Appendix D: Parking Survey Methodology

Appendix A

Richmond parking survey methodology

Richmond parking survey methodology

The Council has set maximum parking standards for developments in DM DPD Appendix Four - Car and bicycle parking standards; however these are expected to be met, unless it can be shown that there will not be an adverse effect on on-street parking. Where there is a shortfall of parking on site, a parking survey of the surrounding streets will be required. The Council will use an independent survey company; however applicants may provide their own surveys as long as they follow the methodology outlined below.

Extent of survey area

The area to be surveyed must cover a 200m/2 minute walking distance around the site. This area can be extended/amended in the following ways:

1 If the survey reaches the middle of a street at 200m, the survey area could be extended to the next junction with agreement of Transport Planning officers

2 If there are areas within 200m where parking is restricted due to on street restrictions or undesirable (for which justification must be given) the area is to be curtailed

3 Areas outside of Richmond will be excluded

4 Roads in CPZ's adjacent to the site, for which the site would not be able to access parking permits, may be excluded depending on CPZ start time and these roads are to be agreed with Transport Planning officers prior to the survey being undertaken

The Council may require amending surveys which reveal anomalies or require further investigation once scrutinised.

Survey times

Surveys must only be undertaken during term time and not within public/school holidays/half term or the week before/after to take into account independent school holidays. It is best to contact the Council to confirm acceptable survey dates and dates which coincide with an event in the area, which must also be avoided as these could impact on the results.

For residential surveys 2 x weekday surveys (Monday to Thursday) and one weekend survey on a Sunday between 01h00 and 05h30 are required. This will capture the residential peak parking time.

Commercial and other land use applications will require surveys at other times which are to be agreed with the Council in advance of the survey being undertaken. Similarly, times may be amended for residential surveys where the site is within close proximity to commercial uses or a town centre in which case morning and early evening surveys may also be requested. More detailed surveys may be required if the operational times clash with nearby restaurants, in which case 15 minute interval surveys between 18h00 and 22h00 will also be required. In order to assess commuter parking morning and evening

peak hour surveys will be required for sites within close proximity to railway stations. These should be undertaken between 06h30 – 08h00 and 17h30 – 19h00.

Required information

Surveys must be provided in map form, examples are included at the end of this appendix.

One map shows the inventory for the area and notes all individual bay lengths and types.

Another shows x's as parked cars and s's as empty spaces exactly where they are parked on the night. This will give us a snapshot of exactly how cars are parked in that area, rather than a calculated assumption, which is often incorrect. S's can only be shown where each 's' represents 5.5m.

Noted on the survey maps should be the date and time the survey was undertaken as well as whether the area is within a Community Parking Zone (CPZ) or not. All parking restrictions on street must be noted Double/Single Yellow Lines (D/SYL's), bus lay-by's, zig-zags, kerb build outs, legal footway parking, dropped kerbs, disabled/doctors/loading bays, suspensions/temporary restrictions, skips and road works, narrow roads, where parking is not possible or subject to flooding etc. If there are marked bays on street these must be shown and dimensioned on the map. The space between crossovers should also be dimensioned although areas of less than 5.5m should not be included in the calculations.

The first 7.5m of a junction is to be omitted, but cars parked within will be considered in the calculations as contributing to on street stress. Illegally parked cars must be shown on the plan and these will be included in the stress calculation.

Surveys undertaken within CPZ's during CPZ hours will need to clearly define various types of bays (Resident permit holders/shared use bays/Business Bays etc).

Where restrictions start early in the morning we may not consider these areas for overnight parking if the surveys show that residents do not park there as they will have to move their cars before the restriction commences. This includes single yellow lines.

The above information can be tabulated, but this table must reflect the information on the inventory map in terms of the available bay numbers i.e. individual lengths of bays divided by 5.5m.

The stress figures must be taken from the results maps and illegally parked cars should be counted. If spaces are noted nad tabulated these must only be included if each space represents at least 5.5m. Tabulated results should be by road and include a 'Total' column.

Results

In order to assess the survey the Council will calculate the current on street stress of parked cars shown on the results map against total available space calculated from the inventory survey and add the shortfall anticipated from the development using the DMDPD parking standards maximums to calculate the anticipated on street stress.

LBRuT will consider appropriate extant planning permissions in the area and if stress levels are calculated at 90% stress or more LBRuT will raise an objection on the grounds of saturated parking, highway safety and undue harm to neighbour amenity.

Example of survey inventory sheet and results maps

Road Name	No Bays	17/6/14 @ 5am	19/7/14 @ 5am	Ave		
	43	37	45	41		
	16	20	21	20.5		
	28	28	28	28		
	34	29	26	27.5		
	22	19	19	19		
	21	13	15	14		
	11	14	11	12.5		
	16	19	19	19		
TOTAL	**191**	**179**	**184**	**181.5**	**All % stress**	**95.02617801**
plus anticipated shortfall of proposal	**191**	**192**	**197**	**194.5**	**plus x cars stress%**	**101.8324607**
plus x cars from approved applications yet to be implemented within the survey area	191	195	200	**197.5**	plus another x cars stress%	**103.4031414**

Example of results table

Appendix E: Twickenham Riverside Transport Survey Note (Aug 2016)

Transport Survey Note

TWICKENHAM RIVERSIDE

Report

Double-click to insert client logo

Transport Survey Note

TWICKENHAM RIVERSIDE

Report

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Appendix B Richmond Parking Survey Methodology

Appendix C LBRuT Scoping Discussions

1 Introduction

GENERAL

1.1 JMP Consultants Limited (JMP) has been commissioned by the Quinlan & Francis Terry Architects, on behalf of the London Borough of Richmond upon Thames ('LBRuT', 'the Client') to provide transport and highways advice relating to the proposed development of Twickenham Riverside between Water Lane, Wharf Lane and the Embankment in Twickenham, London TW1 3SD ('the Site').

1.2 In order to understand the existing baseline conditions at the Site, a number of transport surveys were undertaken. During scoping discussions with LBRuT, it was agreed to conduct the following surveys, as evidenced by the email trail in Appendix A:

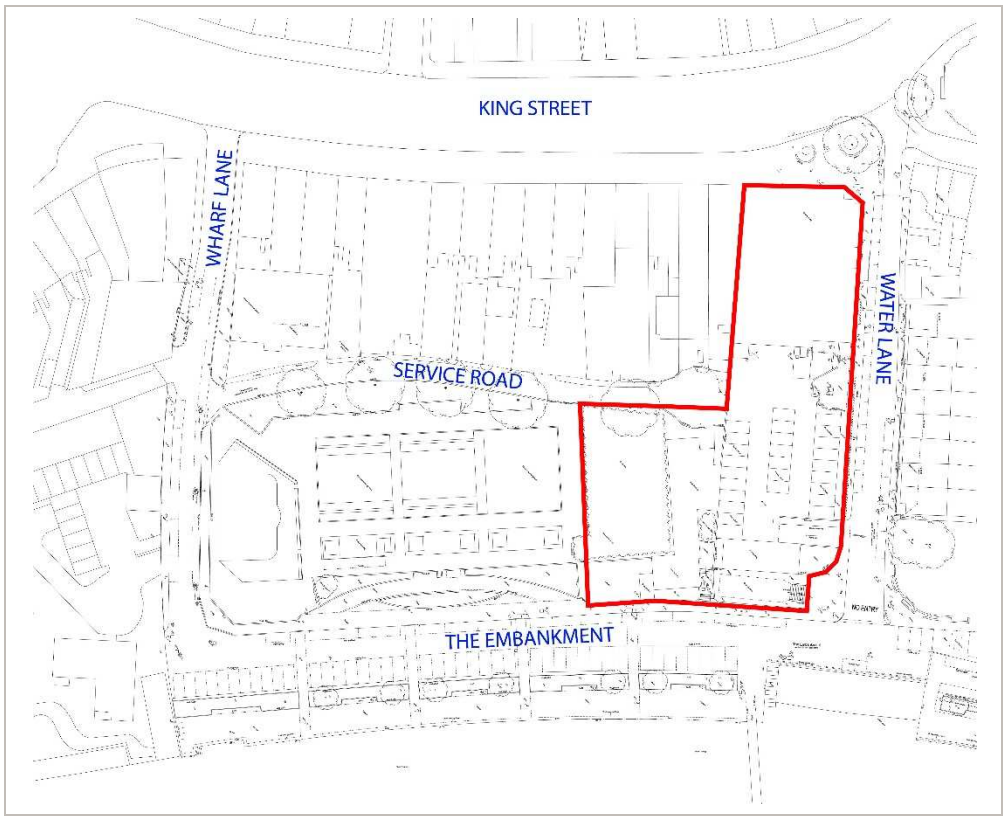
- Overnight and daytime parking surveys;
- Servicing surveys; and
- Traffic surveys.

1.3 The results and findings of these surveys are summarised in this report.

SITE LOCATION

1.4 The Site comprises of a plot of land bounded by King Street to the North, Water Lane to the east, the Embankment to the south and Diamond Jubilee Gardens to the west. The Site boundary and surrounding highway network are shown in Figure 1.1.

Figure 1.1 Site Boundary Plan



REPORT STRUCTURE

1.5 Following this introductory section, this report is structured as follows:

- **Section 2: Parking Surveys** – Presents the findings of the parking surveys;
- **Section 3: Servicing Surveys** – Presents the results of the servicing surveys;
- **Section 4: Traffic Surveys** – Presents the findings of the traffic surveys; and
- **Section 5: Summary** – Summarises the findings of the surveys.

1.6 All technical appendices are included at the end of this report for information.

1.7 Please note that the information contained in section 2 of this report builds on and ultimately supersedes that contained within the *Twickenham Riverside Movement and Parking Study* issued in July 2016.

2 Parking Surveys

SCOPE

Area

2.1 The surveys were conducted in line with the Richmond Parking Survey Methodology outlined in Appendix A of the LBRuT's SPD (included in Appendix B), whereby an initial inventory must be prepared classifying spaces by type (resident only, shared use, pay and display, single yellow line etc.). Figure 2.1 shows examples of signs indicating the parking restrictions in the area.

Figure 2.1 Examples of Parking Restrictions

2.2 The extents of the survey include:

- The Embankment, between Wharf Lane and Water Lane;
- The Water Lane Car Park
- Water Lane;
- Wharf Lane;
- The service road connecting Wharf Lane and Water Lane; and
- The section of London Road between York Street and Holly Road (for the overnight survey).

2.3 The other streets within 200m were not included due to the parking restrictions along them (in line with Richmond Parking Methodology and in agreement with LBRuT).

Timings

2.4 The following parking beats were agreed with LBRuT in order to quantify both the overnight (residential) and daytime (visitor / shopper) demand:

- Wednesday 4 November 2015
  - 5-6am;
  - 8-10am; and
  - 3-5pm;
- Saturday 7 November 2015: 12-1pm;

- Thursday 30 June 2016: 2-5am; and
- Sunday 3 July 2016: 2-5am.

2.5 During all beats, resident and non-resident vehicles were counted separately, in order to better understand demand by the defined user.

INVENTORY

2.6 The Site and the surrounding area are part of Controlled Parking Zone (CPZ) D "Central Twickenham", which operates Monday-Friday 8:30-18:30. The CPZ map is included in Appendix C.

2.7 A parking inventory was prepared for the area, following the Richmond methodology, whereby each bay is measured to be 5.5m in length. The inventory is summarised in Figure 2.2.

Figure 2.2 Parking Inventory (Marked Bays)

2.8 In addition to the bays shown above, the overnight beats included single yellow lines on:

- London Road (4 spaces);
- The Embankment (11 spaces);
- Service Road (28 spaces);
- Water Lane (3 spaces); and

- Wharf Lane (16 spaces).

2.9 Double yellow lines were also surveyed, but there were no vehicles parked on them during any of the beats. Hence, they have been discounted from this analysis.

2.10 The motorcycle bay on Water Lane, which has capacity for up to eight motorcycles, had a maximum occupancy of three vehicles. It has been discounted from this analysis.

RESULTS

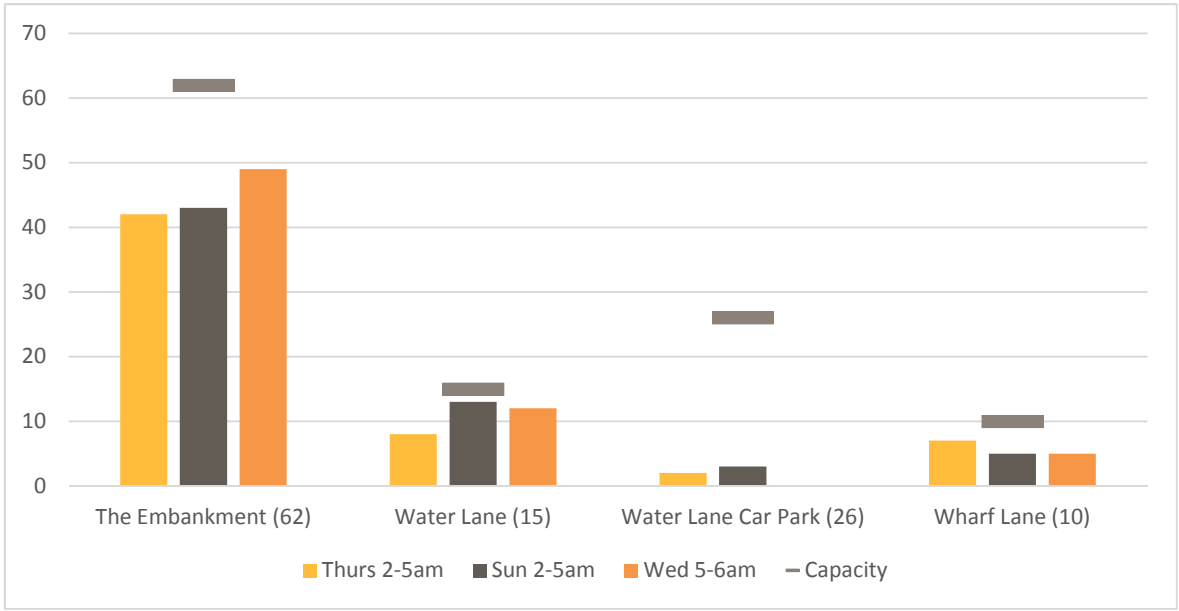
Overnight Occupancy by Road

2.11 As stated above, vehicles can park on single yellow lines overnight. However, these vehicles would have to be moved early in the morning. During the parking beats, the only road where vehicles parked on the single yellow lines was the Service Road. In both the Wednesday and Sunday beat there were two vehicles parked on the single yellow lines, whilst in the Thursday beat there was only one.

2.12 As the inventory indicates that the single yellow lines have capacity for up to 62 vehicles, including these in the occupancy calculations would considerably affect the data. As such, the single yellow line demand and supply has been discounted.

2.13 The overnight parking demand is shown in Figure 2.3. The figure in brackets on the x axis indicates the capacity along each street. The total overnight capacity in the survey area (not including the single yellow lines) is 113 vehicles.

Figure 2.3 Overnight Parking Demand



2.14 The Richmond Parking Methodology states 90% as the threshold above which parking is considered saturated. The graph shows that there is some spare capacity on all the roads. Water Lane is the most utilised (87% max), followed by the Embankment (79%).

