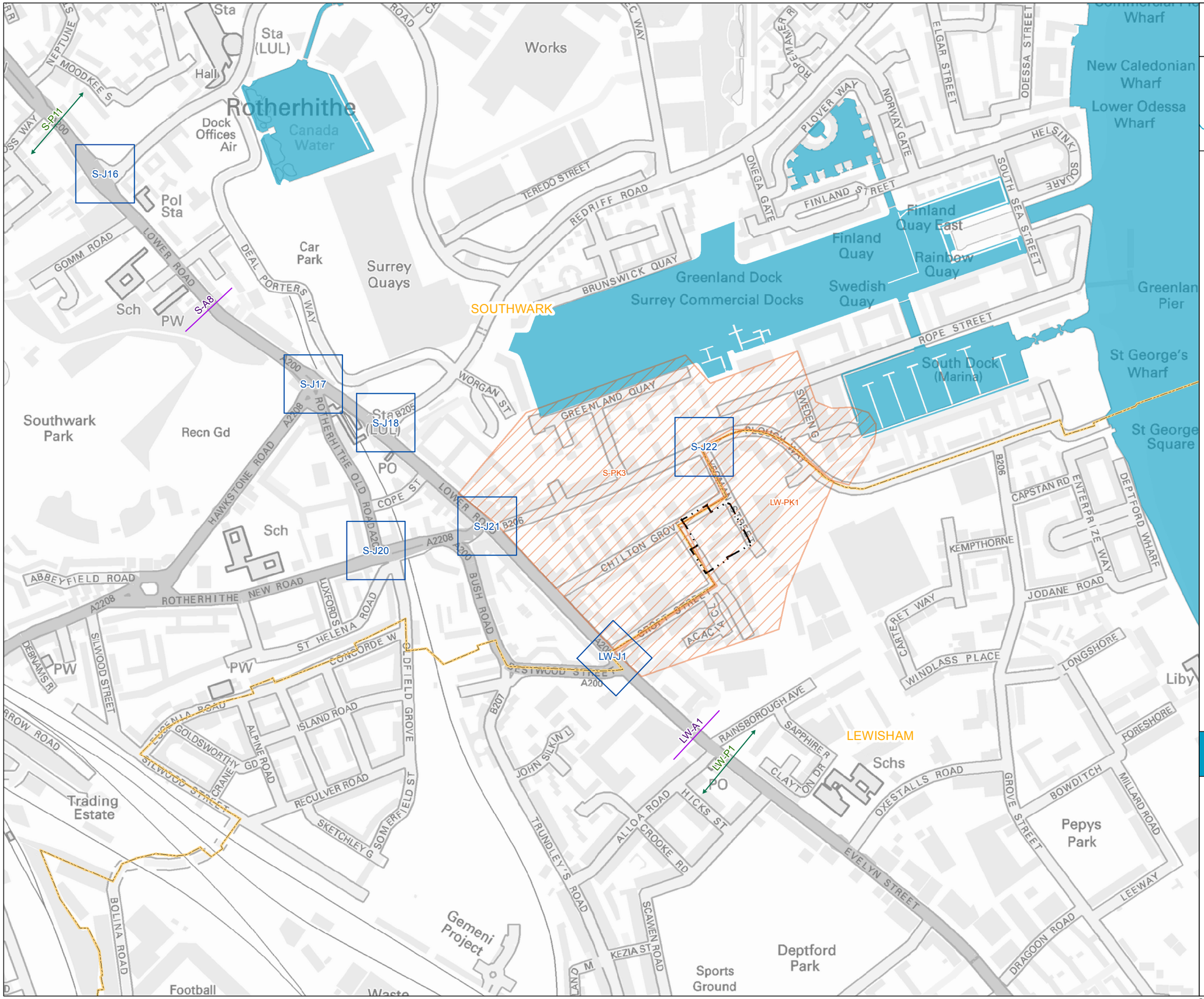
Document Information

Transport Assessment
Transport - parking

Figure 22.4.3
1PL03-TT-50733
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

Key

- Automatic traffic count surveys
- Pedestrian and cycle surveys
- Junction surveys
- Parking surveys
- Limits of Land to be Acquired or Used
- Local authority boundary

