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**The Re-Development of Water Tower House
and the Former Campden Hill Reservoir Site**

Transport Impact Assessment

Client: St James Homes/Thames Water Property

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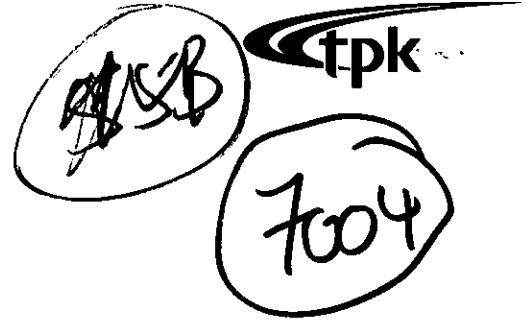


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1.0 INTRODUCTION

1.1 This report assesses the transportation impact arising from the proposed re-development of Campden Hill Reservoirs in the Royal Borough of Kensington and Chelsea (RBKC). The site proposals comprise the construction of 19 houses and 43 flats together with the reconstruction of 12 tennis courts. Most existing structures and facilities on site will be removed.

1.2 This reports updates and supersedes our earlier Transport Impact Assessment (Ref: 10145-01C) submitted in support of planning applications Ref 98/2126, 2128. The report is being submitted in support of :

- a) revised details (March 1999) for Application Nos 98/2126, 2128, and
- b) a new Planning Application (March 1999).

Both the above are identical in content.

1.3 The total number of dwellings proposed is no different from our earlier report but the number of houses has decreased by two and the number of flats increased by two. This report takes account of this small change and also includes other changes recently discussed with RBKC, as follows:

- a) use of an alternative trip distribution for traffic leaving the site; and
- b) use of higher base traffic flows on Aubrey Walk (i.e. based on RBKC survey); and
- c) alteration to the proposed layout of replacement on-street parking bays on Aubrey Walk.

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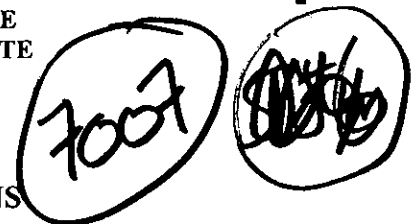


1.4 The report is divided into six further sections comprising:

- Existing transportation conditions
- Current and potential use of existing site
- Operational assessment of existing situation
- Re-development proposals
- Impact of re-development on surrounding highway network
- Summary and conclusions

1.5 The assessment concludes that there is no material impact on the adjoining highway network resulting from the development proposals on the site.

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2.0 EXISTING TRANSPORTATION CONDITIONS

2.1 STRATEGIC HIGHWAY NETWORK

2.1.1 Figure 1 shows the site in relation to the adjacent strategic highway network. The A40 Notting Hill Gate runs east/west to the north of the site. It is a primary designated route linking the M41 with Central London and is the responsibility of the Royal Borough of Kensington and Chelsea (RBKC). In the vicinity of the site, the A40 is single carriageway.

2.2 LOCAL HIGHWAY NETWORK

2.2.1 Figure 2 shows the site in relation to the local highway network. Campden Hill Road runs north/south between Notting Hill Gate and Kensington High Street. It is generally wide enough for opposing vehicles to pass even with cars parked on both sides of the road. Most parking along Campden Hill Road is for resident permit holders only. To the south, Campden Hill Road is one way in the northbound direction between Holland Street and Kensington High Street. Access south to Kensington High Street is achieved via Holland Street and Hornton Street. Access on to Kensington High Street from Hornton Street is left turn only. Westbound vehicles have to turn along Phillimore Walk to Argyll Road where access to Kensington High Street is provided via a signalised junction.

2.2.2 To the north, Campden Hill Road forms a signalised junction with Notting Hill Gate. At the junction Campden Hill Road has a single approach lane, Notting Hill Gate has two approach lanes westbound and two approach lanes plus a right turn eastbound.

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2.2.3 Aubrey Walk fronts the northern site boundary. It is a quiet residential road linking Aubrey Road to Campden Hill Road. The road varies in width from around 5.5m at its western end to 6.5m to the east. On-street parking limits the available carriageway width to a single lane in places. This is consistent with other residential roads in the area and is effective in encouraging slow traffic speeds. The junction with Campden Hill Road is a staggered crossroads with Kensington Place, which is a one-way link towards Campden Hill Road.

2.2.4 There are two existing accesses on Aubrey Walk into the site. The first is to the west of Campden Hill Gardens. The second is directly opposite Hillsleigh Road and is currently gated. Visibility from both accesses is restricted by development at the back of footway and by vehicles parking on-street along Aubrey Walk.

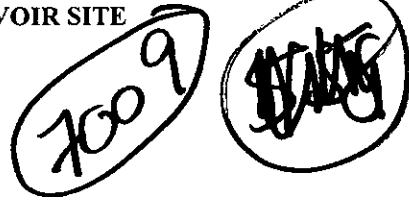
2.3 ON-STREET PARKING

2.3.1 Existing on-street parking bays in the vicinity of the site are shown on Figure 3. On Campden Hill Road there are 12 parking spaces in the vicinity of Water Tower House, which include four parking meters on the west side of Campden Hill Road, and spaces for around eight resident permit holders on the east side of Campden Hill Road.

2.3.2 Along Aubrey Walk, between Campden Hill Road and Hillsleigh Road, there are three parking meters and spaces for around seven resident permit holders on the south side, and for around four resident permit holders on the north side. To the west of Hillsleigh Road there are spaces for four resident permit holders on the south side of Aubrey Walk.