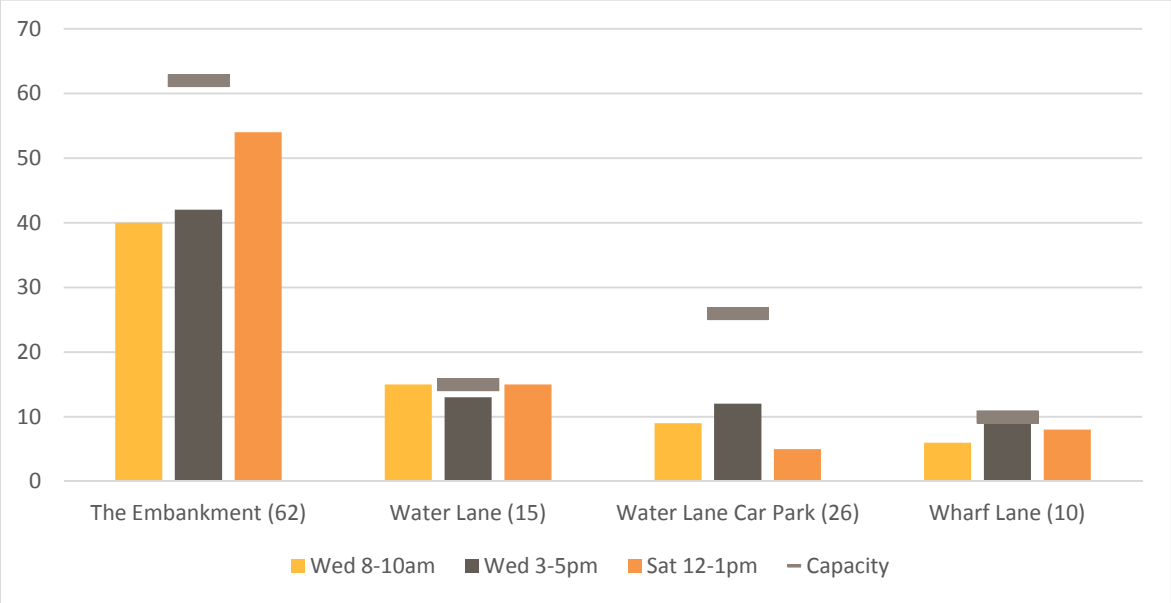
2.15 Even during the busiest beat (Wednesday) there were 66 parked cars and 47 empty bays, a parking stress of 58%, which is well below the threshold.

2.16 If we discount the Water Lane Car Park, which is reserved to private permit holders, the maximum occupancy is 76% (66 of 87 bays occupied), meaning that an additional demand of 12 vehicles can be accommodated without reaching the 90% threshold.

Daytime Occupancy by Road

2.17 The daytime parking demand is shown in Figure 2.4. As no vehicles can park on the single yellow lines, the total daytime capacity is 113 spaces.

Figure 2.4 Daytime Parking Demand



2.18 The daytime occupancy is slightly higher than the one in the overnight survey. The highest occupancy levels are Water Lane (87-100%) and Wharf Lane (100% in the afternoon beat). The occupancy on the Embankment reaches a peak of 87% in the weekend beat.

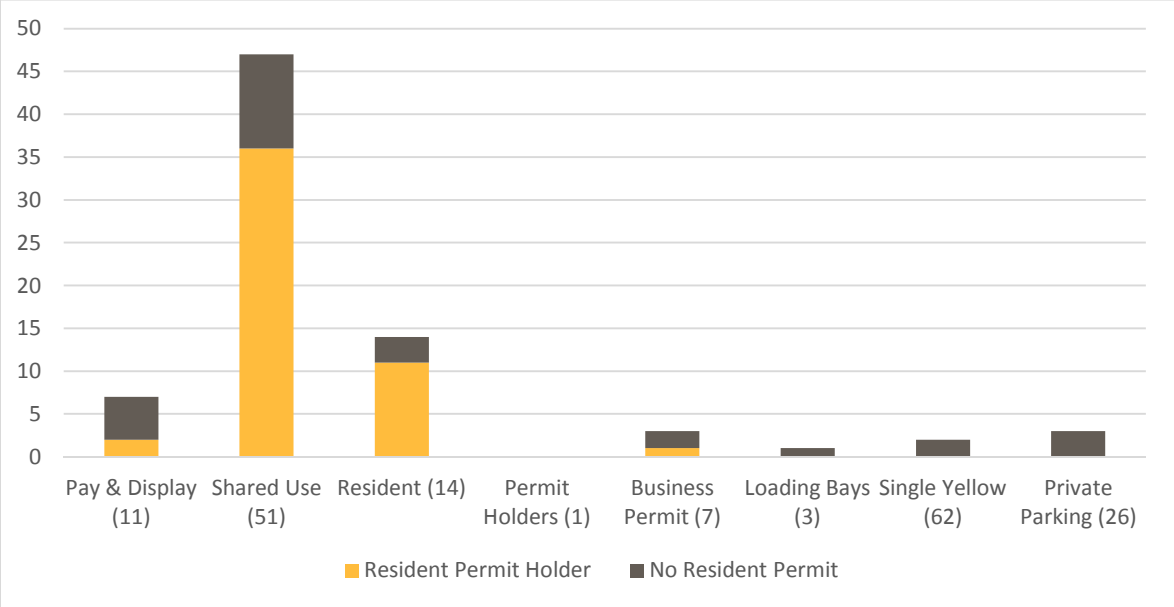
2.19 The busiest beat is the weekend survey (91 parked vehicles), with an occupancy of 80%, still comfortably below the 90% threshold.

2.20 If the private bays in the car park are discounted, the occupancies in the three beats become 70%, 75% and 89%, indicating there is spare capacity in a weekday but not on the weekend.

Occupancy by Restriction

2.21 In order to further assess the overnight utilisation, Figure 2.5 shows the maximum overnight parking demand per parking restriction.

Figure 2.5 Maximum Overnight Parking Demand per Parking Restriction

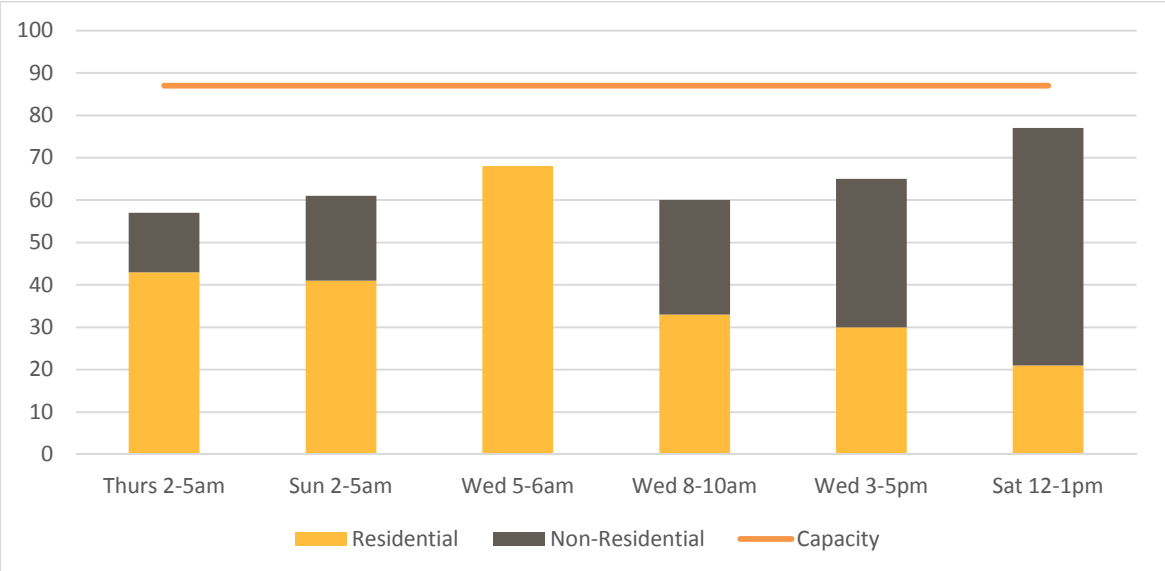


2.22 It is noted that the bays with the highest utilisations are the resident only bays (100% occupied) and shared use bays (92%). As previously discussed, the single yellow (8%) and private parking bays (11%) show very low occupancies.

Occupancy by User

2.23 A further analysis is conducted in Figure 2.6 to determine the balance between resident and non-resident demand. The single yellow lines and private parking spaces are not taken into account, for a total capacity of 87 bays.

Figure 2.6 Parking Demand by User



2.24 The data above shows that the greatest demand for parking is on the weekend, with a peak occupancy of 89%. During this beat, 73% of the demand was by non-residents. Unsurprisingly, the overnight bays

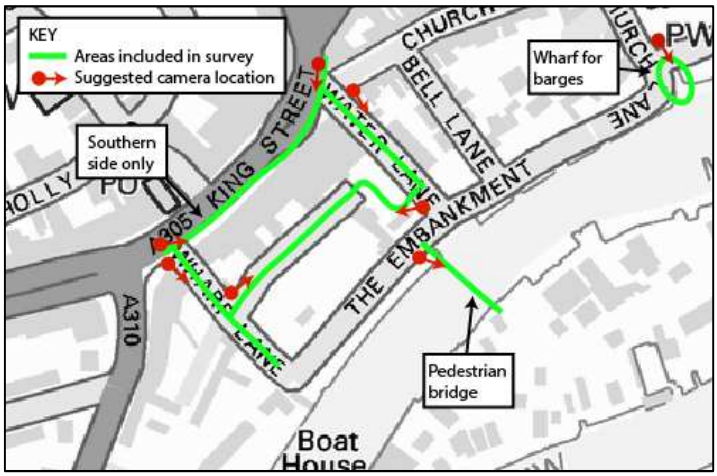
show a much higher proportion of resident demand, but the occupancy peaks at 78%, well below the 90% threshold.

3 Servicing Survey

SCOPE

3.1 The scope of the servicing survey was agreed to include servicing on Water Lane, Wharf Lane, King Street, the Service Road, the footbridge to Eel Pie Island and at the dock for Eel Pie Island. The location of the cameras is shown in Figure 3.1.

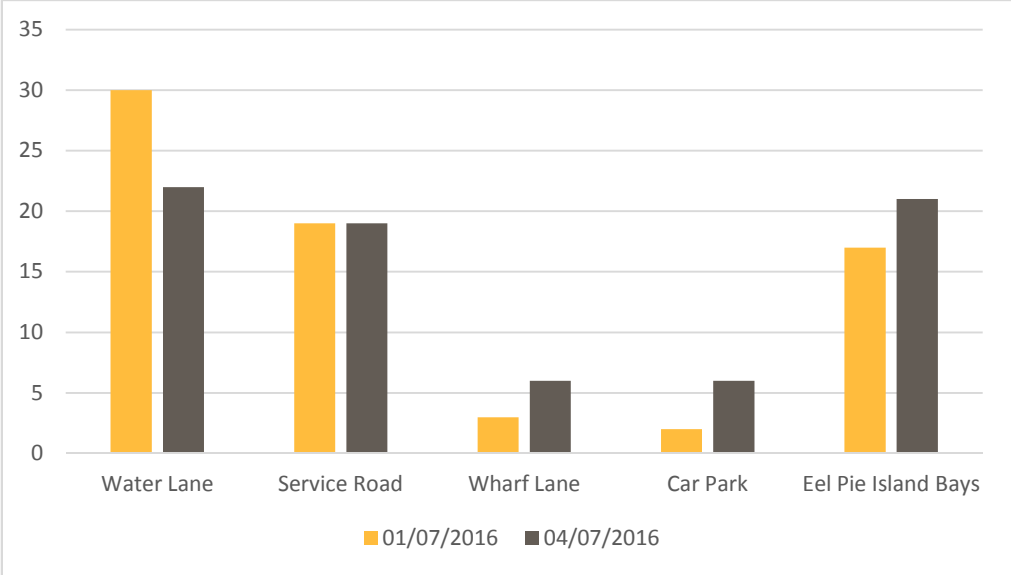
Figure 3.1 Servicing Survey Camera Location



RESULTS

3.2 Data has been analysed for Friday 1 July and Monday 4 July 2016. The number of servicing trips by location is shown in Figure 3.2.

Figure 3.2 Servicing Trips by Location



3.3 The data shows that the majority of servicing vehicles stop on Water Lane, on the service road and on the Eel Pie Island loading bays. Similar levels of servicing activity were recorded on the two days.

Eel Pie Island Dock

3.4 The Eel Pie Island dock data was analysed separately, with an entire week of video footage analysed (1-7 July 2016). Throughout this time, only one boat arrived at the dock (Tuesday 5 July at 3:41pm), carrying waste from the island. The following morning (08:42), a skip lorry arrived to pick up the waste and take it away (leaving at 08:56). Approximately 20 minutes later, another lorry arrived and loaded the boat with timber (09:01-09:41). The boat then left for the Island in the afternoon (4:23pm).

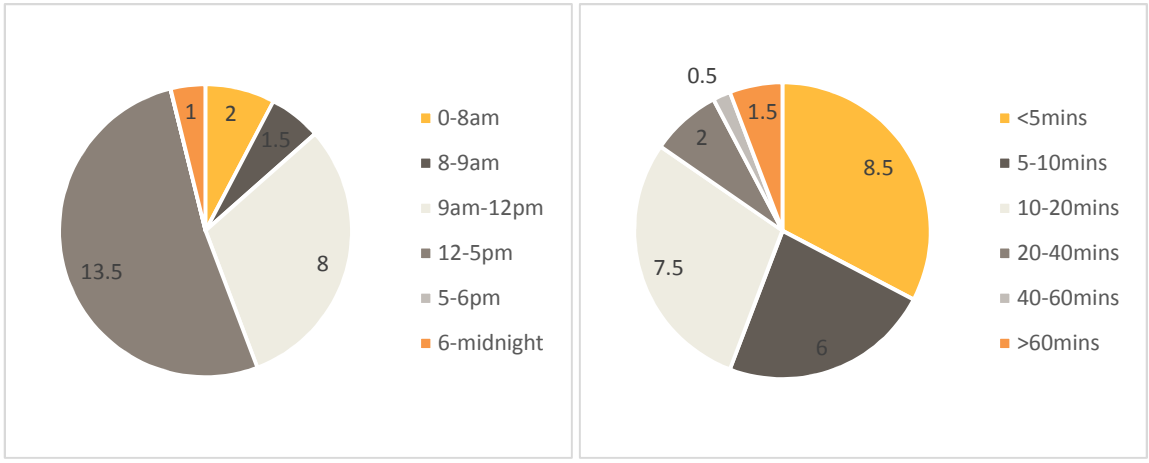
Water Lane

3.5 The average number of vehicles stopping to service on Water Lane was 26 per day. The vehicles usually stop on the single yellow lines on the eastern side of the road, north of the parking bays. In several cases the vehicles stop to the south of the parking bays, but rarely on the western side of the road. In some cases, the drivers park in the pay and display parking bays

3.6 In the vast majority of cases, the drivers park and then walk towards King Street. Very few servicing and delivery trips are associated with units on Water Lane.

3.7 The average number of servicing vehicles arriving per time of day and the duration of each stop are presented in Figure 3.3.