80 40 0 80 m

Scale 1 : 5,000 at A3

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

Transport Assessment

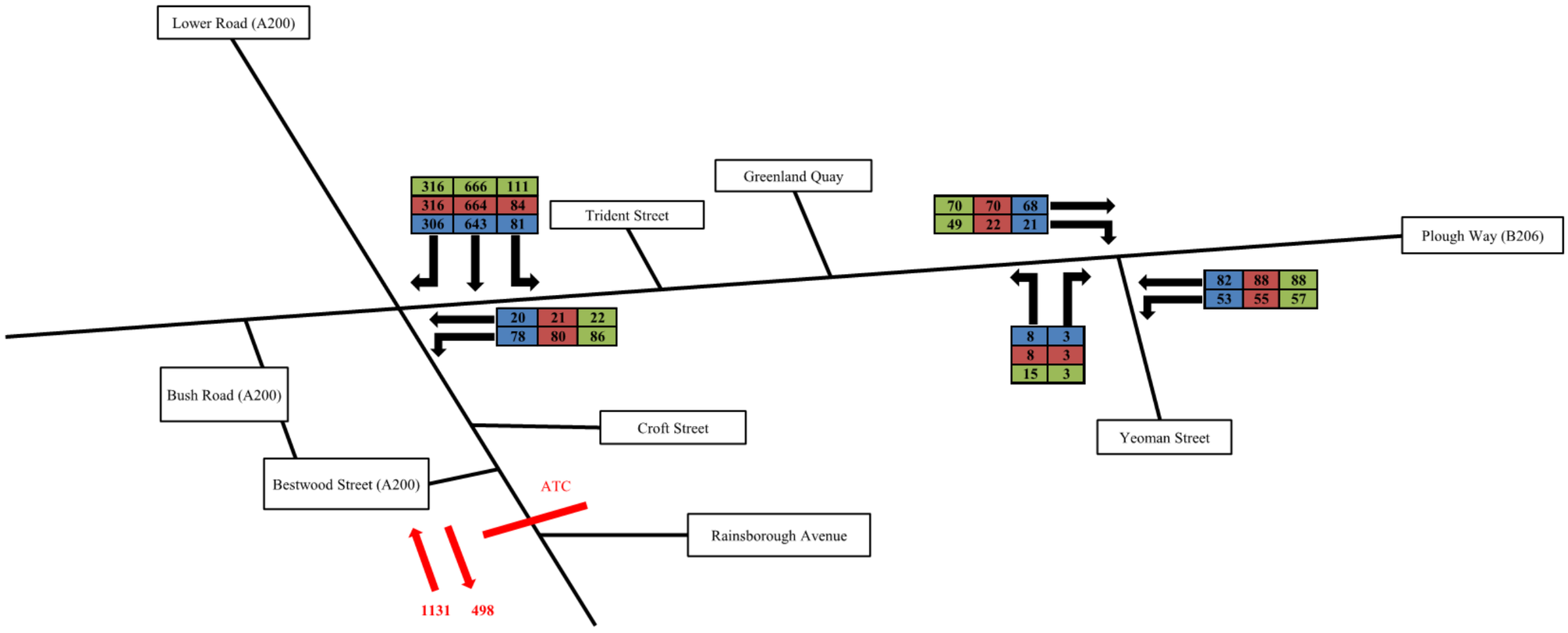
Transport - survey locations

Figure 22.4.4

1PL03-TT-50741
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

Key