2.3.3 Waiting restrictions, in the form of single yellow lines, are in force on areas of carriageway outside the marked parking bays.

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2.4 ACCIDENTS

2.4.1 The location of Personal Injury Accidents in the vicinity of the site in the three years from June 1994 to May 1997 are shown on Figure 4.

2.4.2 There have been ten recorded accidents at or close to the junction of Notting Hill Gate and Campden Hill Road. Of these accidents only two have involved traffic turning in to or out of Campden Hill Road. It is therefore considered that there are no abnormal safety problems with turning movements at this junction.

2.4.3 Of the accidents on Campden Hill Road six have involved pedestrians. However, there has been no apparent pattern either to the cause or the location of these accidents.

2.4.4 There are no recorded accidents along Aubrey Walk or the side roads and accesses off Aubrey Walk.

2.5 PEDESTRIANS AND CYCLISTS

2.5.1 There are adequate pedestrian facilities in the area adjacent to the site. Footways are provided on both sides of all roads. There is a zebra crossing across Campden Hill Road close to junction between Campden Hill Road, Airlie Gardens and Bedford Gardens.

2.5.2 Although the signals between Notting Hill Gate and Campden Hill Road do not have a dedicated pedestrian phase, pedestrians are able to cross Notting Hill Gate unopposed by traffic. In addition there is a pelican crossing across Notting Hill Gate 140m to the east of the junction with Campden Hill Road.

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2.5.3 With the exception of Holland Walk, to the west of the site, there are no other cycle lanes or other cycle facilities on the local road network surrounding the site.

2.6 PUBLIC TRANSPORT

2.6.1 The site has excellent bus provision as shown in Table 1. The nearest bus stop is at Notting Hill Gate Underground Station. This bus stop is served by all the buses shown in Table 1, around 700 metres or within 7 minutes' walking distance of the site.

2.6.2 Figure 1 shows the underground stations in proximity to the site. Holland Park (approximately 500m or five minutes walking time from the site) and Notting Hill Gate (700m or around seven minutes walking time from the site) are both on the Central Line. Notting Hill Gate is an interchange station between the Central, District and Circle Lines. Paddington main line station is easily accessed from the site by the underground since it is two stops from Notting Hill Gate station and is within walking distance.

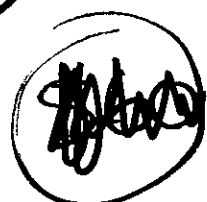
2.6.3 There is therefore excellent provision for public transport in the vicinity of the site.

2.7 EXISTING TRAFFIC FLOWS

2.7.1 Morning and evening manual classified counts were undertaken between 07.30-09.30 and 16.30-18.30 on Thursday 17 July 1997 at the following junctions:

- Notting Hill Gate/Campden Hill Road

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- Campden Hill Road/Aubrey Walk/Kensington Place

2.7.2 These counts identified the morning peak hour to be 08.30 to 09.30 and the evening peak hour to be 17.30 to 18.30. Additional data supplied by the Borough Council from an Automatic Traffic Counter (ATC) survey on Aubrey Walk on 29 September 1997, show a close correlation except for the westbound evening peak traffic flow on Aubrey Walk where an increase of 37 vehicles per hour was recorded; i.e. 104 vehicles as opposed to 67 vehicles counted in the July 1997 survey.

2.7.3 It has been agreed with the Borough Council that the higher flow will be used for assessment purposes. The manual count data for the Aubrey Walk/Campden Hill Road junction has been factored accordingly and is summarised on Figure 5.

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3.0 CURRENT AND POTENTIAL USE OF EXISTING SITE

3.1 The site has a long-standing usage by the Thames Water Authority, although in recent years the level of operations has been scaled down. The extent of each element of the existing development is as follows:

- Industrial Depot (625 sqm GFA)
- Office (702 sqm GFA)
- 12 Tennis courts
- 15 Private Flats

3.2 It is noted that, although operations have recently been scaled down, the office and industrial buildings have the potential to operate on a more intensive basis, thus generating additional traffic.

3.3 No records of historic traffic movements to/from the site are available so the TRICS trip generation database has been interrogated to identify land uses similar in size and location for each element of the site. The resulting trip generation rates are shown in Table 2. These trip rates were applied to the existing land uses on the site to give the potential trip generation for the current uses on the site. The results are shown in the table in Section 3.5 below. The TRICS sites used are included in Appendix A.

3.4 Two base cases have been considered for assessment purposes:

- i) existing traffic, including the tennis courts and 15 flats
- ii) existing and potential traffic, including an allowance for the elements of the site currently vacant, but which have the potential to resume as lawful uses.

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3.5 Estimated movements for both scenarios are summarised in the tables below:

Existing Traffic Movements

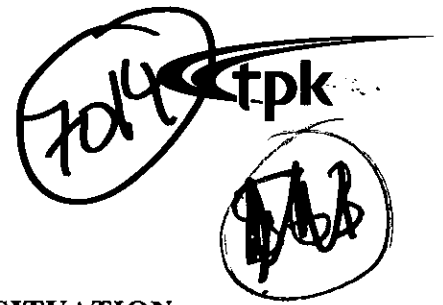
	08.00-09.00			17.00-18.00		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Flats	1	4	5	3	2	5
Tennis Courts	3	1	4	21	25	46
Total	4	5	9	24	27	51

Existing Plus Potential Traffic Movements

	08.00-09.00			17.00-18.00		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Flats	1	4	5	3	2	5
Tennis Courts	3	1	4	21	25	46
Industrial/Depot	6	2	8	1	5	6
Offices	11	0	11	0	10	10
Total	21	7	28	25	42	67

3.6 The peak hour network flows for potential site traffic and existing plus potential site traffic are given in Figures 6 and 7. In both cases, traffic associated with the tennis courts and flats is inherent within existing network flows. In accordance with current arrangements, traffic associated with the tennis courts does not enter the site.