Figure 3.3 Water Lane Average Servicing Trips by Time of Day (left) and Duration (right)

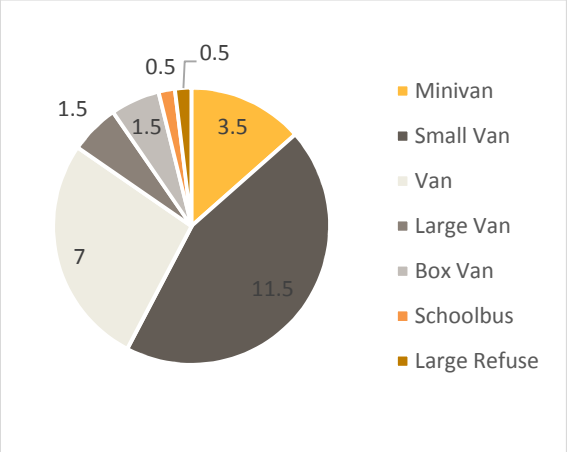


3.8 The data shows that over 50% of the trips take place between 12 and 5pm, with another 30% taking place between 9am and 12pm. Very few trips take place in the peak hours (two per day in the AM peak, none in the PM peak).

3.9 The chart on the right shows that 56% of vehicles stop for less than ten minutes, with a further 30% stopping for between ten and 20 minutes. Only four vehicles per day stop for over 20 minutes.

3.10 The type of vehicle undertaking the servicing trip is shown in Figure 3.4.

Figure 3.4 Water Lane Average Servicing Trips by Vehicle Type



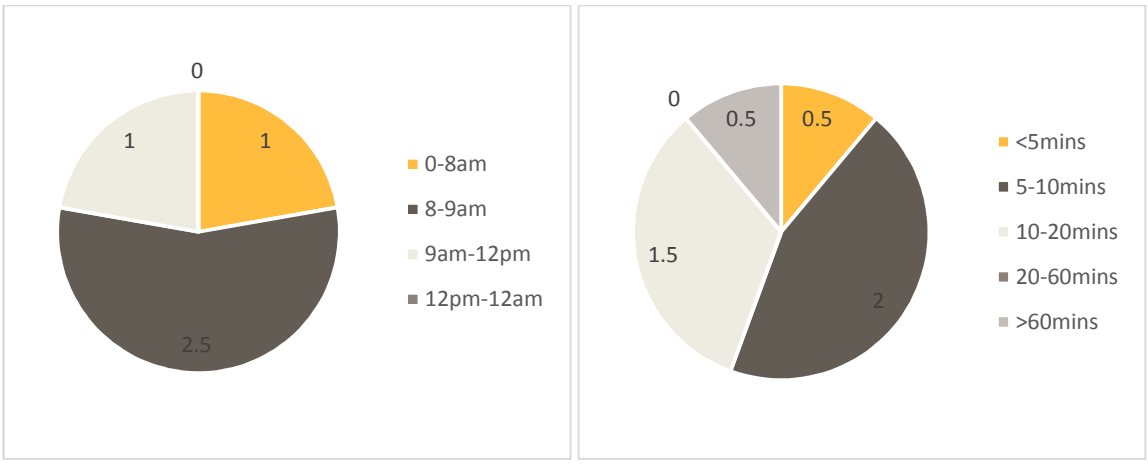
3.11 The data shows that 58% of the servicing vehicles stopping on Water Lane are minivans or small vans. The largest vehicles stopping on Water Lane are box vans and large refuse vehicles, only totalling 2 servicing stops per day.

Wharf Lane

3.12 The average number of servicing trips on Wharf Lane was 4.5 per day. The vast majority of these take place on the northern side of the road, adjacent to the Iceland servicing entrance, either on the western side of the road (when the parking bays are empty), or on the eastern side of the road (on the kerb, blocking the contraflow cycle lane).

3.13 The average number of servicing vehicles arriving per time of day and the duration of each stop are presented in Figure 3.5.

Figure 3.5 Wharf Lane Average Servicing Trips by Time of Day (left) and Duration (right)



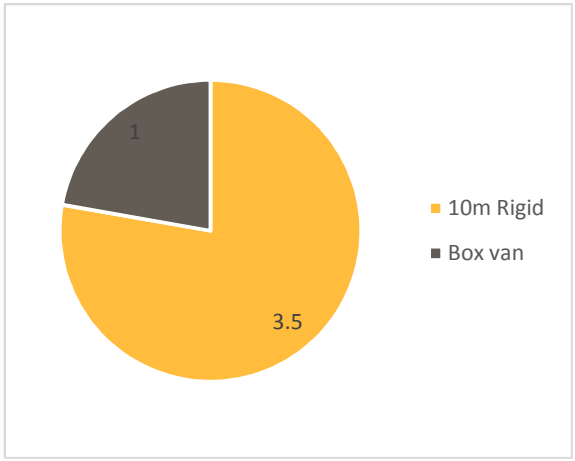
3.14 The graph on the left shows that 2.5 trips per day take place in the morning peak hour. No trips take place after midday. The chart on the right shows that most vehicles stop for less than ten minutes.

3.15 During the surveys, there was one instance of the servicing vehicles blocking Wharf Lane (for four minutes) when the bays were occupied and two vehicles (one delivery and one refuse) were servicing simultaneously (see Figure 3.6).

Figure 3.6 Wharf Lane Servicing – Road Blocked

3.16 The type of vehicle undertaking the servicing trip is shown in Figure 3.7.

Figure 3.7 Wharf Lane Average Servicing Trips by Vehicle Type



3.17 The data for vehicle types is very different from that on the surrounding streets, with most of the vehicles being 10m rigid vehicles servicing Iceland (Kingsmill, Muller, Warburtons). All these vehicles reach Water Lane via the Embankment.

3.18 During the Site visit, an articulated vehicle struggled to exit Wharf Lane and join King Street due to the presence of a bollard on the footway (see Figure 3.8). The driver had to ask the vehicles behind it to reverse in order to perform the manoeuvre again.

Figure 3.8 Wharf Lane Servicing – Vehicle Stuck at King Street junction

Service Road and Car Park

3.19 The average number of servicing trips on the Service Road and car park were 19 and 3 per day respectively.

3.20 Vehicles can reach the service road and car park either from Water Lane or from Wharf Lane. From the survey it appeared that these routes are both utilised to the same degree.

3.21 Given the tight kerb radius to enter the car park from Water Lane, the largest vehicles (10m rigid and some refuse vehicles) tend to prefer reversing into the service road from Wharf Lane. This is a difficult manoeuvre and presents a potential safety hazard – especially when vehicles reverse along the entire service road to reach the car park (see Figure 3.9).

Figure 3.9 Service Road – Large Vehicle Reversing

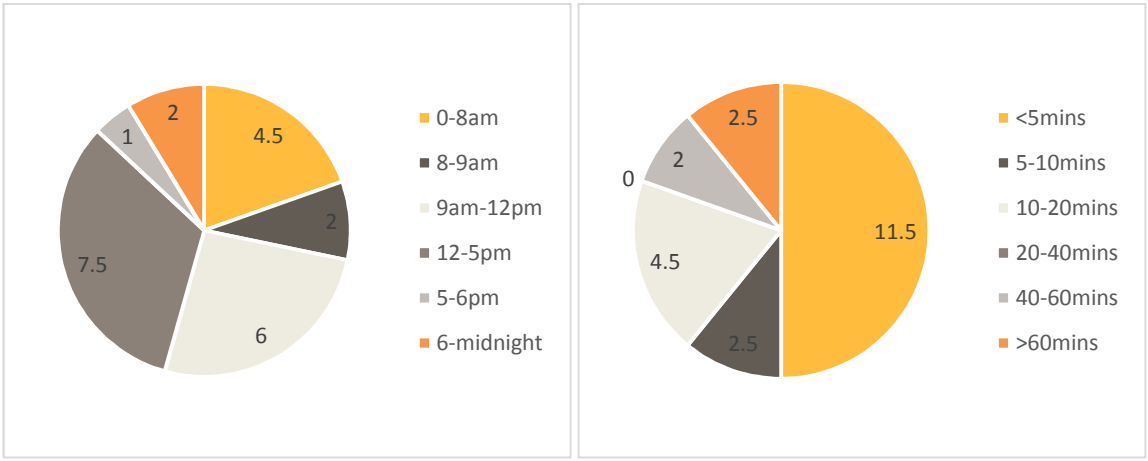
3.22 When exiting the service road onto Wharf Lane, the larger vehicles have to overrun the kerb (see Figure 3.10). In some cases they have to perform complex manoeuvres with 3, 5 or even 7-point turns.

Figure 3.10 Service Road – Large Refuse Overrunning Kerb

3.23 Along the servicing road there are loading bays allocated to individual retail units, which are used by the smaller vehicles (up to a van) to service. Some smaller vehicles were seen to be stopping on the kerb, allowing vehicles to pass. However, the large vehicles (10m rigid or large refuse) cannot be accommodated in the bays and they occupy the entire width of the street, thus not allowing any vehicles through.

3.24 The average number of servicing vehicles arriving per time of day and the duration of each stop are presented in Figure 3.11.

Figure 3.11 Service Road and Car Park Average Servicing Trips by Time of Day (left) and Duration (right)



3.25 The graph on the left shows a fairly even distribution of trips throughout the day, with 4.5 trips in the early morning, 2 and 1 in the peak hours and the majority (61%) between 9 and 5.

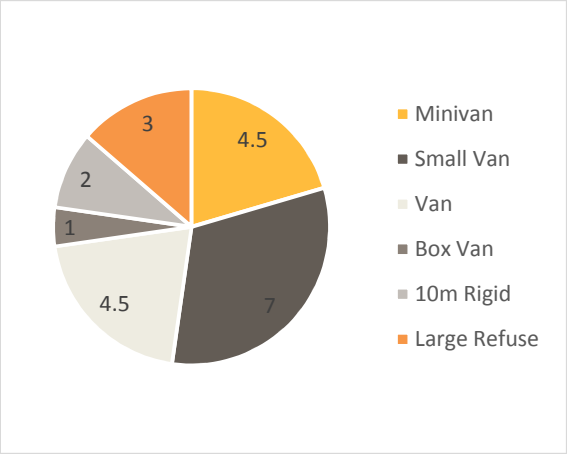
3.26 The chart on the right shows that almost half of the trips last below 5 minutes and only 4.5 each day stop for more than 40 minutes. Duration of stay is particularly important for trips in the service road, as they can lead to blocking back.

3.27 The longest instances of road blockage recorded were:

- Friday 11:03am to 12:10pm – 10m rigid vehicle (Bidvest Logistics) reverses into the service road from Wharf Lane;
- Monday 08:57-09:11am – Large refuse vehicle reverses into the service road from Wharf Lane;
- Monday 10:35-10:51am – 10m rigid vehicle reverses into the service road from Wharf Lane; and
- Monday 13:11-14:13 – 10M rigid vehicle (Bidvest Logistics) reverses into the service road from Wharf Lane.

3.28 The type of vehicle undertaking the servicing trip is shown in Figure 3.12.

Figure 3.12 Servicing Road and Car Park Average Servicing Trips by Vehicle Type



3.29 The data shows that, whilst the majority of trips are undertaken by small vehicles, there are several trips made each day by 10m rigid or large refuse vehicles which are difficult to accommodate in the narrow road.

Eel Pie Island Loading Bays

3.30 There are three loading bays adjacent to the footbridge to Eel Pie Island. These are reserved for loading between 8:30am and 6:30pm Mon-Sat, with a maximum stay of 1 hour and no return within 1 hour.

3.31 The average number of servicing stops on the Eel Pie Island loading bays was 19 per day.

3.32 The surveys show that the bays are often used by private cars, and several tickets were seen to be issued by ticket officers. In some cases, the loading bays were fully occupied (by non-loading activity) and the servicing vehicles had to stop on the single yellow lines to the east of the footbridge. Only at one point in the two days were all three bays simultaneously occupied by servicing vehicles, indicating the current provision of three bays is adequate.

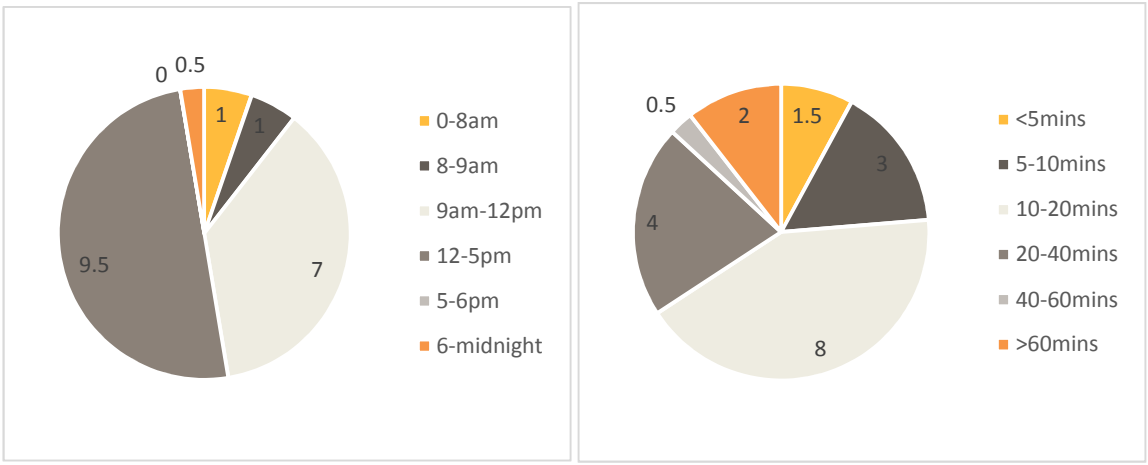
3.33 Vehicles larger than a large van cannot be accommodated in the loading bays, and have to stop on the single yellow lines.

3.34 Once the vehicles have parked, the items are usually carried by hand over the footbridge and onto the island. When the items are particularly bulky, they are trundled over on small carts.

3.35 There were some cases (one or two per day) in which the vehicle stopped in the bays but the servicing was not associated with the Island.

3.36 The average number of servicing vehicles arriving per time of day and the duration of each stop are presented in Figure 3.13.

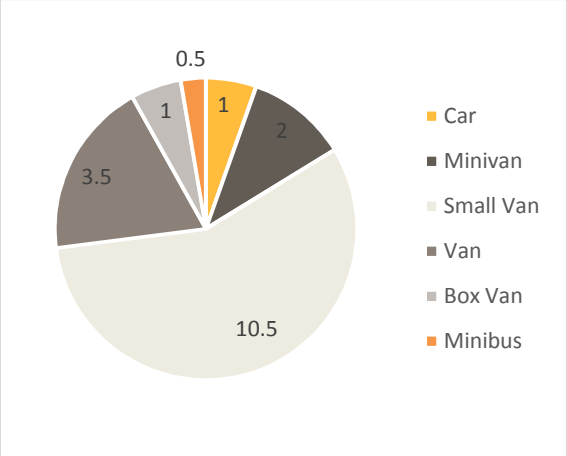
Figure 3.13 Eel Pie Island Loading Bays Average Servicing Trips by Time of Day (left) and Duration (right)



3.37 The graph on the left shows that 95% of trips take place outside of the network peak hours, with a similar split between morning (47%) and afternoon (53%). The chart on the right shows that most vehicles stop for between 10-40 minutes, as items have to be trolleyed over the footbridge and onto the island.