- Base Traffic Flow
- Construction Base
- Development Case

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

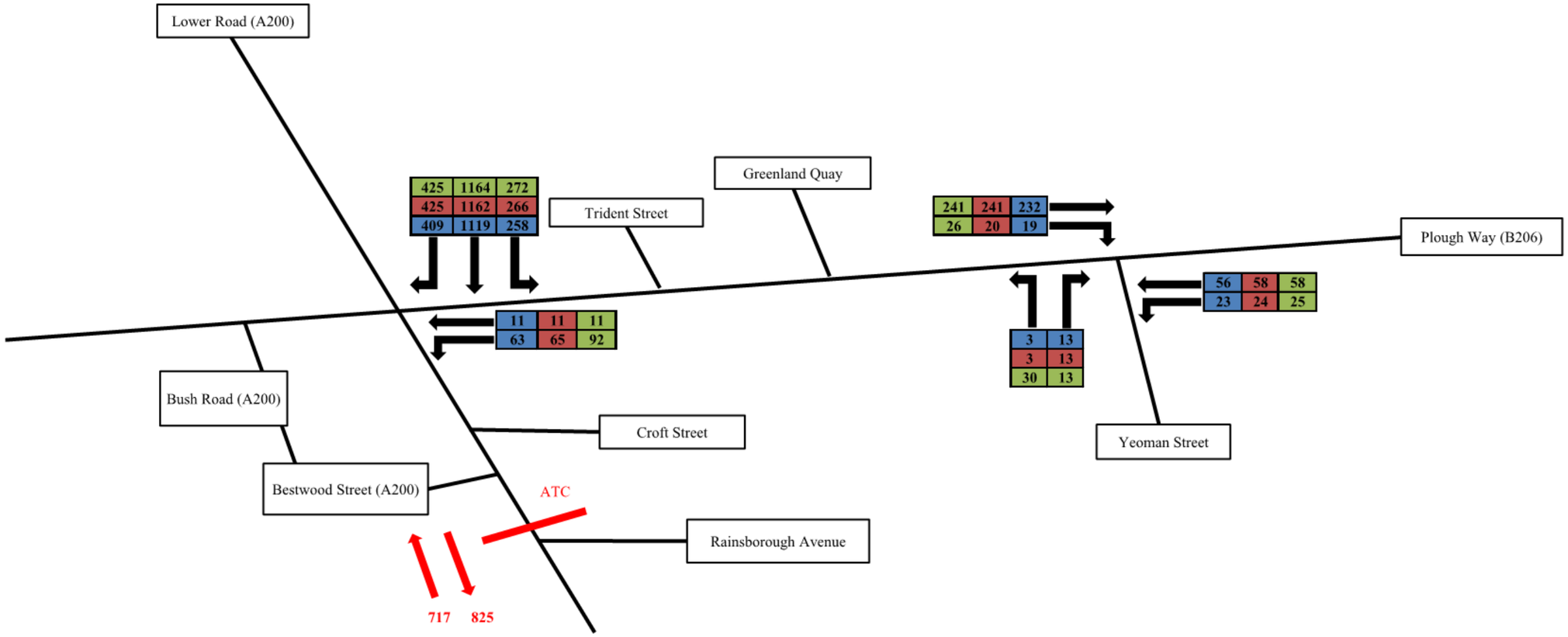
Environmental Statement

Transport - Baseline, Construction and Development case traffic flow (AM peak hour) Figure 22.4.5