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4.0 OPERATIONAL ASSESSMENT OF EXISTING SITUATION

4.1 In urban areas it is generally accepted that junctions control the capacity of a highway network rather than links. As the proposed development is located within an urban area, junction capacity has been assessed at the following locations:

- i) Notting Hill Gate/Campden Hill Road
- ii) Campden Hill Road/Aubrey Walk.

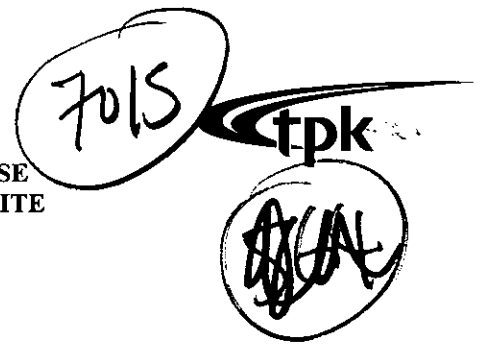
4.2 As identified, assessments of base traffic have been undertaken on the following basis:

- i) existing traffic
- ii) existing plus potential traffic.

4.3 The A40 Notting Hill Gate/Campden Hill Road signalised junction was assessed using OSCADY3 and the results are summarised in Table 3 for scenarios (i) and (ii). The traffic signal timings were obtained from Traffic Control System Unit, Corporation of London. It can be seen from Table 3 that the junction is approaching capacity on all arms except the straight ahead movement from Notting Hill Gate (west) in both scenarios during both peak periods. The calculated queue lengths correlate with those observed on site during peak hours. These RFCs and queues are considered to be acceptable for an urban location in the peak hour.

4.4 The Campden Hill Road/Aubrey Walk/Kensington Place staggered priority junction was assessed using PICADY3 and the results are summarised in Table 4. The results show that the junction operates with significant spare capacity with either existing or existing plus potential traffic levels.

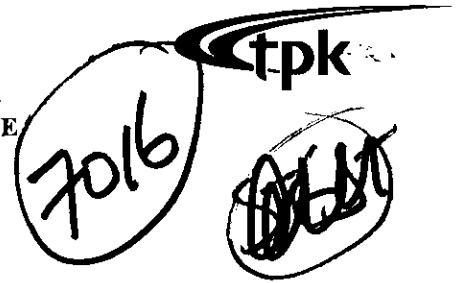
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4.5

It is noted that whereas PICADY indicates zero queuing under existing traffic flows, this does not in practice fully reflect observed peak hour conditions where some limited, short duration queuing occurs on Aubrey Walk. This is due to the intermittent blocking of traffic flow along Campden Hill Road due to constraints on either side of the junction. When traffic is stationary on Campden Hill Road, traffic exiting from Aubrey Walk is temporarily delayed and some queuing occurs. Observations during the morning peak hour indicate that these conditions are most likely to occur between 08.30 and 08.45 with queues on Aubrey Walk of 2 to 8 vehicles. The queues build up and disperse within 2 to 5 minutes. PICADY models junction capacity rather than link capacity and therefore does not detect the observed queues. The PICADY results do, however, provide a basis for the comparison of existing and future junction capacity. It is noted that for the majority of the peak period, the queues on Aubrey Walk are minimal as predicted by PICADY.

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5.0 RE-DEVELOPMENT PROPOSALS

5.1 GENERAL

5.1.1 The re-development proposals are shown on the revised site plan prepared by Broadway Malyan (Drg No 7650/P101A). The proposals include:

- 43 flats
- 19 houses
- 12 tennis courts and a practice court

5.2 ACCESS ARRANGEMENTS

5.2.1 It is proposed to close the two existing points of access from Aubrey Walk and replace them with a single access as shown on Figure 8. A 5m wide, shared surface, private drive is proposed with kerb radii of 4.0m. The access is approximately 7m to the west of the existing entrance to Water Tower House. Visibility splays of 4m x 15m are proposed in accordance with RBKC standards (Figure 5.3 of the adopted UDP 1995).

5.2.2 The proposed access represents a significant improvement over the existing site access arrangements, particularly in respect of junction visibility which is severely constrained at the two existing access points.

5.2.3 The access proposals will necessitate the relocation of three on-street parking spaces. These can be replaced adjacent to the existing reservoir site access (opposite Hillsleigh Road). Discussions with RBKC have led to a redesign of the parking proposals identified in our earlier report, and our proposed layout now complies with the Borough's preference for "parallel" parking at this location - see Figure 8.

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- 5.2.4 It is noted that a number of access options were assessed before the selection of the proposed solution. In particular, consideration was given to the use of the two existing site accesses serving the adjoining Kensington Heights development. One of these accesses is onto Campden Hill Road and the other is on Airlie Gardens. These two accesses currently operate on a one-way basis with inbound traffic entering from Airlie Gardens and outbound traffic exiting onto Campden Hill Road.
- 5.2.5 The Campden Hill Road exit point is immediately adjacent to a second entrance/exit point serving the Kensington Heights underground car park. Any intensification of the use of this exit point would increase conflicting turning movements at this location with the likelihood that highway safety would be adversely affected. It is also noted that there is insufficient space between Aubrey Walk and the existing Kensington heights access to accommodate an additional access onto Campden Hill Road without compromising junction spacing standards.
- 5.2.6 The possible widening of the Airlie Gardens access, to accommodate two-way traffic, was also considered but rejected on the grounds that it would increase traffic flows adjacent to several residential properties and intensify turning movements immediately outside the entrance to Holland Park School thus conflicting with existing pedestrians and vehicular traffic.
- 5.2.7 The proposed access on Aubrey Walk avoids the above difficulties by minimising the number of properties affected by additional traffic and by minimising conflicting turning movements with existing vehicular and pedestrian traffic.