3.38 The type of vehicle undertaking the servicing trip is shown in Figure 3.14.

Figure 3.14 Eel Pie Island Loading Bays Average Servicing Trips by Vehicle Type



3.39 The majority of servicing vehicles are small vans, with only 1 daily trip made by a box van.

ISSUES AND OPPORTUNITIES

3.40 The existing servicing arrangements on Water Lane, Wharf Lane and for Eel Pie Island are adequate and do not pose any highway safety issues. Additional signage or road markings indicating the restrictions on the Eel Pie Island loading bays could help enforcement.

3.41 However, the arrangements on the servicing road do not appear safe. Large vehicles have to reverse over long distances and with poor visibility along a very narrow street. Furthermore, large vehicles block the roads, create queuing and overrun kerbs on Wharf Lane.

3.42 In order to improve the servicing arrangements, the following could be proposed as part of the development:

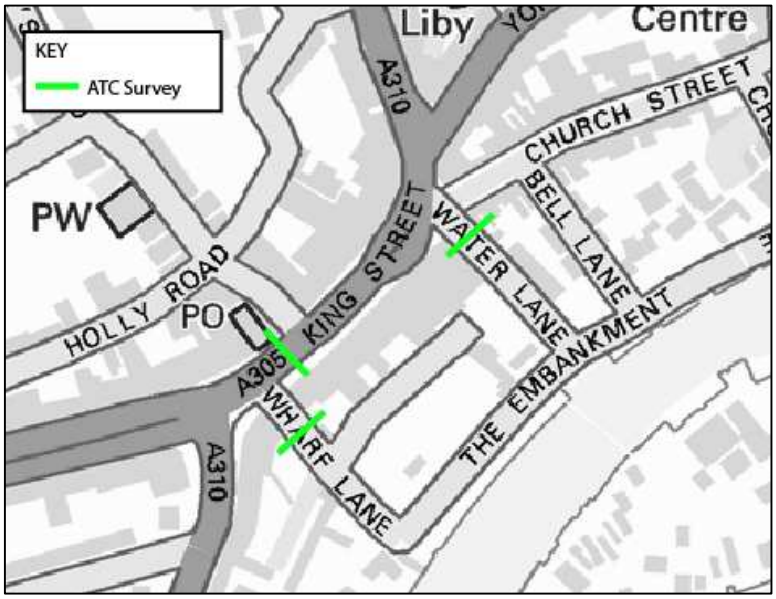
- The service road could be made one-way, eliminating potential conflicts between vehicles;
- The access to the service road from Water Lane should be improved, with a wider radius catering to large vehicles, eliminating the need for them to reverse along the road;
- The kerb on the northern side of the Wharf Lane / Service Road junction should be amended so that vehicles do not have to overrun it;
- A dedicated loading area could be provided on the western side of Wharf Lane, opposite the Iceland servicing access, so that vehicles do not have to mount the eastern kerb and block the advisory cycle lane;
- Double yellow lines and no stopping restrictions should be introduced and enforced on the service road, so that it is not blocked at any time; and
- 3 clearly marked loading bays could be provided for Eel Pie Island, meeting the current requirements. One bay will be large enough to cater to a 10m rigid vehicle, eliminating the need for them to service on the single yellow lines (as is currently done).

4 Traffic Surveys

SCOPE

4.1 Automatic Traffic Count (ATC) surveys were conducted on King Street, Water Lane and Wharf Lane, at the locations shown in Figure 4.1.

Figure 4.1 ATC Survey Location



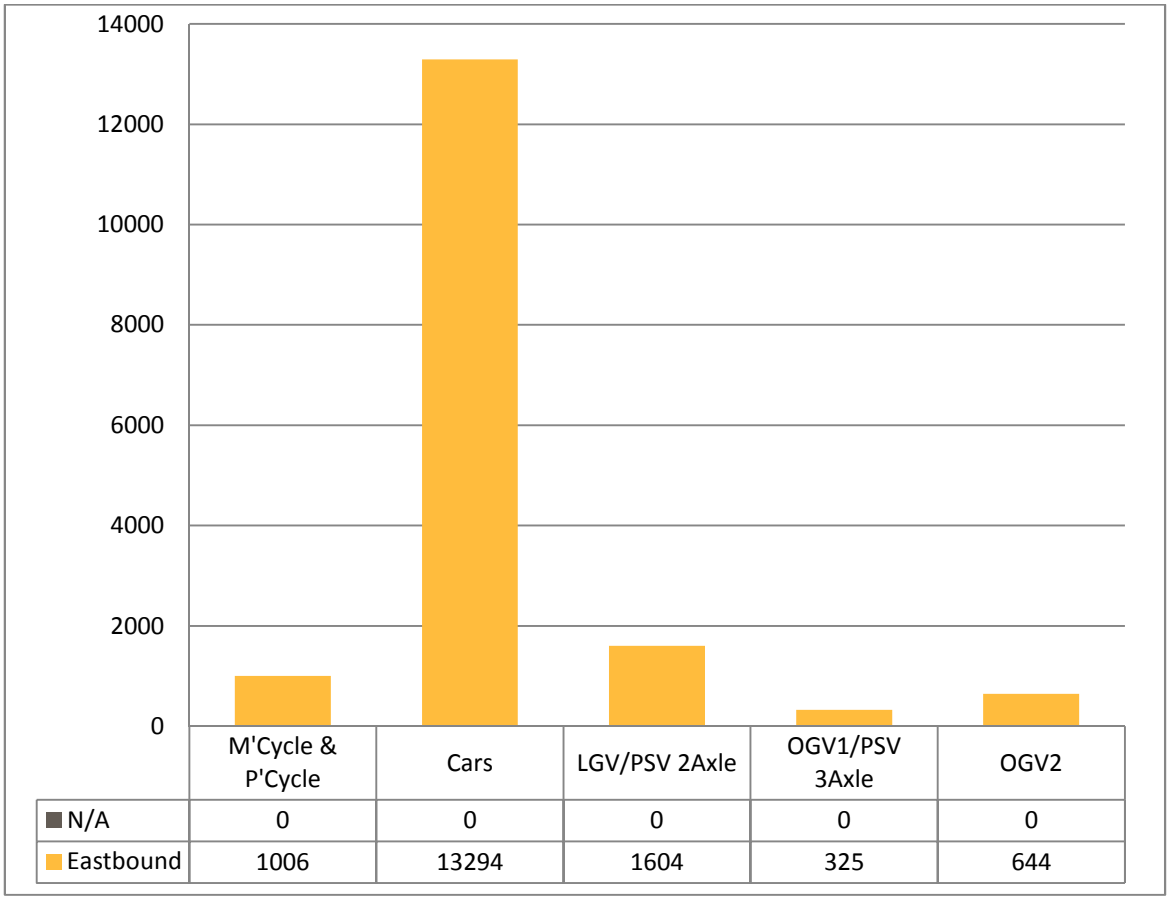
4.2 Data was collected for 168 hours between 2 July and 8 July 2016.

RESULTS

King Street (Eastbound)

4.3 The eastbound vehicle flows on King Street are presented in Figure 4.2.

Figure 4.2 King Street Eastbound – Weekday Average Flows



4.4 The weekday average flow was in the region of 16,900 road users. Cars accounted for 79% of vehicles, LGV's 10% and motorcycles and pedal cycles 6%.

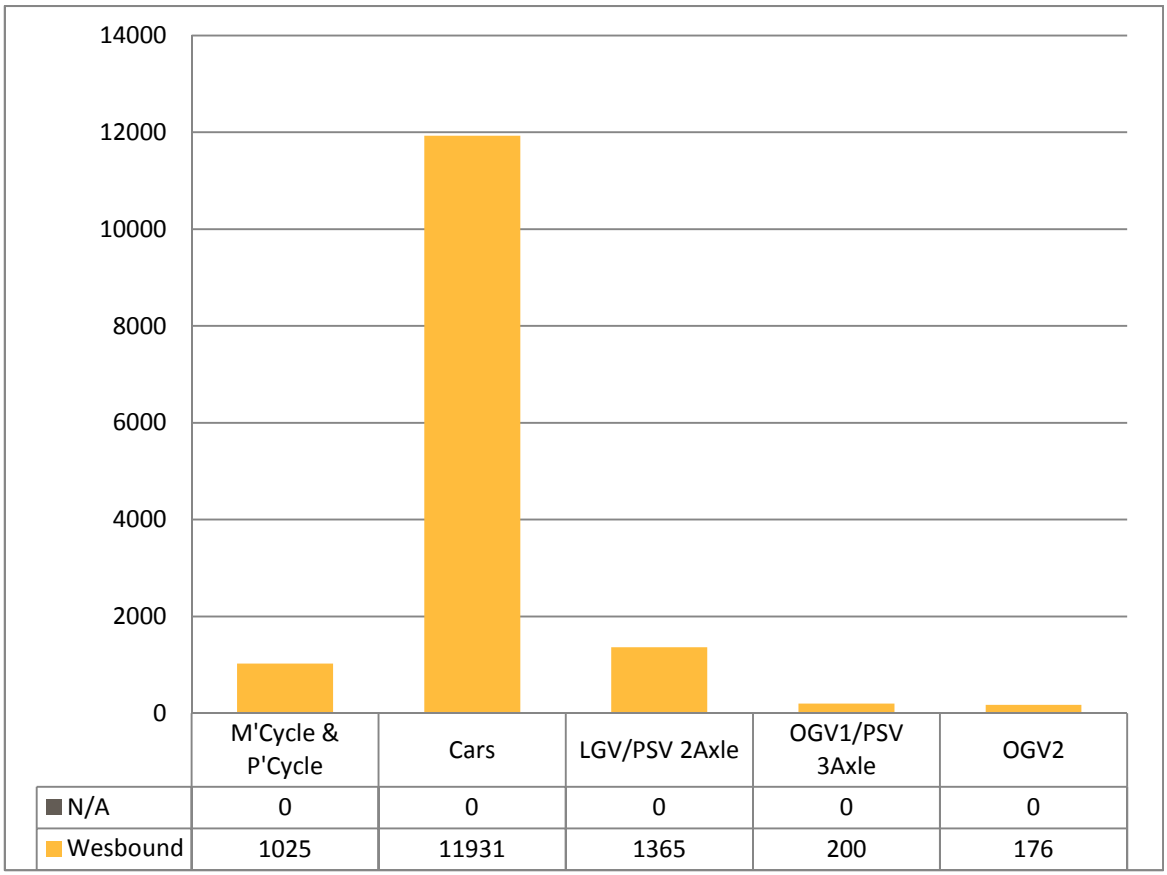
4.5 The peak hourly flow was 1,206 movements recorded between 6:45-7:45, whilst the PM peak (1,096) was between 18:15-19:15.

4.6 The 85th percentile speed recorded was 23.5mph, with only 1% over the 30mph speed limit.

King Street (Westbound)

4.7 The westbound vehicle flows on King Street are presented in Figure 4.3.

Figure 4.3 King Street Westbound – Weekday Average Flows



	M'Cycle & P'Cycle	Cars	LGV/PSV 2Axle	OGV1/PSV 3Axle	OGV2
N/A	0	0	0	0	0
Wesbound	1025	11931	1365	200	176

4.8 The weekday average flow was in the region of 14,700 road users, significantly lower than the eastbound one. Cars accounted for 81% of vehicles, LGV's 9% and motorcycles and pedal cycles 7%.

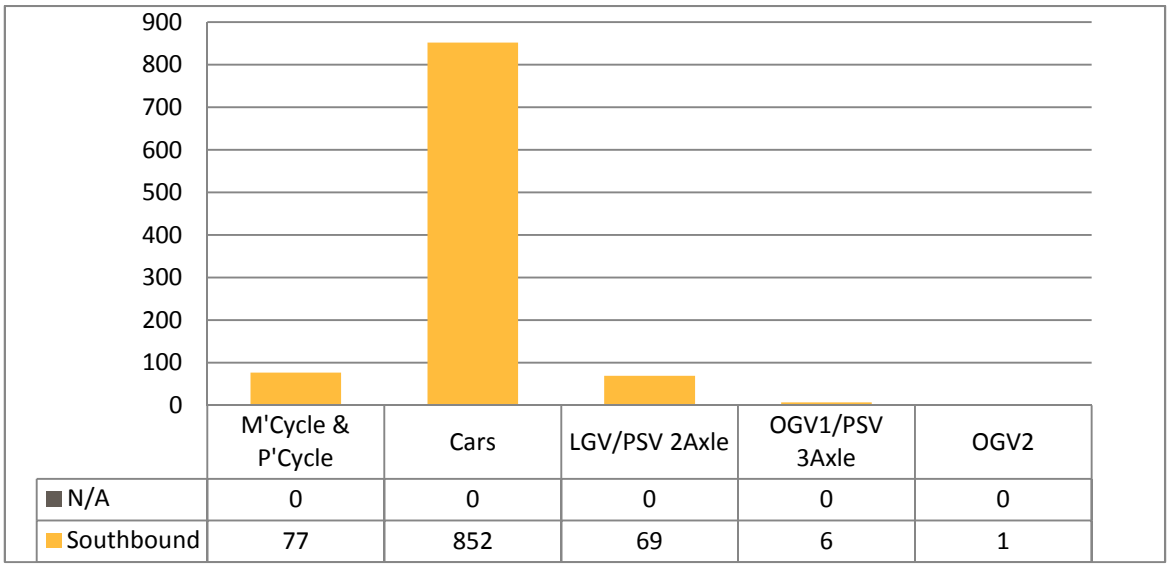
4.9 The peak hourly flow was 1,056 movements between 17:00-18:00, whilst the AM peak (984) was between 7:30-8:30.

4.10 The 85th percentile speed recorded was 24.1mph, with only 1% over the 30mph speed limit.

Water Lane

4.11 The vehicle flows on Water Lane are presented in Figure 4.4.

Figure 4.4 Water Lane – Weekday Average Flows

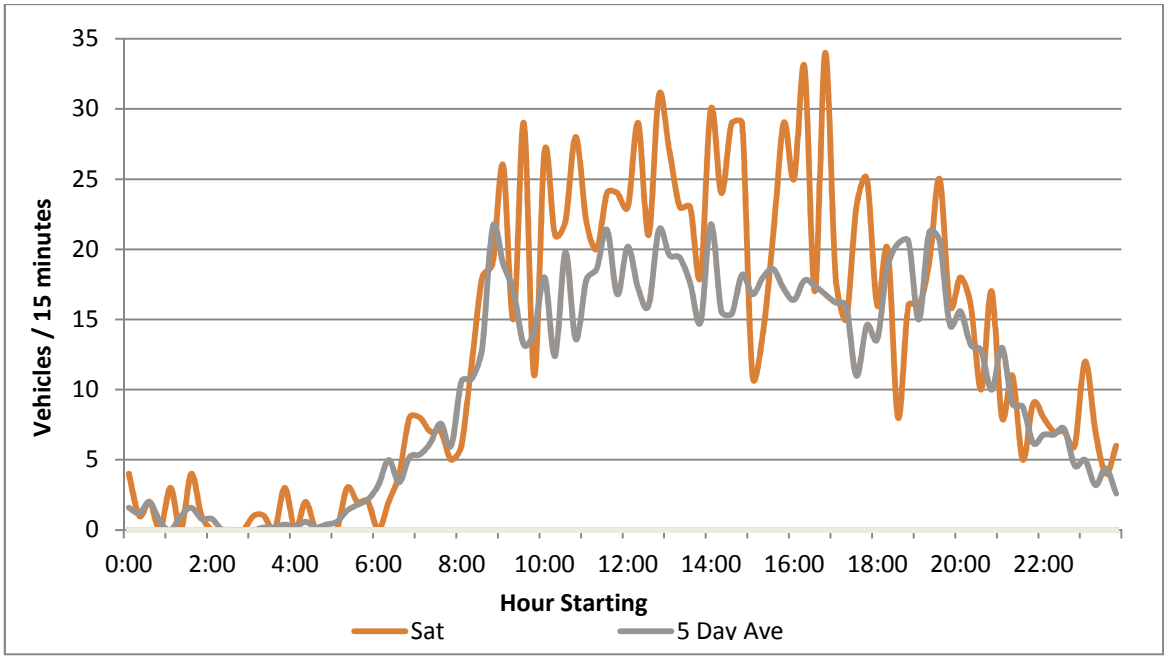


	M'Cycle & P'Cycle	Cars	LGV/PSV 2Axle	OGV1/PSV 3Axle	OGV2
N/A	0	0	0	0	0
Southbound	77	852	69	6	1

4.12 The average weekday flow on Water lane was approximately 1,000 road users. Cars accounted for 85% of vehicles, LGV's 7% and motorcycles and pedal cycles 8%. The six OGV1s are in line with the number observed in the servicing surveys.