1PL03-TT-50920
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

Key

- Base Traffic Flow
- Construction Base
- Development Case

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

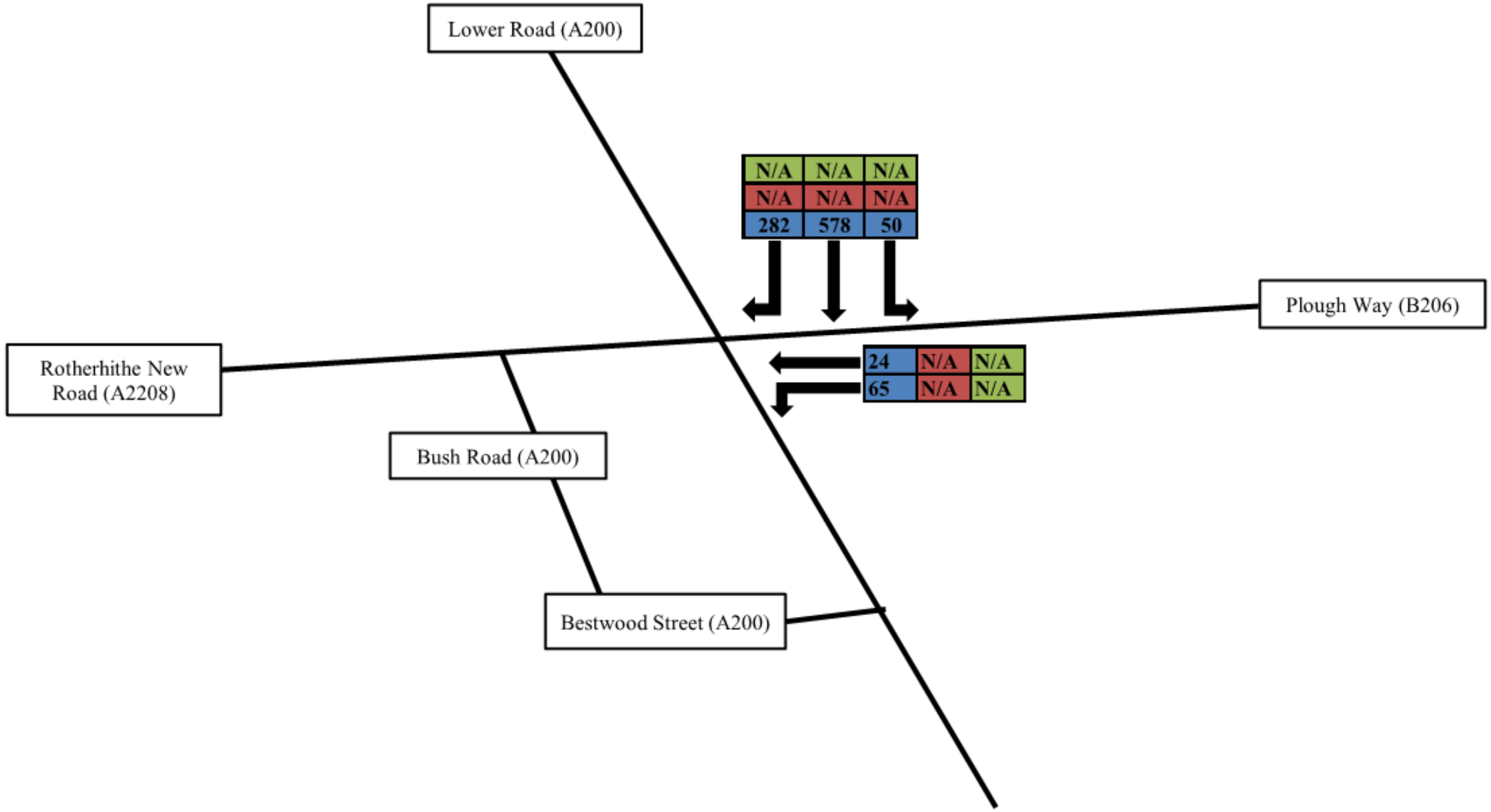
Transport Assessment

Transport - Baseline, Construction and Development case traffic flow (PM peak hour)
Figure 22.4.6