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5.3 CAR PARKING

5.3.1 On site car parking provision will be in accordance with RBKC Table 5.1 of the adopted UDP (1995). This will include an allowance for visitor parking based on 0.1 spaces per dwelling and 10% disabled parking spaces.

5.3.2 The car parking requirement in accordance with UDP standards is calculated as follows:

19 houses at 2 per dwelling	38 spaces
43 flats at 1 per dwelling	43 spaces
Visitor parking at 0.1 per dwelling	7 spaces
	Total 88 spaces

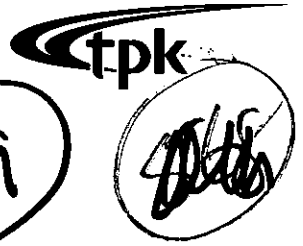
5.3.3 It is proposed that each of the 19 houses will be provided with a garage plus an adjacent parking space. Car parking for the flats and visitors will be provided beneath the proposed flats (see Broadway Malyan Architects basement layout drawing 7650/P100A).

5.3.4 As referred to in 5.2.3, some relocation of existing on-street parking spaces is proposed but the net amount of on-street parking space will remain unchanged.

5.4 TRIP GENERATION

5.4.1 The TRICS trip generation database has been interrogated to identify appropriate trip rates for the proposed land uses. The rates are given in Table 2 and the sites selected are given in Appendix A. The proposed generated site traffic is as follows:

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	08.00-09.00			17.00-18.00		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Flats 43 No	4	11	15	9	7	16
Houses (19 No)	2	4	6	5	5	10
Tennis Courts 12 No	3	1	4	21	25	46
Total	9	16	25	35	37	72

Traffic associated with the tennis courts does not gain access to the site and hence site access traffic amounts to residential use only.

5.4.2 Since the preparation of our October 1998 report, further investigation of residential trip generation rates has been undertaken in consultation with the Borough Council. Surveys at the Berkeley Homes development at Barnes (with a similar mix and style of housing) revealed very similar traffic generation rates of 0.37 in the AM peak and 0.30 in the PM peak, compared with 0.35 AM and 0.42 PM used in this report. It should be noted that the Barnes site is less accessible by public transport than the Campden Hill site and therefore a lower trip rate is expected at Campden Hill. Other data held by the Borough Council indicates significantly lower traffic generation at other new sites in the Borough (for example an AM rate of 0.16 and a PM rate of 0.14 were recorded at the St Mary Abbots site off Marloes Road). The rates used in this report are therefore considered to be robust.

5.4.3 It is noted that the number of tennis courts is unchanged in both the existing and future scenarios and accordingly, no net change in peak hour tennis-related traffic is envisaged. Since existing tennis traffic is already accounted for within the base traffic survey data, it has not been necessary to add the above tennis trips to the future, with development, analyses (to do so would result in double counting).

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5.4.4 The availability of six indoor courts will enable play to continue at times when the existing outdoor courts are not used (for example, during winter evenings). The traffic activity associated with this use will clearly be well below the maximum summer-time use of the club recorded in the July traffic surveys. It is therefore clear that the assessment presented in this report reflects a worst case in terms of tennis-related traffic activity.

5.4.5 A comparison of the differences between existing uses, potential uses and proposed uses of the site is shown in the table below:

	08.00-09.00			17.00-18.00		
	Arrivals	Departures	Total	Arrivals	Departures	Total
(i) Existing	4	5	9	24	27	51
(ii) Existing plus Potential	21	7	28	25	42	67
(iii) Proposed	9	16	25	35	37	72
Net Difference						
(iii) - (i)	+5	+11	+16	+11	+10	+21
(iii) - (ii)	-12	+9	-3	+10	-5	+5

5.5 TRIP DISTRIBUTION

5.5.1 The inbound trip distribution has been based on existing observed turning movements and is unchanged from our previous October 1998 report, i.e. trips into the site are assumed to be 95% from Campden Hill Road and 5% from Aubrey Road. At the staggered priority junction between Campden Hill Road, Kensington Place and Aubrey Walk, allowance has been made that 5% of site bound traffic comes from Kensington Place.

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5.5.2 Following discussions with the Borough Council, the outbound trip distribution has been modified on the basis that all westbound trips leaving the site will travel via Aubrey Road. This increases the proportion of left turners compared with our October 1997 report. The revised distribution is shown on Figure 9 with the proposed site flows shown on Figure 10.

5.5.3 The total turning movements with existing and site generated traffic are shown in Figure 11.

6.0 IMPACT OF RE-DEVELOPMENT ON HIGHWAY NETWORK

6.1 GENERAL

6.1.1 The site is located within an urban network where the scope for traffic growth in the peak hours is likely to be limited and constrained by the capacity of the network. For assessment purposes, zero peak hour traffic growth has been assumed.

6.1.2 Site generated traffic is calculated to increase peak hour traffic movements on Campden Hill Road by less than 2% north and south of Aubrey Walk in both the AM and PM peak hours.