4.13 The weekday peak hourly flow of 78 movements was recorded between 12:45 and 13:45. Traffic flows were fairly even throughout the day, with the Saturday flows being the highest overall (see Figure 4.5).

Figure 4.5 Water Lane – Weekday Average Flows

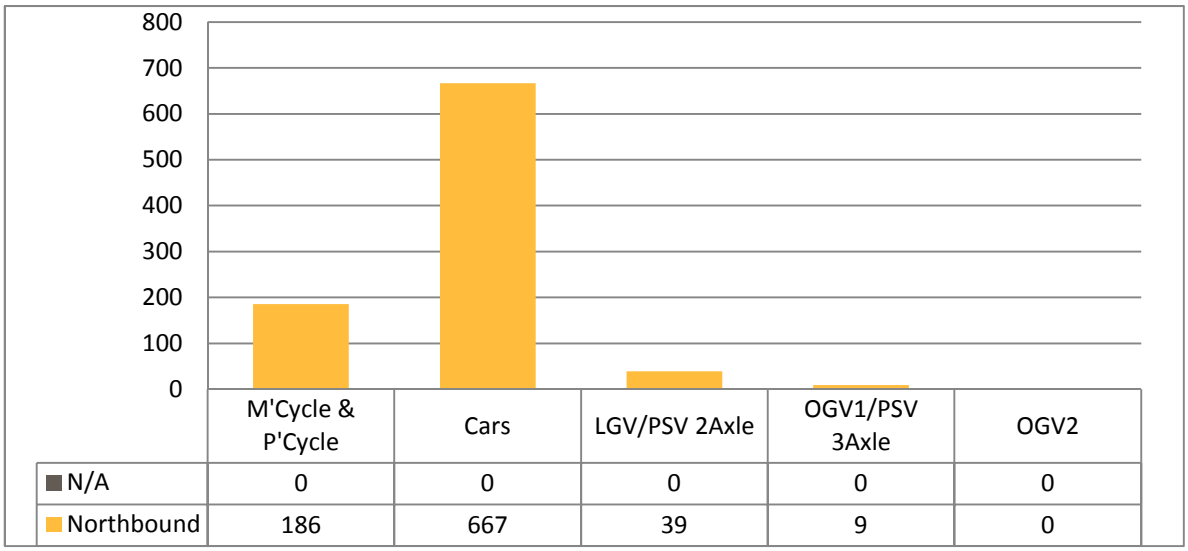


4.14 The 85th percentile speed recorded was 12.4mph, with no vehicles over the 20mph speed limit.

Wharf Lane

4.15 The vehicle flows on Wharf Lane are presented in Figure 4.6.

Figure 4.6 Wharf Lane – Weekday Average Flows



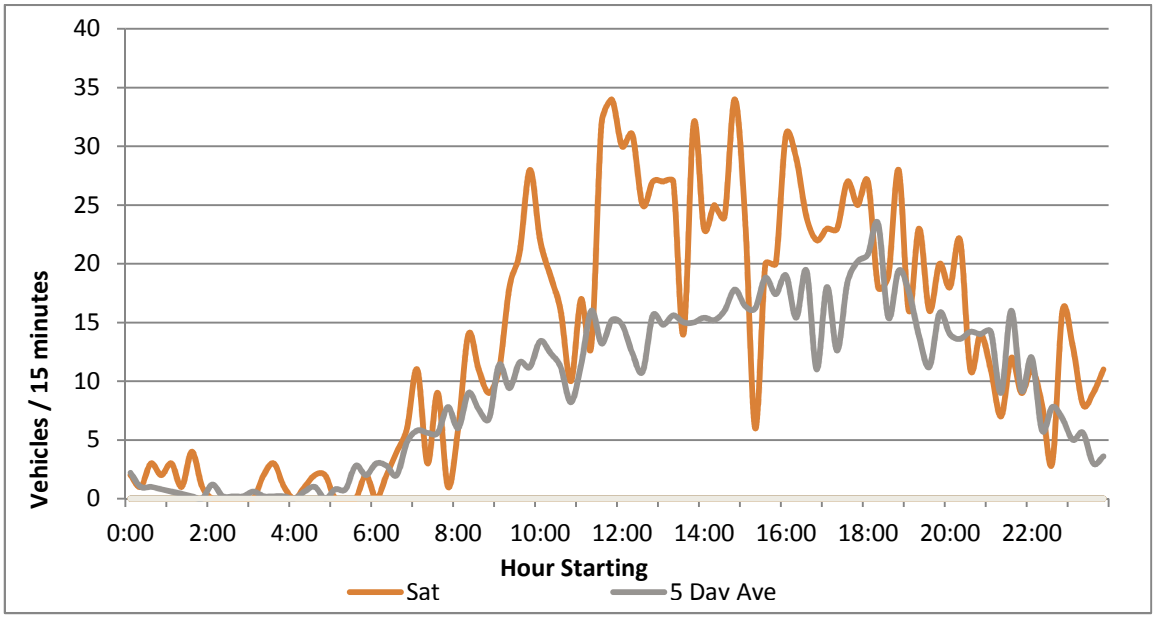
	M'Cycle & P'Cycle	Cars	LGV/PSV 2Axle	OGV1/PSV 3Axle	OGV2
N/A	0	0	0	0	0
Northbound	186	667	39	9	0

4.16 The weekday average flow on Wharf Lane was 900 road users, slightly lower than the one on Water Lane. Cars accounted for 74% of vehicles, LGV's 4% and motorcycles and pedal cycles 21%, showing the popularity of the contraflow cycle lane.

4.17 The peak weekday hourly flow of 83 movements was recorded between 17:30 and 18:30, with no detectable AM peak.

4.18 The highest vehicle flows were recorded on Saturday, and are shown in Figure 4.7.

Figure 4.7 Wharf Lane – Flow by Time of Day



4.19 The 85th percentile speed recorded was 15.8mph, with 3% over the 20mph speed limit.

Other Observations

4.20 During the site visit and in the video survey analysis it was noticed that some vehicles drive northbound along Water Lane, in order to turn right onto the eastbound carriageway of King Street. This dangerous manoeuvre was seen to be performed by two vehicles on the 1 July and three people on the 4 July.

5 Summary

5.1 JMP Consultants Limited (JMP) has been commissioned by the Quinlan & Francis Terry Architects, on behalf of the London Borough of Richmond upon Thames ('LBRuT') to provide transport and highways advice relating to the proposed development of Twickenham Riverside between Water Lane, Wharf Lane and the Embankment in Twickenham, London TW1 3SD ('the Site').

5.2 To inform the transport strategy for the Site, the following surveys were undertaken, in agreement with LBRuT:

- Overnight and daytime parking surveys;
- Servicing surveys; and
- Traffic surveys.

5.3 The Site and the surrounding area are part of a Controlled Parking Zone (CPZ) D "Central Twickenham", which operates Monday-Friday 8:30-18:30. The bays surrounding the site are a mix of residents only, pay & display, shared use, business permit holder and loading bays. The single yellow lines and private parking bays have been discounted from the analysis.

5.4 The parking surveys data shows that there is considerable spare capacity overnight, with a peak occupancy of 78%. On Saturdays, the occupancy reaches up to 89%, just below the Richmond threshold of 90%. The vast majority of the weekday demand (72%) is generated by shoppers and visitors.

5.5 The majority of the servicing activity in the area takes place on Water Lane (up to 30 trips), on the Service Road (19) and on the Eel Pie Island loading bays (up to 21).

5.6 Most of the servicing activity takes place on single yellow lines, with minivans and small vans stopping for a short period of time. On Wharf Lane there 3-4 servicing trips per day made by 10m rigid vehicles servicing the Iceland Supermarket. These vehicles usually stop on the kerb, blocking the contraflow cycle lane.

5.7 The geometry of the Service Road is such that 10m rigid and large refuse vehicles have to reverse down it and block it. When exiting it onto Wharf Lane they have to undertake a complex manoeuvre and overrun the kerb.

5.8 The traffic surveys indicate that the main flow along King Street is eastbound. The flows on Wharf Lane and Water Lane are in the region of 900-1,000 vehicles per day, with the highest flows recorded on Saturday.

5.9 The proportion of cyclists is 7-8% on most roads, with the exception of Wharf Lane where it is 21%. The data suggests that speeding could be an issue on Wharf Lane, whilst there were several instances of vehicles driving northbound along Water Lane (which is one way southbound only).

Appendix F: November 2016 Parking Survey Results

Tracsis plc
Traffic and Data Services

Client:	**JMP**
Project:	**3426-LON Twickenham Riverside**
Survey Date:	**Tuesday 08 November 2016**
	Wednesday 09 November 2016
	Saturday 12 November 2016
	Sunday 13 November 2016
Method:	**Parking by Occupancy**

Incidents / Observations:

Abbreviation	Restriction
AMB	Ambulance Only
BP	Business Parking
BS	Bus Stop
CC	Car Club
DIS	Disabled
DK	Drop Kerb
DY	Double Yellow
KC	Keep Clear
LB	Loading Bays
MCY	Motorcycle Bays
P&D	Pay & Display
PB	Parking Bays
PEDX	Pedestrian Crossing
PH	Permit Holder
RES	Residents
SU	Shared Use
SY	Single Yellow
SY/DK	Single Yellow/ Drop Kerb
SY/UNDES	Single Yellow/ Undesirable
UN/UNDES	Unrestricted/ Undesirable
ZZ	Zig Zag

Restrictions by No. Bays

Street Name / Restriction	AMB	BP	BS	CC	DIS	DK	DY	KC	LB	MCY	P&D	PB	PEDX	PH	RES	SU	SY	SY/DK	SY/UNDES	UN/UNDES	ZZ	Grand Total
SERVICE ROAD	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0	39
SERVICE ROAD CAR PARK	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	25
THE EMBANKMENT	0	5	0	0	2	0	0	0	3	0	0	0	0	1	21	62	10	0	0	0	0	104
WATER LANE	0	0	0	0	0	0	15	0	0	6	11	0	0	0	0	7	7	0	0	0	0	46
WHARF LANE	0	2	0	0	0	0	5	0	0	0	4	0	0	0	4	0	17	0	0	0	0	32
Grand Total	0	7	0	0	2	9	20	0	3	6	40	0	0	1	25	69	64	0	0	0	0	246

Restrictions by Length (metres)

Street Name / Restriction	AMB	BP	BS	CC	DIS	DK	DY	KC	LB	MCY	P&D	PB	PEDX	PH	RES	SU	SY	SY/DK	SY/UNDES	UN/UNDES	ZZ	Grand Total
SERVICE ROAD	0	0	0	0	0	50.8	0	0	0	0	0	0	0	0	0	0	163	0	0	0	0	213.8
SERVICE ROAD CAR PARK																						
THE EMBANKMENT	0	29.4	0	0	13.1	13.4	0	0	7.8	0	0	0	17.1	5	88.7	201.3	58.9	3.7	0	0	0	438.4
WATER LANE	0	0	0	0	0	0	82.4	0	0	6.6	50.7	0	0	0	0	39.5	45.7	0	0	0	0	224.9
WHARF LANE	0	12.8	0	0	0	3.8	33.4	0	0	0	21.5	0	0	0	24.7	0	95.4	0	0	0	0	191.6
Grand Total	0	42.2	0	0	13.1	68	115.8	0	7.8	6.6	72.2	0	17.1	5	113.4	240.8	363	3.7	0	0	0	1068.7

Street
SERVICE ROAD

No. of Spaces
39

Parking Occupancy by Restriction

		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0	0	0	0	0	0	0	0	0	0	0	0
BP	0	0	0	0	0	0	0	0	0	0	0	0	0
BS	0	0	0	0	0	0	0	0	0	0	0	0	0
CC	0	0	0	0	0	0	0	0	0	0	0	0	0
DIS	0	0	0	0	0	0	0	0	0	0	0	0	0
DK	9	0	0	0	0	0	0	0	0	0	0	0	0
DY	0	0	0	0	0	0	0	0	0	0	0	0	0
KC	0	0	0	0	0	0	0	0	0	0	0	0	0
LB	0	0	0	0	0	0	0	0	0	0	0	0	0
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0
P&D	0	0	0	0	0	0	0	0	0	0	0	0	0
PB	0	0	0	0	0	0	0	0	0	0	0	0	0
PEDX	0	0	0	0	0	0	0	0	0	0	0	0	0
PH	0	0	0	0	0	0	0	0	0	0	0	0	0
RES	0	0	0	0	0	0	0	0	0	0	0	0	0
SU	0	0	0	0	0	0	0	0	0	0	0	0	0
SY	30	0	2	0	1	0	0	0	0	0	0	0	0
SY/DK	0	0	0	0	0	0	0	0	0	0	0	0	0
SY/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
UN/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
ZZ	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	39	0	2	0	1	0	0	0	0	0	0	0	0

Parking Occupancy (%) by Restriction

		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BP	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BS	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DIS	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DK	9	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DY	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
KC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MCY	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
P&D	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PEDX	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PH	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SU	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY	30	0.0%	6.7%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY/DK	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UN/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ZZ	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL	39	0.0%	5.1%	0.0%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Street SERVICE ROAD CAR PARK

No. of Spaces 25

Parking Occupancy by Restriction

		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0	0	0	0	0	0	0	0	0	0	0	0
BP	0	0	0	0	0	0	0	0	0	0	0	0	0
BS	0	0	0	0	0	0	0	0	0	0	0	0	0
CC	0	0	0	0	0	0	0	0	0	0	0	0	0
DIS	0	0	0	0	0	0	0	0	0	0	0	0	0
DK	0	0	0	0	0	0	0	0	0	0	0	0	0
DY	0	0	0	0	0	0	0	0	0	0	0	0	0
KC	0	0	0	0	0	0	0	0	0	0	0	0	0
LB	0	0	0	0	0	0	0	0	0	0	0	0	0
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0
P&D	25	0	3	0	12	0	10	0	2	0	4	0	3
PB	0	0	0	0	0	0	0	0	0	0	0	0	0
PEDX	0	0	0	0	0	0	0	0	0	0	0	0	0
PH	0	0	0	0	0	0	0	0	0	0	0	0	0
RES	0	0	0	0	0	0	0	0	0	0	0	0	0
SU	0	0	0	0	0	0	0	0	0	0	0	0	0
SY	0	0	0	0	0	0	0	0	0	0	0	0	0
SY/DK	0	0	0	0	0	0	0	0	0	0	0	0	0
SY/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
UN/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
ZZ	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	25	0	3	0	12	0	10	0	2	0	4	0	3