1PL03-TT-50944
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

Key

- Base Traffic Flow
- Construction Base
- Development Case

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

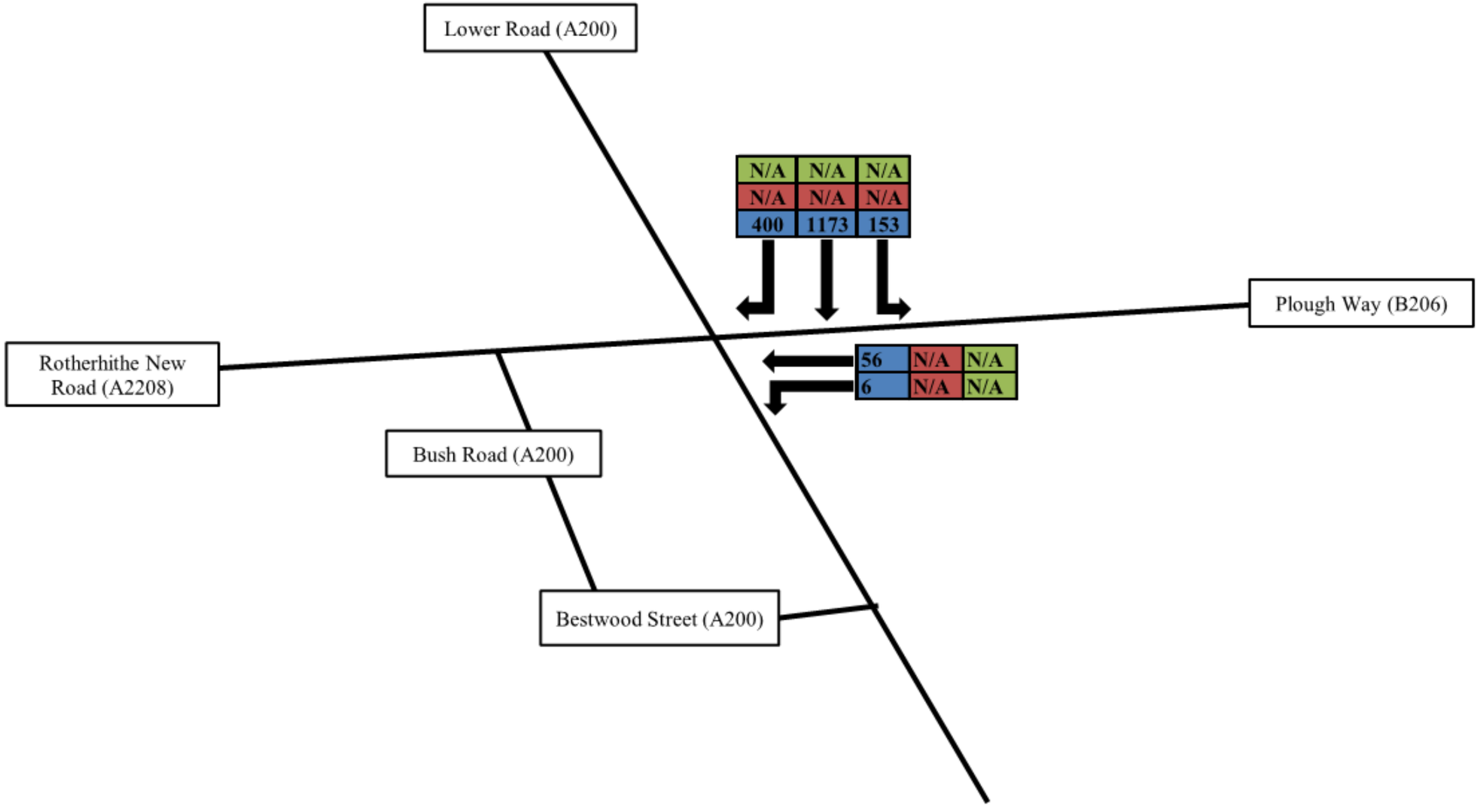
Transport Assessment

Transport – TfL Baseline Traffic Flow (AM peak hour)
Figure 22.4.7

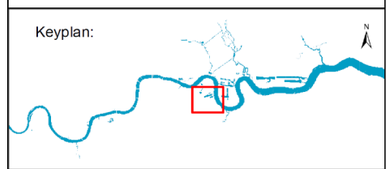
1PL03-TT-50952
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:



Key

- Base Traffic Flow
- Construction Base
- Development Case

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

Transport Assessment

Transport – TfL Baseline Traffic Flow (PM peak hour)
Figure 22.4.8

1PL03-TT-50958
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

Keyplan:

Key

- Slight
- Serious
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

Transport Assessment

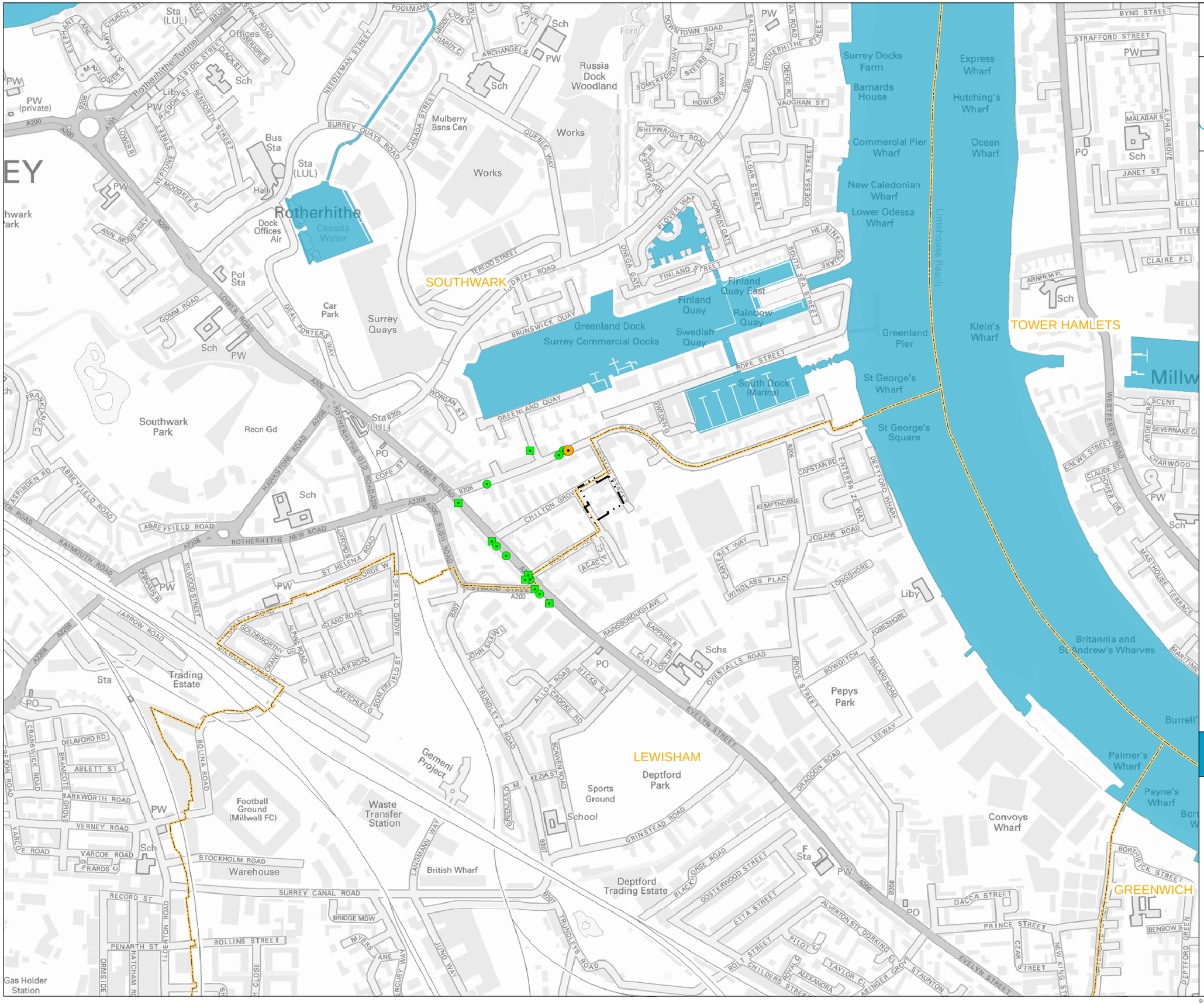
Transport - accident locations

Figure 22.4.9

1PL03-TT-50765
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



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Keyplan:

Key

Accidents

(Severity, Mode of travel)

- Slight, Pedestrian
- Slight, Pedal Cycle
- Serious, Pedestrian
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Earl Pumping Station
London Borough of Lewisham