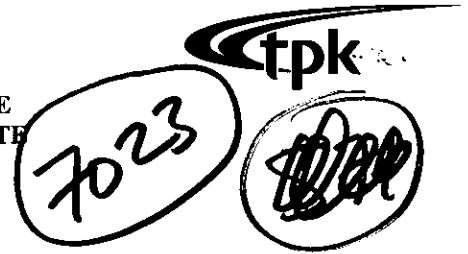
6.1.3 The junctions of Campden Hill Road/Notting Hill Gate and Campden Hill Road/Aubrey Walk/Kensington High Street have been assessed with the addition of development traffic. The results are discussed below.

6.2 JUNCTION ASSESSMENTS

6.2.1 **Notting Hill Gate/Campden Hill Road signalised Junction.**

6.2.1.1 The results of the operational assessment are summarised in Table 3 and show the comparison with the existing and existing plus potential operating conditions for the AM and PM peak periods.

6.2.1.2 It can be seen that there is a very marginal increase in the ratio of flow to capacity (RFC) for all arms of the junction in the morning and evening peak periods. The Campden Hill Road and Nottinghill Gate (East) arms of the junction already experience RFC values greater than 0.85 in the PM peak. The addition of site generated traffic marginally increases these RFC's but with no



increase in queue length. Only one predicted queue increases by comparison with the existing traffic and this by only one vehicle on Campden Hill Road in the morning peak. No increase in queues is seen when comparison is made with the existing plus potential traffic.

6.2.2 **Campden Hill Road/Aubrey Walk/Kensington Place staggered priority junction.**

6.2.2.1 Results are summarised in Table 4 for the predicted traffic flows. Table 4 also provides a comparison of the operating conditions between the existing and predicted flows. It shows that the junction has spare capacity on all arms.

6.2.2.2 As noted in paragraph 4.5, the PICADY assessment for this junction does not model temporary queuing on Aubrey Walk caused by stationary traffic on Campden Hill Road. Figure 10 shows that the development will generate 10 outbound vehicle movements on the Aubrey Walk arm of the junction in the AM peak and 8 outbound movements in the PM peak. This represents an average of one vehicle every 6 - 7 minutes during peak hours. Clearly traffic flows of this magnitude will not in practice materially worsen existing traffic conditions.

6.2.3 **Site Access**

6.2.3.1 The site access has been assessed using PICADY3. The results of the operational assessment are summarised in Table 5. It shows that there are no queues modelled during either peak period.

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7.0 SUMMARY AND CONCLUSIONS

7.1 This report addresses the transportation issues associated with the re-development of the Campden Hill Reservoir site for 19 houses, 43 flats, 12 tennis courts and a practice court.

7.2 Public transport provision close to the site is excellent. There are frequent bus services on Notting Hill Gate to many other parts of London. Holland Park and Notting Hill Gate underground stations are nearby providing services on the central, district and circle lines. It is therefore clear that occupiers of the development will have a good choice of alternative travel modes and will not be reliant on the use of a car.

7.3 It is proposed to close the two existing site accesses and replace them with a single access on to Aubrey Walk approximately 18m to the west of Campden Hill Gardens. The new access will provide significantly improved geometric and visibility standards compared with the existing access arrangements. Three existing on-street parking bays are to be relocated but there will be no net change to the number of spaces available. Capacity analyses show that the access will operate with significant spare capacity.

7.4 The proposed development is estimated to generate a total of 25 vph in the AM peak and 72 vph in the PM peak. This compares with existing site uses which generate 9 vph and 51 vph in the AM and PM peaks respectively; i.e. a net increase of only 16 vph (AM) and 21 vph (PM). It is noted, however, that if the existing depot and office uses on site were to be reinstated, the site would generate around 28 vph in the AM peak and 67 vph in the PM peak, resulting in a net difference between potential and proposed uses of -3 vph and +5 vph in the AM and PM peak periods respectively.

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**THE RE-DEVELOPMENT OF WATER TOWER HOUSE
AND THE FORMER CAMPDEN HILL RESERVOIR SITE
TRANSPORT IMPACT ASSESSMENT**

7.5

The operational assessment of the critical junctions in the vicinity of the site shows that the signalised junction between Notting Hill Gate and Campden Hill Road is currently very close to capacity. The addition of site generated traffic has a very marginal effect; it increases the predicted queue on the Campden Hill Road arm in the AM peak by one vehicle (from seven vehicles to eight vehicles). The staggered priority junction between Aubrey Walk, Campden Hill Road and Kensington Place has also been assessed and the results show that the junction will continue to operate well within capacity after the site has been redeveloped. There are no increases in predicted queues as a result of the development. It is therefore concluded that site generated traffic will have a negligible impact in terms of the capacity and safety of the surrounding road network.