Parking Occupancy (%) by Restriction

		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BP	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BS	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DIS	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DK	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DY	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
KC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MCY	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
P&D	25	0.0%	12.0%	0.0%	48.0%	0.0%	40.0%	0.0%	8.0%	0.0%	16.0%	0.0%	12.0%

PB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PEDX	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PH	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SU	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY/DK	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UN/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ZZ	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL	25	0.0%	12.0%	0.0%	48.0%	0.0%	40.0%	0.0%	8.0%	0.0%	16.0%	0.0%	12.0%

Street
THE EMBANKMENT

No. of Spaces
104

Restriction	Operational Hours
SU	RESIDENT OR PAY & DISPLAY MON - SAT 8:30 AM - 6:30 PM
RES	PERMIT D ONLY
PH	PERMIT ST171 ONLY
LB	08:30 AM - 6:30 PM NO RETURN ONE HOUR

Parking Occupancy by Restriction

		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0	0	0	0	0	0	0	0	0	0	0	0
BP	5	0	2	0	5	0	5	0	2	0	1	0	3
BS	0	0	0	0	0	0	0	0	0	0	0	0	0
CC	0	0	0	0	0	0	0	0	0	0	0	0	0
DIS	2	0	1	0	1	0	1	0	1	0	0	0	0
DK	0	0	0	0	0	0	0	0	0	0	0	0	0
DY	0	0	0	0	0	0	0	0	0	0	0	0	0
KC	0	0	0	0	0	0	0	0	0	0	0	0	0
LB	3	0	1	0	1	0	0	0	1	0	0	1	0
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0
P&D	0	0	0	0	0	0	0	0	0	0	0	0	0
PB	0	0	0	0	0	0	0	0	0	0	0	0	0
PEDX	0	0	0	0	0	0	0	0	0	0	0	0	0
PH	1	0	0	0	0	0	0	0	0	0	0	0	0
RES	21	20	1	18	2	20	1	20	1	20	0	19	0
SU	62	31	12	30	15	28	15	32	12	33	16	31	9
SY	10	0	0	0	1	0	0	0	0	0	1	0	0
SY/DK	0	0	0	0	0	0	0	0	0	0	0	0	0
SY/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
UN/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
ZZ	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	104	51	17	48	25	48	22	52	17	53	18	51	12

Parking Occupancy (%) by Restriction

		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BP	5	0.0%	40.0%	0.0%	100.0%	0.0%	100.0%	0.0%	40.0%	0.0%	20.0%	0.0%	60.0%
BS	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DIS	2	0.0%	50.0%	0.0%	50.0%	0.0%	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%
DK	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DY	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
KC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LB	3	0.0%	33.3%	0.0%	33.3%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	33.3%	0.0%
MCY	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
P&D	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PEDX	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PH	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RES	21	95.2%	4.8%	85.7%	9.5%	95.2%	4.8%	95.2%	4.8%	95.2%	0.0%	90.5%	0.0%
SU	62	50.0%	19.4%	48.4%	24.2%	45.2%	24.2%	51.6%	19.4%	53.2%	25.8%	50.0%	14.5%
SY	10	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	0.0%
SY/DK	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UN/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ZZ	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL	104	49.0%	16.3%	46.2%	24.0%	46.2%	21.2%	50.0%	16.3%	51.0%	17.3%	49.0%	11.5%

Note: 2 bays suspended due to Rugby on Saturday 12th of November.

Street
WATER LANE

No. of Spaces
46

Restriction	Operational Hours
P&D	MON-SAT 8:30 AM - 6:30 PM
SU	RESIDENT OR PAY & DISPLAY MON - SAT 8:30 AM - 6:30 PM

Parking Occupancy by Restriction

		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0	0	0	0	0	0	0	0	0	0	0	0
BP	0	0	0	0	0	0	0	0	0	0	0	0	0
BS	0	0	0	0	0	0	0	0	0	0	0	0	0
CC	0	0	0	0	0	0	0	0	0	0	0	0	0
DIS	0	0	0	0	0	0	0	0	0	0	0	0	0
DK	0	0	0	0	0	0	0	0	0	0	0	0	0
DY	15	0	0	0	0	0	0	0	0	0	0	0	0
KC	0	0	0	0	0	0	0	0	0	0	0	0	0
LB	0	0	0	0	0	0	0	0	0	0	0	0	0
MCY	6	0	3	0	6	0	5	0	3	0	4	0	3
P&D	11	3	3	4	5	1	7	3	1	3	4	3	1
PB	0	0	0	0	0	0	0	0	0	0	0	0	0
PEDX	0	0	0	0	0	0	0	0	0	0	0	0	0
PH	0	0	0	0	0	0	0	0	0	0	0	0	0
RES	0	0	0	0	0	0	0	0	0	0	0	0	0
SU	7	4	2	6	1	4	1	5	0	4	1	4	0
SY	7	0	0	0	0	0	0	0	0	0	0	0	0
SY/DK	0	0	0	0	0	0	0	0	0	0	0	0	0
SY/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
UN/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
ZZ	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	46	7	8	10	12	5	13	8	4	7	9	7	4

Parking Occupancy (%) by Restriction

		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BP	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BS	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DIS	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DK	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DY	15	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
KC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MCY	6	0.0%	50.0%	0.0%	100.0%	0.0%	83.3%	0.0%	50.0%	0.0%	66.7%	0.0%	50.0%
P&D	11	27.3%	27.3%	36.4%	45.5%	9.1%	63.6%	27.3%	9.1%	27.3%	36.4%	27.3%	9.1%

PB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PEDX	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PH	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SU	7	57.1%	28.6%	85.7%	14.3%	57.1%	14.3%	71.4%	0.0%	57.1%	14.3%	57.1%	0.0%
SY	7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY/DK	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UN/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ZZ	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL	46	15.2%	17.4%	21.7%	26.1%	10.9%	28.3%	17.4%	8.7%	15.2%	19.6%	15.2%	8.7%

Street WHARF LANE

No. of Spaces 32

Restriction	Operational Hours
P&D	MON-SAT 8:30 AM - 6:30 PM
RES	PERMIT D ONLY

Parking Occupancy by Restriction

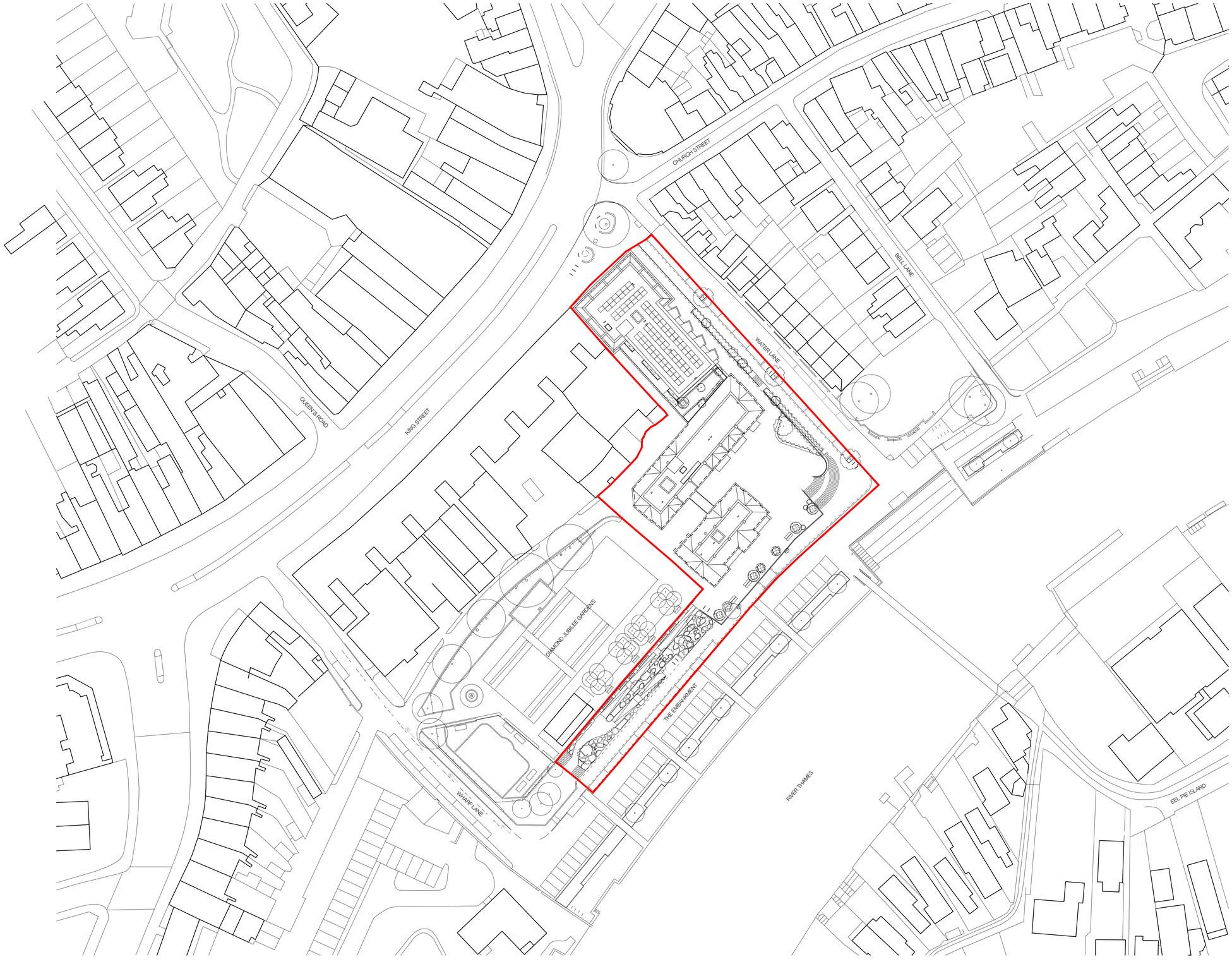
		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0	0	0	0	0	0	0	0	0	0	0	0
BP	2	0	2	0	2	0	1	0	1	0	1	0	1
BS	0	0	0	0	0	0	0	0	0	0	0	0	0
CC	0	0	0	0	0	0	0	0	0	0	0	0	0
DIS	0	0	0	0	0	0	0	0	0	0	0	0	0
DK	0	0	0	0	0	0	0	0	0	0	0	0	0
DY	5	0	0	0	1	0	0	0	0	0	0	0	0
KC	0	0	0	0	0	0	0	0	0	0	0	0	0
LB	0	0	0	0	0	0	0	0	0	0	0	0	0
MCY	0	0	0	0	0	0	0	0	0	0	0	0	0
P&D	4	0	2	0	3	0	1	0	1	0	2	0	1
PB	0	0	0	0	0	0	0	0	0	0	0	0	0
PEDX	0	0	0	0	0	0	0	0	0	0	0	0	0
PH	0	0	0	0	0	0	0	0	0	0	0	0	0
RES	4	4	0	4	0	4	0	4	0	3	1	3	1
SU	0	0	0	0	0	0	0	0	0	0	0	0	0
SY	17	0	0	0	1	0	0	0	0	0	0	0	0
SY/DK	0	0	0	0	0	0	0	0	0	0	0	0	0
SY/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
UN/UNDES	0	0	0	0	0	0	0	0	0	0	0	0	0
ZZ	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	32	4	4	4	7	4	2	4	2	3	4	3	3

Parking Occupancy (%) by Restriction

		Tuesday 08 November 2016						Wednesday 09 November 2016		Saturday 12 November 2016		Sunday 13 November 2016	
		01:00-05:00		08:00-10:00		15:00-17:00		01:00-05:00		12:00-13:00		01:00-05:00	
Restriction / Beat Time	Capacity	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES	RES	NON RES
AMB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BP	2	0.0%	100.0%	0.0%	100.0%	0.0%	50.0%	0.0%	50.0%	0.0%	50.0%	0.0%	50.0%
BS	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DIS	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DK	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DY	5	0.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
KC	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
LB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MCY	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
P&D	4	0.0%	50.0%	0.0%	75.0%	0.0%	25.0%	0.0%	25.0%	0.0%	50.0%	0.0%	25.0%

PB	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PEDX	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PH	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RES	4	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	75.0%	25.0%	75.0%	25.0%
SU	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY	17	0.0%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY/DK	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SY/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UN/UNDES	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ZZ	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL	32	12.5%	12.5%	12.5%	21.9%	12.5%	6.3%	12.5%	6.3%	9.4%	12.5%	9.4%	9.4%

Appendix G: Proposed Plans



0 5 10 15 20 25m

Scale 1:500

Proposed Site Plan 1:500

Rev.	Des.	By	Date	Ch.
D04	LAYOUT UPDATED	RPP	17.11.17	RGF
D03	SCHEME UPDATE	RGF	10.11.17	TNT
D02	BOUNDARY AMENDED	RPP	01.11.17	RGF
D01	FIRST ISSUE	RPP	27.10.17	RGF

Location Plan

The internal layouts within residential apartments and ancillary areas of buildings may be subject to design development.

The precise location of walls, internal doors, columns, risers and the detailed layout of bathroom and kitchen areas may be the subject of non-material changes and may vary from the internal layouts set out in these plans.

These minor alterations should not affect the position and arrangements of external doors and windows nor should they affect the relative relationship between habitable rooms and windows.

All materials shown or highlighted are indicative only and may be subject to changes made during detailed design development.