Document Information

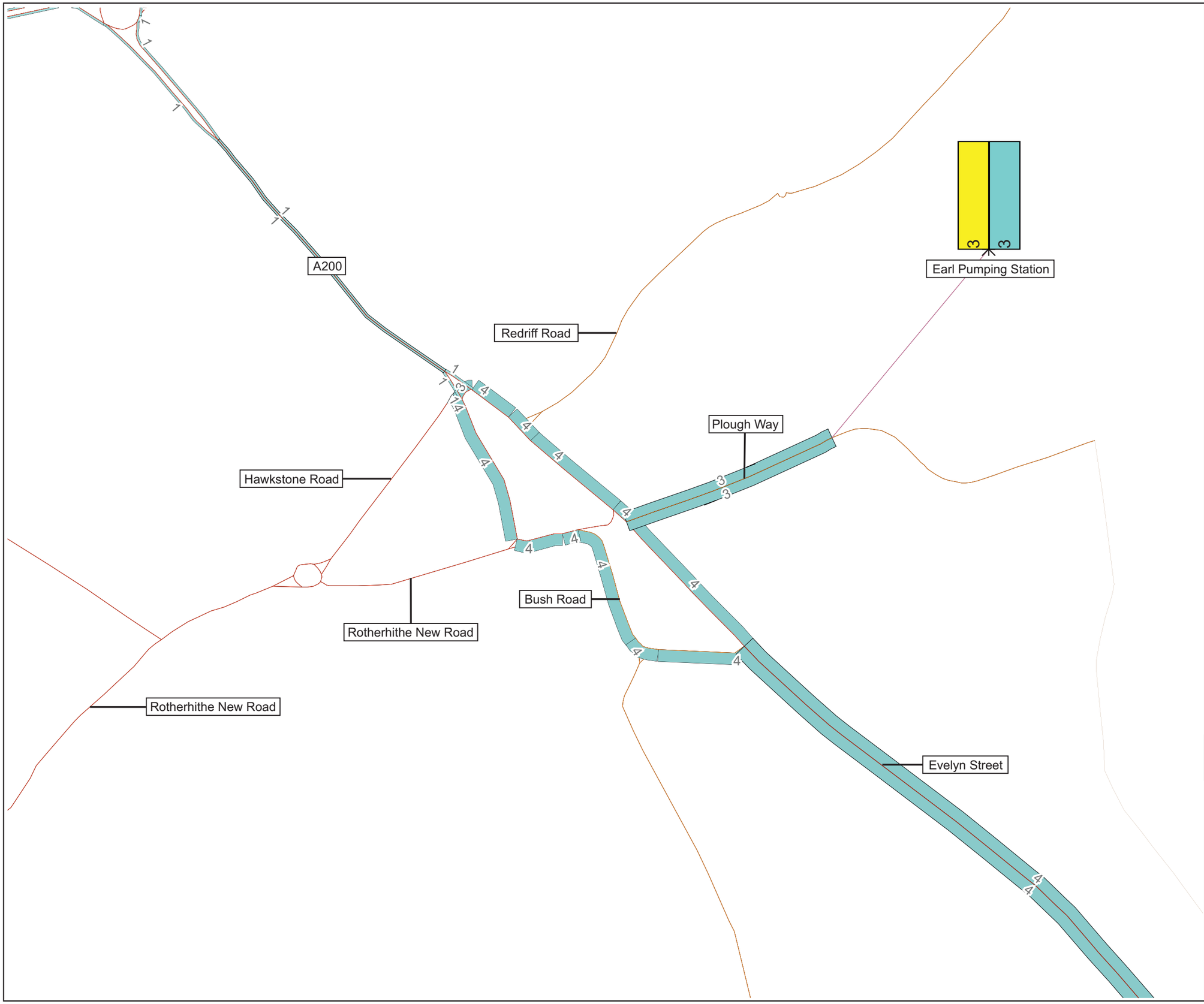
Transport Assessment

Transport - pedestrian and cyclist accidents by severity
Figure 22.4.10

1PL03-TT-50848
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Hourly construction lorries arrivals and departures

- Arrivals
- Departures

Hourly construction lorries movements

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 7
- 7 - 8
- 8 - 9
- 9 - 10
- 10 - 11
- 11 - 12
- 12 - 13
- 13 - 14
- 14 - 15
- > 15

Note: Construction vehicle flows include all Thames Tideway Tunnel sites on this network during this period.

FOR INFORMATION

Location

Earl Pumping Station

London Borough of Lewisham

Document Information

Transport Assessment

Hourly Construction Lorry Movements - Site Year 1 of Construction

Figure 22.5.1

1PL03-TT-50887

Thames Tideway Tunnel

Creating a cleaner, healthier River Thames

Thames Water

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DCO-DT-000-ZZZZZ-071019