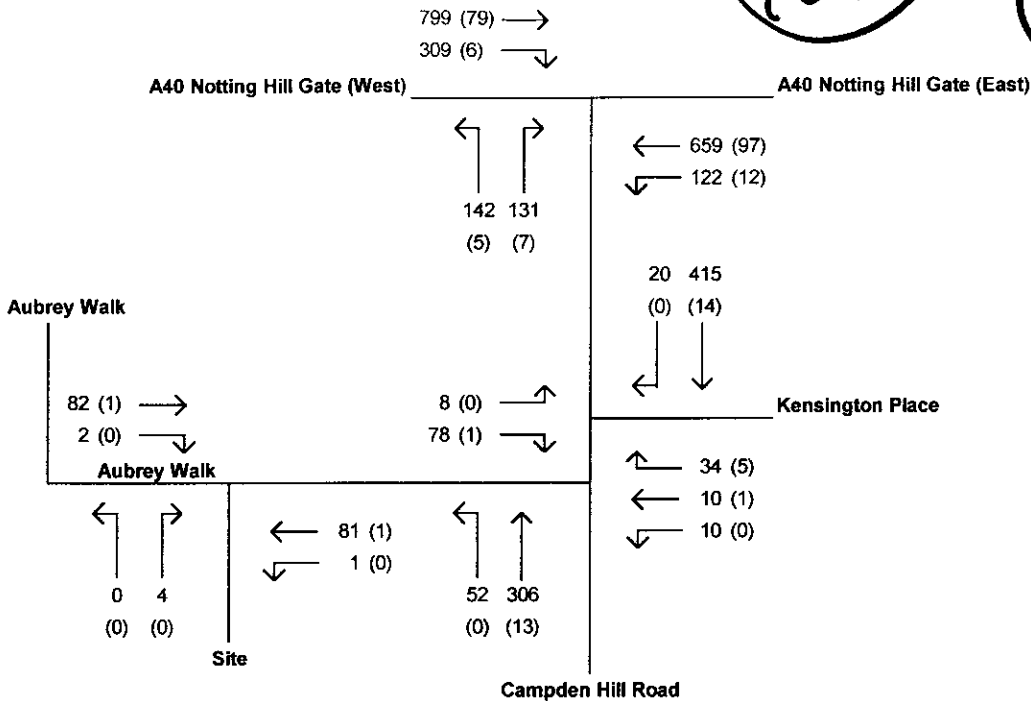
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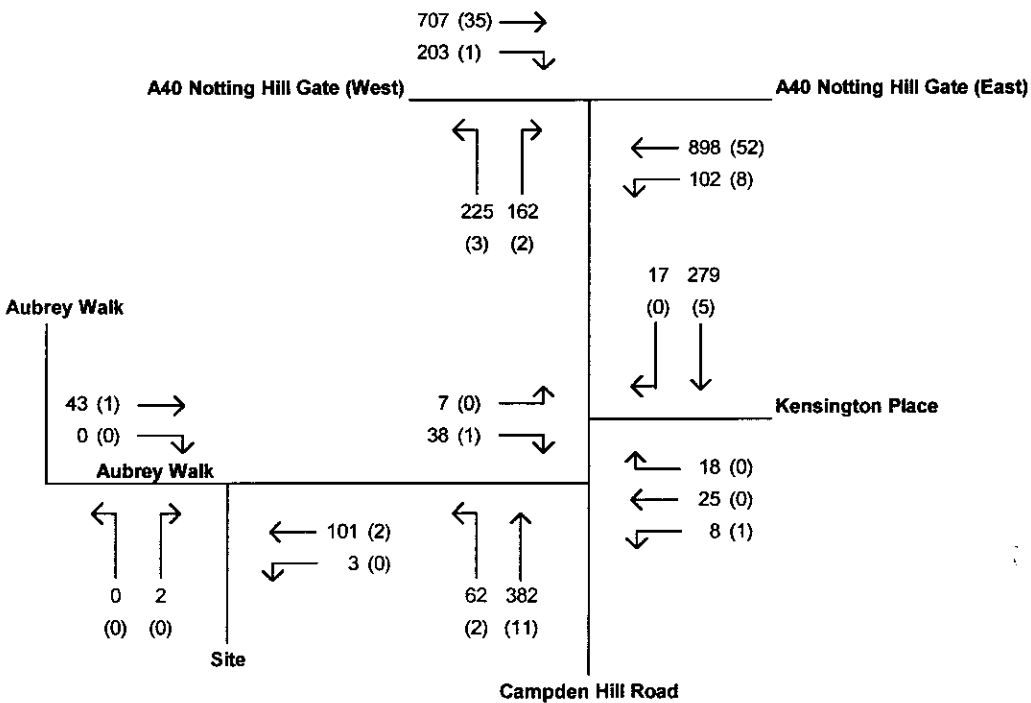
FIGURES

AM PEAK (0830 - 0930)

7027



PM PEAK (1730 - 1830)



Key

62 All Vehicles

(2) HGVs

TITLE

Campden Hill Reservoir

EXISTING PEAK HOUR FLOWS



Tucker Parry Knowles Partnership

Transportation & Infrastructure Consultants
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DATE
Mar 1999

SCALE
N.T.S.

REF
FIGURE 5

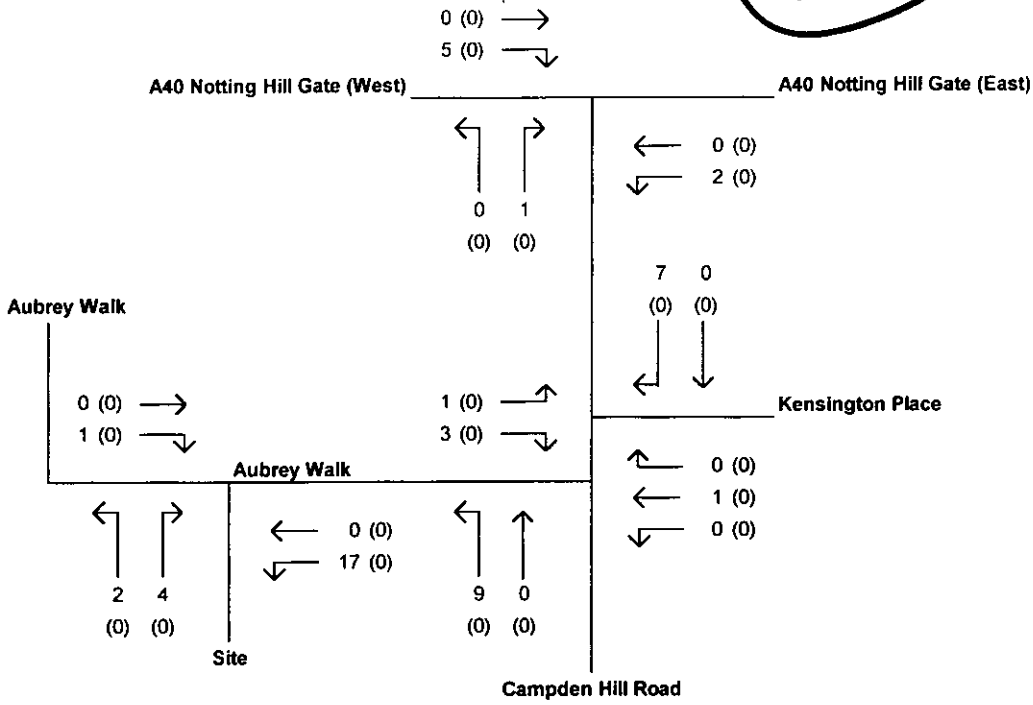
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10145/13