Contractor must verify all dimensions on site before commencing any work or shop drawings. If this drawing exceeds the quantities taken in any way the Architects are to be informed before the work is initiated. Only figured dimensions to be taken from this drawing. Do not scale off this drawing. Drawings based on Ordnance Survey and / or existing record drawings - design and drawing content subject to Site Survey, Structural Survey, Site Investigations, Planning and Statutory Requirements and Approvals. Authorised reproduction from Ordnance Survey Map with permission of the Controller of Her Majesty's Stationery Office. Crown Copyright reserved. © careyjones chapmantolcher (Studio South) Ltd. All Rights Reserved

Project: Twickenham

Job No. 31033

Title: Proposed Site Plan

Scale: 1:500@A1, 1:1000@A3

Drawn By: RPP

Date: October 2017

Checked By: RGF

Drawing No: (20)_020

Revision: D04

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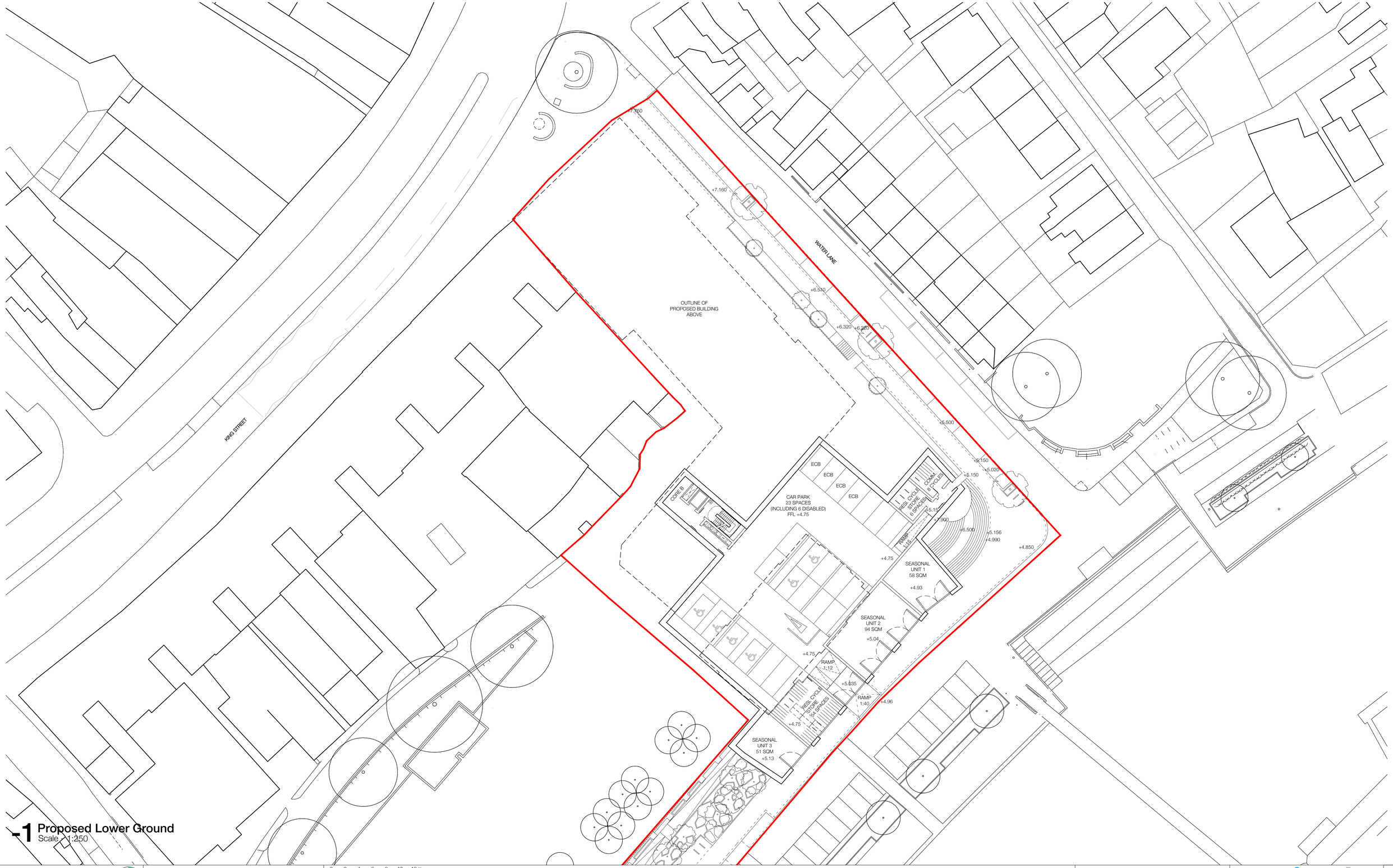
PRELIMINARY



-1 Proposed Lower Ground

Scale - 1:250

0 2 4 6 8 10 12 m

Scale 1:250

ECB= Electrical Charging Bay

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Rev.	Des.	By	Date	Ch.
P01	PLANNING SUBMISSION	RPP	24.11.17	RGF

Location Plan

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Project: Twickenham Rediscovered Programme Riverside Project	Job No. 31033
Title: Proposed Lower Ground	
Scale: 1:250 @ A1, 1:500 @ A3	Drawn By: RPP
Date: November 2017	Checked By: RGF
Drawing No: (20)_099	Revision: P01

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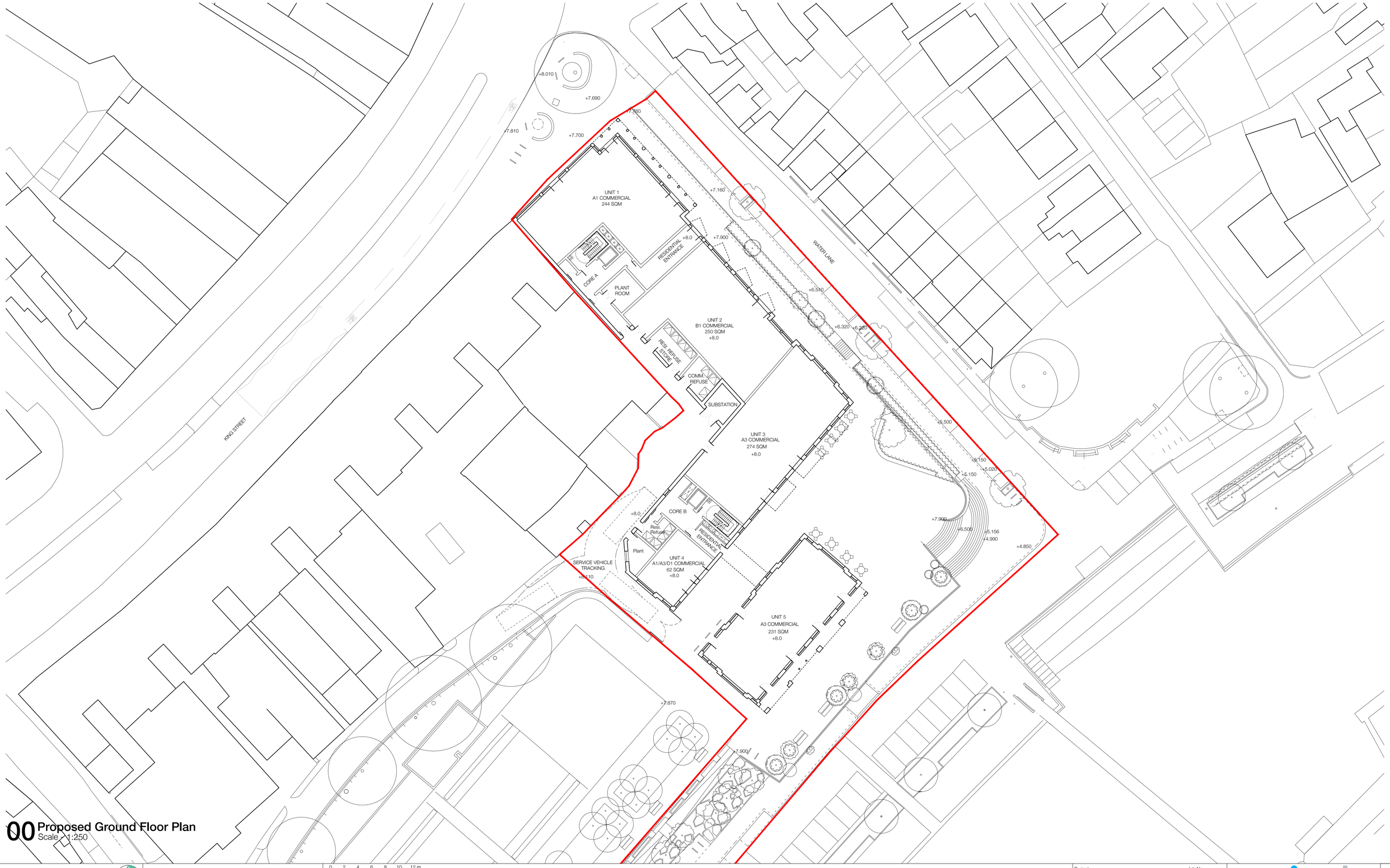
PLANNING



00 Proposed Ground Floor Plan

Scale - 1:250

0 2 4 6 8 10 12 m

Scale 1:250

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Rev.	Des.	By	Date	Ch.
P01	PLANNING SUBMISSION	RPP	24.11.17	RGF

Location Plan

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Project: **Twickenham Rediscovered Programme**
Riverside Project

Job No. **31033**

Title: **Proposed Ground Floor Plan**

Scale: **1:250 @ A1, 1:500 @ A3**

Drawn By: **RPP**

Date: **November 2017**

Checked By: **RGF**

Drawing No: **(20)_100**

Revision: **P01**

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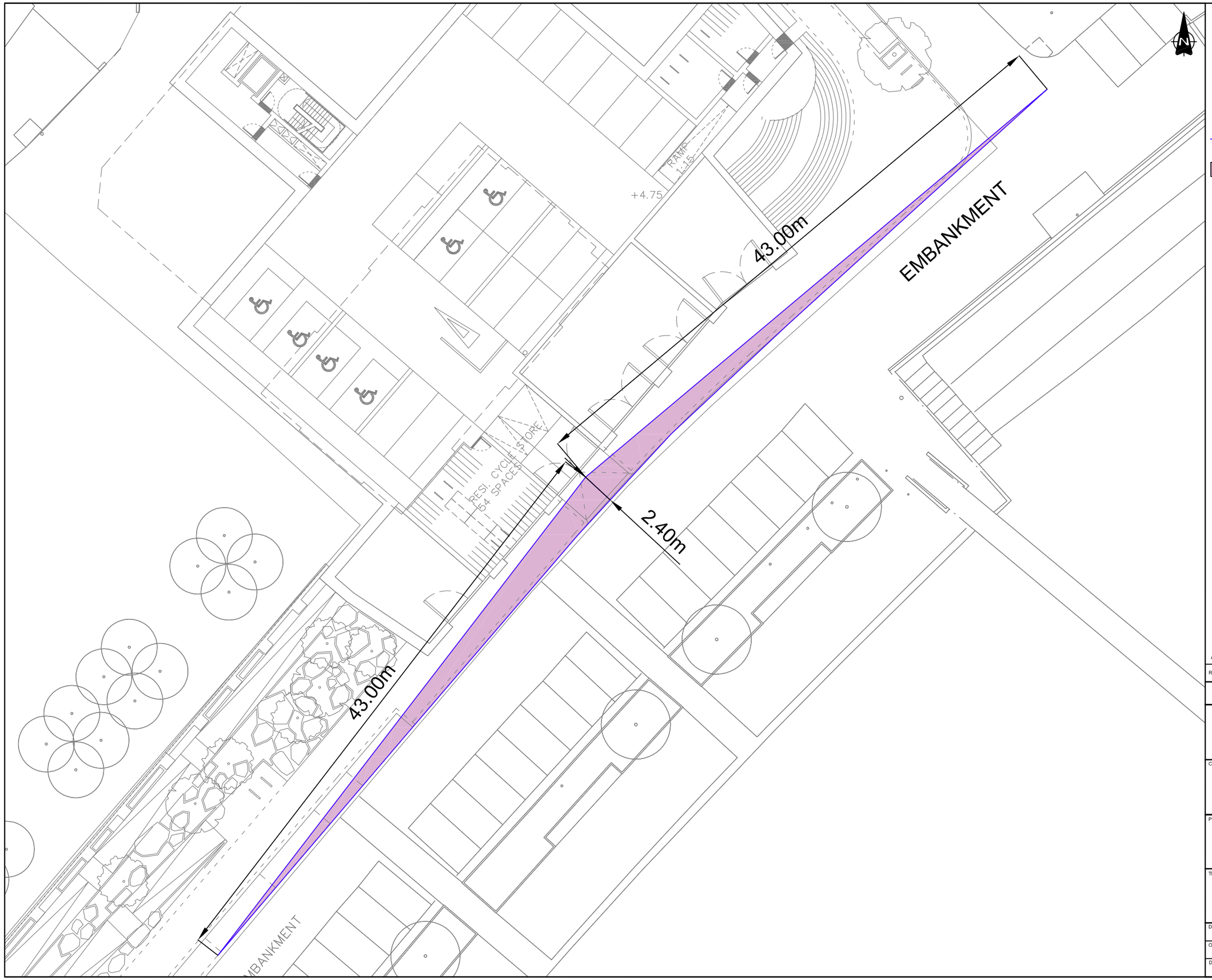
PLANNING

Appendix H: Access Visibility Splay and Swept Path Analysis



Notes

1. The measured details in this drawing are indicative only
2. Do not scale from this drawing
3. All dimensions are in metres, unless otherwise stated

Key

Visibility Splay

Area of Footway to be Kept Clear for Visibility Splay

Rev.	Date	Revision details	Drawn	Checked	Approved
A	23/11/17	Revised with site layout	DH	GF	-