REV
A

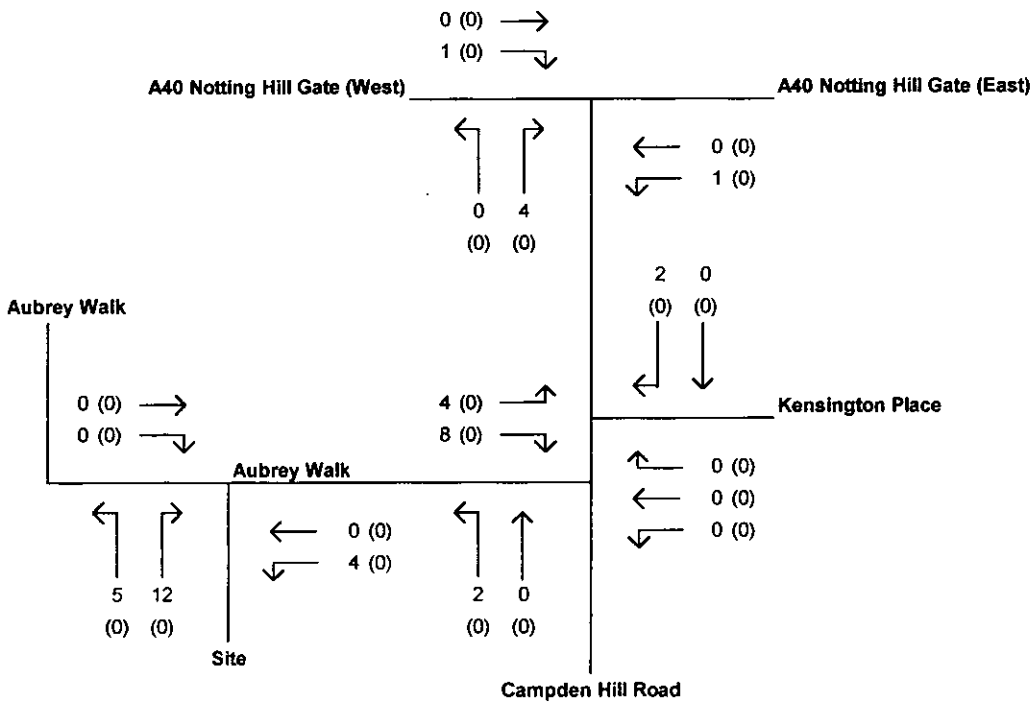
AM PEAK (0830 - 0930)

7028

~~7028~~



PM PEAK (1730 - 1830)



Key

2 All Vehicles

(0) HGVs

TITLE Campden Hill Reservoir

POTENTIAL SITE TRAFFIC FLOWS



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FIGURE 6

DRWG NO
10145/14

REV
A

AM PEAK (0830 - 0930)

7029

~~10800~~

799 (79) →
314 (6) ↘

A40 Notting Hill Gate (West)

A40 Notting Hill Gate (East)

← 142 (5)
→ 132 (7)

← 659 (97)
↘ 124 (12)

PP990733

Aubrey Walk

82 (1) →
3 (0) ↘

9 (0) →
81 (1) ↘

27 (0) ↓
415 (14) ↓

Kensington Place

Aubrey Walk

← 2 (0)
→ 8 (0)

← 81 (1)
↘ 18 (0)

← 61 (0)
→ 306 (13)

↑ 34 (5)
← 11 (1)
↘ 10 (0)

Site

Campden Hill Road

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PM PEAK (1730 - 1830)

707 (35) →
204 (1) ↘

A40 Notting Hill Gate (West)

A40 Notting Hill Gate (East)

← 225 (3)
→ 166 (2)

← 898 (52)
↘ 103 (8)

Aubrey Walk

43 (1) →
0 (0) ↘

11 (0) →
46 (1) ↘

19 (0) ↓
279 (5) ↓

Kensington Place

Aubrey Walk

← 5 (0)
→ 14 (0)

← 101 (2)
↘ 7 (0)

← 64 (2)
→ 382 (11)

↑ 18 (0)
← 25 (0)
↘ 8 (1)

Site

Campden Hill Road

Key

64 All Vehicles

(2) HGVs

TITLE

Campden Hill Reservoir

EXISTING PLUS POTENTIAL
SITE TRAFFIC FLOWS



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FIGURE 7

DRWG NO
10145/15

REV
A

INS

7030

~~15800~~

30%

A40 Notting Hill Gate (West)

A40 Notting Hill Gate (East)

Aubrey Walk

5%

Aubrey Walk

Site

95%

47.5%

Campden Hill Road

12.5%

42.5%

Kensington Place

5%

OUTS

30%

A40 Notting Hill Gate (West)