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Client

London Borough of Richmond upon Thames

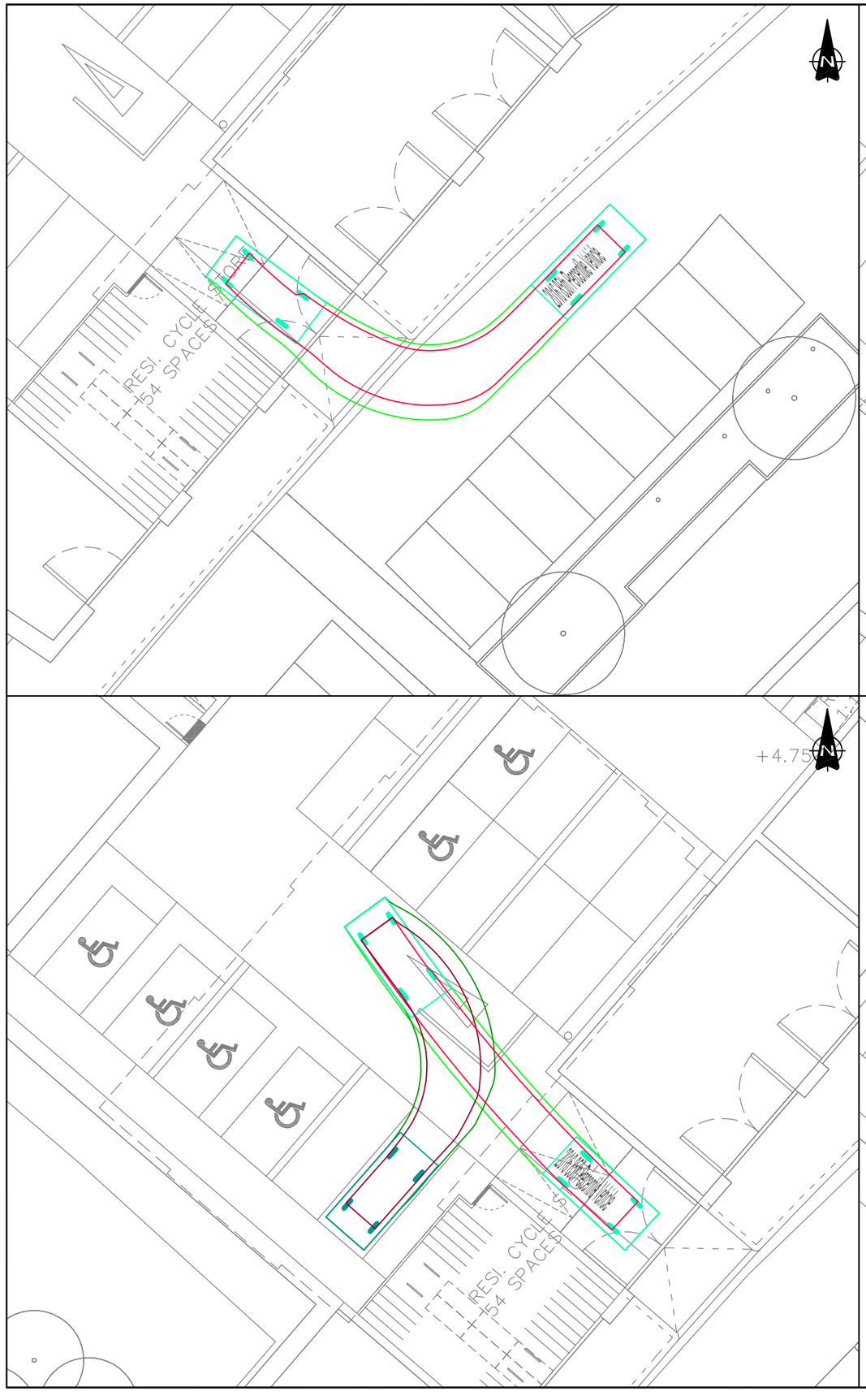
Project

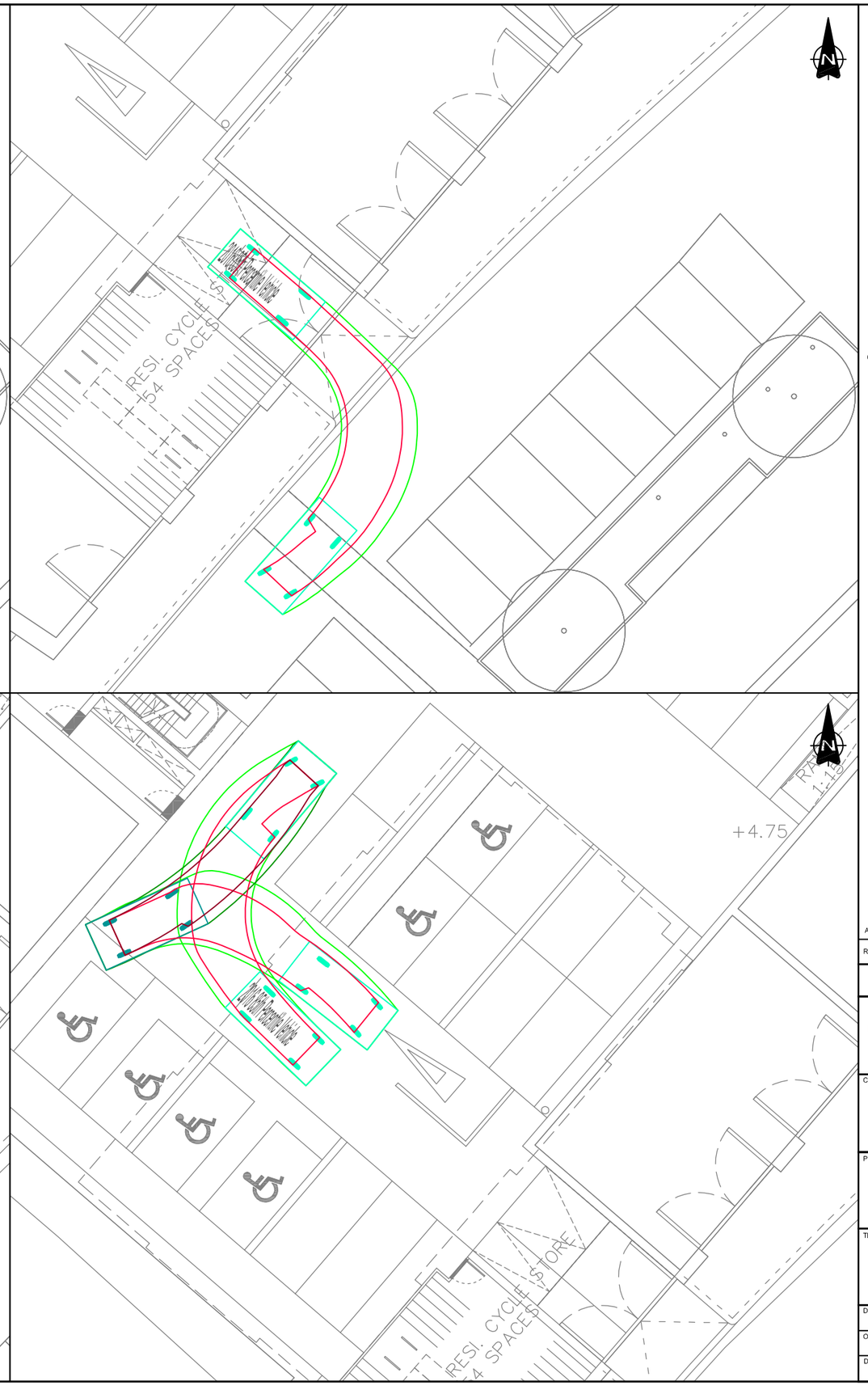
Twickenham Rediscovered Programme - Riverside Project

Title

Underground Carpark Access Visibility Splay

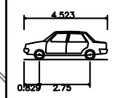
Drawn	Checked	Approved
DH	GF	-
Orfginal drg. size: A3	Date: 07/11/2017	Scale: 1:250
Drawing Status: Preliminary	Drawing Number: 106125-22	Rev. A





Notes

1. The measured details in this drawing are indicative only
2. Do not scale from this drawing
3. All dimensions are in metres, unless otherwise stated
4. Vehicle forward speed is 5kph outside the car park and 2.5kph inside.
5. Vehicle reverse speed is 2.5kph outside the car park and 1kph inside.
6. Dry steering has not been used unless stated



2016 85th Percentile Vehicle	
Overall Length	4.523m
Overall Width	2.022m
Overall Body Height	1.525m
Min Body Ground Clearance	0.223m
Max Track Width	1.560m
Lock to Lock Time	3.00s
Kerb to Kerb Turning Radius	5.728m

Rev.	Date	Revision details	Drawn	Checked	Approved
A	23/11/17	Revised with site layout	DH	GF	-

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Client

London Borough of
Richmond upon Thames

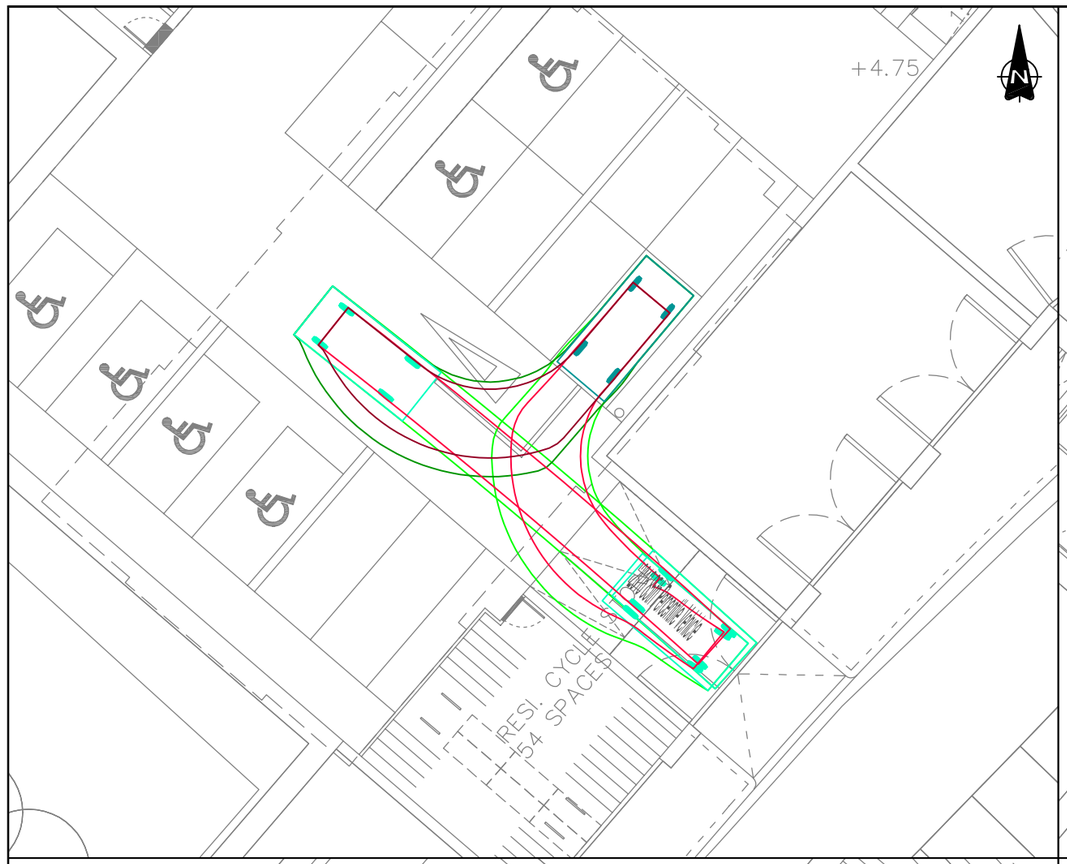
Project

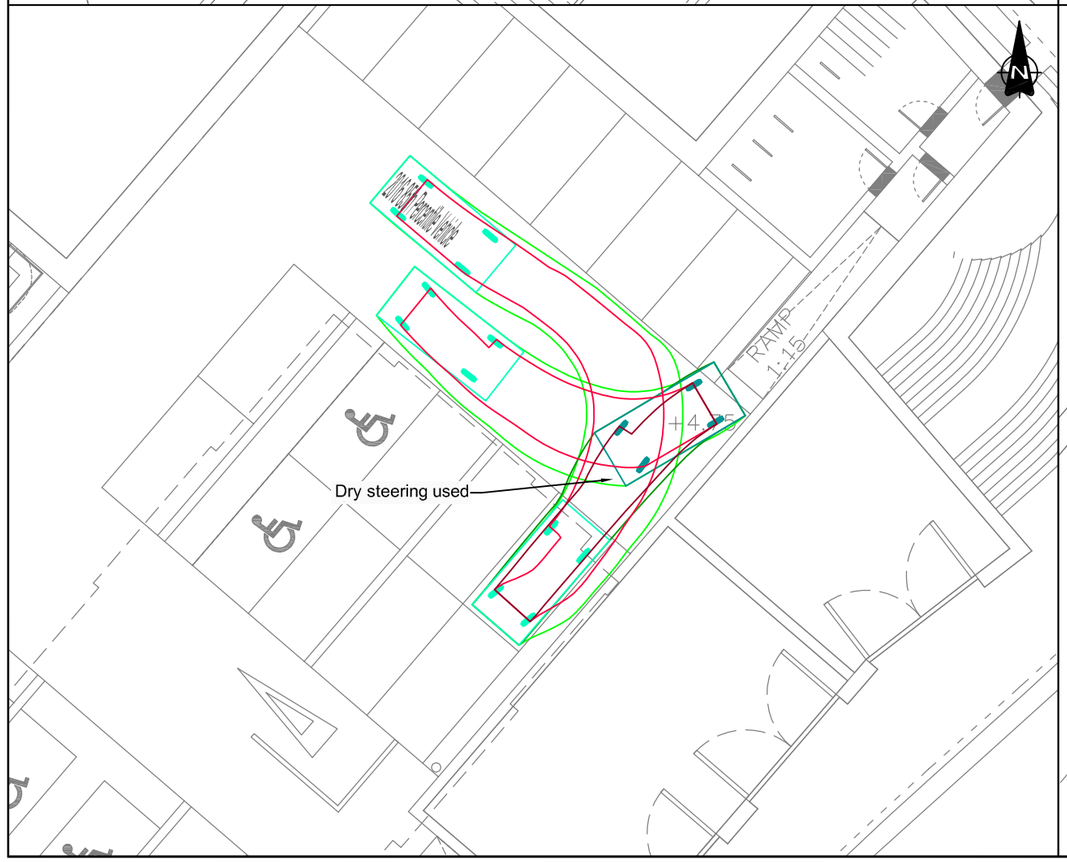
Twickenham Rediscovered Programme -
Riverside Project

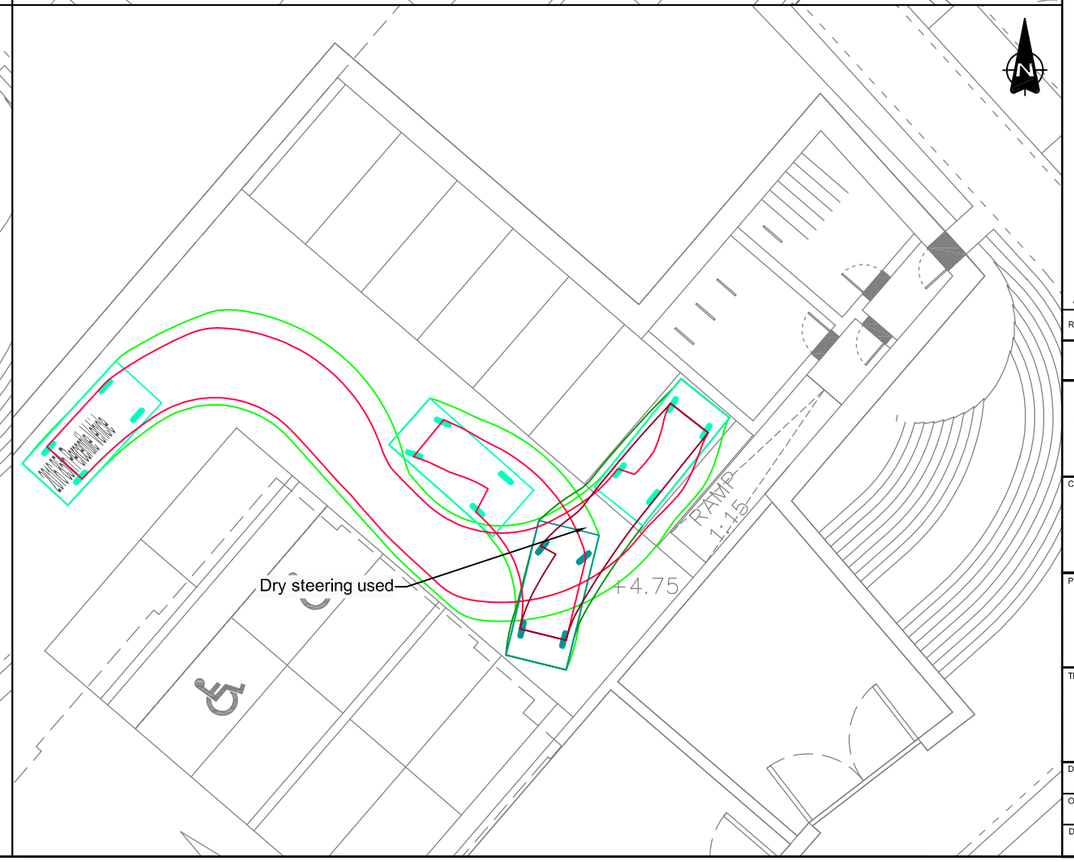
Title

Underground Carpark
Swept Path Analysis
85th Percentile Vehicle
Sheet 1 of 2

Drawn	Checked	Approved
DH	GF	-
Orfginal drg. size: A3	Date: 07/11/2017	Scale: 1:250
Drawing Status: Preliminary	Drawing Number: 106125-23	Rev. A







Notes

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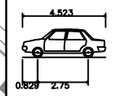

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Rev.	Date	Revision details	Drawn	Checked	Approved
A	23/11/17	Revised with site layout	DH	GF	-

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London Borough of Richmond upon Thames

Project

Twickenham Rediscovered Programme - Riverside Project

Title

Underground Carpark
Swept Path Analysis
85th Percentile Vehicle
Sheet 2 of 2

Drawn	Checked	Approved
DH	GF	-
Original drg. size: A3	Date: 07/11/2017	Scale: 1:250
Drawing Status: Preliminary	Drawing Number: 106125-24	Rev.: A

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