A40 Notting Hill Gate (East)

Aubrey Walk

5%

Aubrey Walk

Site

31%

69%

95%

47.5%

Campden Hill Road

0% 21.5%

12.5%

42.5%

Kensington Place

5%

TITLE

Campden Hill Reservoir

DISTRIBUTION OF GENERATED TRAFFIC



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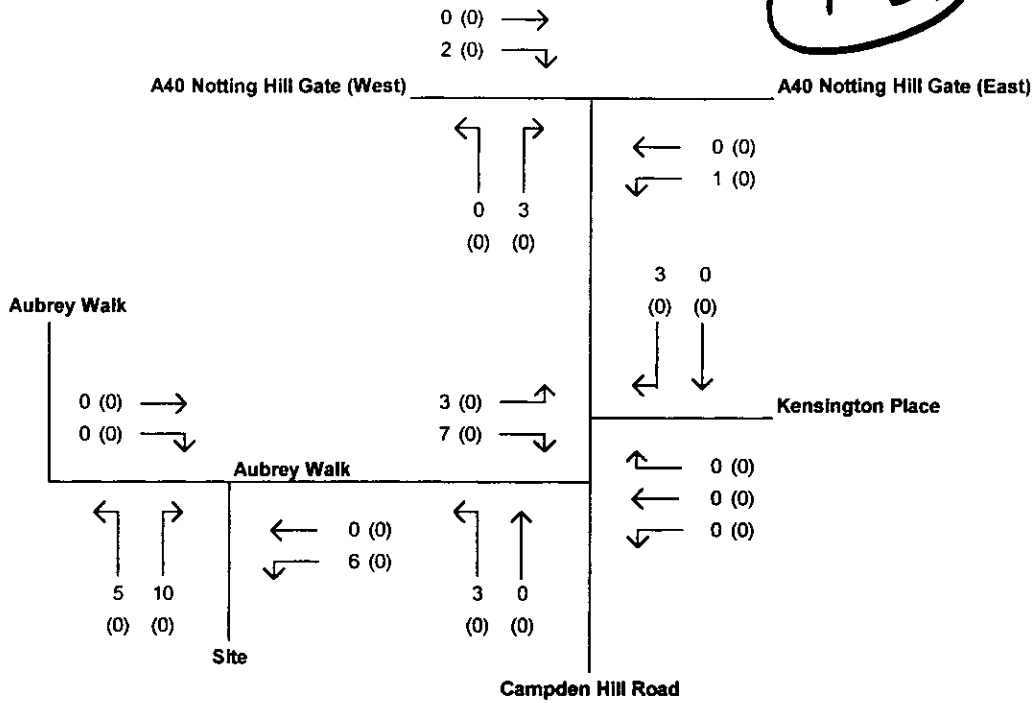
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FIGURE 9

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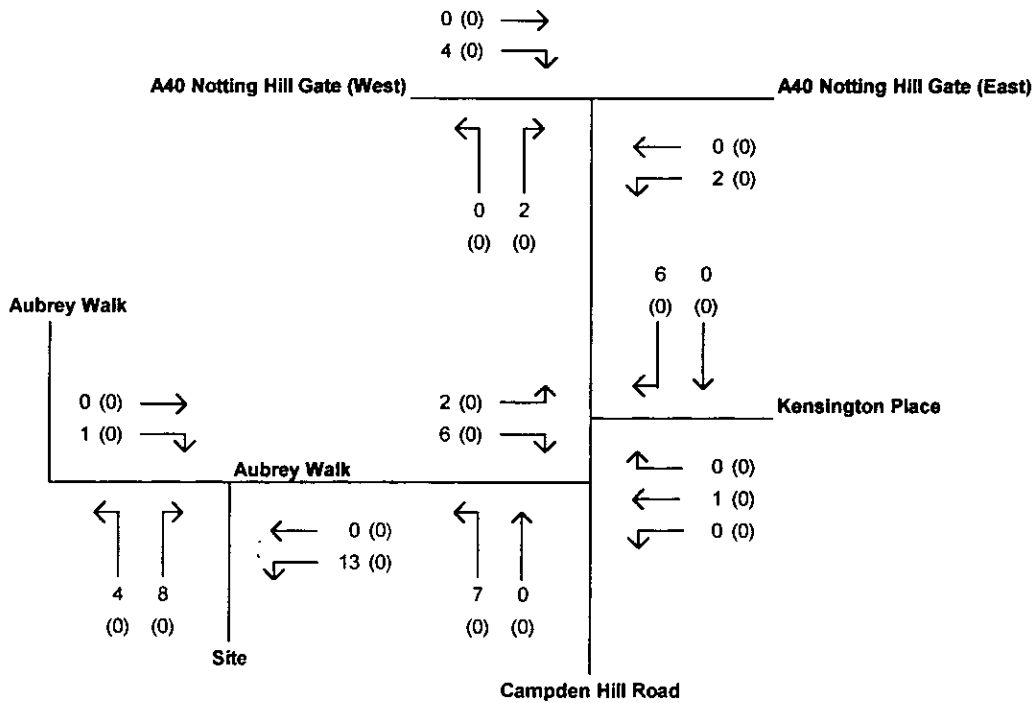
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AM PEAK (0830 - 0930)

7031



PM PEAK (1730 - 1830)



Key

7 All Vehicles

(0) HGVs

TITLE
Campden Hill Reservoir

PROPOSED SITE
TRAFFIC FLOWS

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Transportation & Infrastructure Consultants
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Tel: 01635 31440 - Fax: 0163 5 37268 - Email: inmail@tpk.co.uk

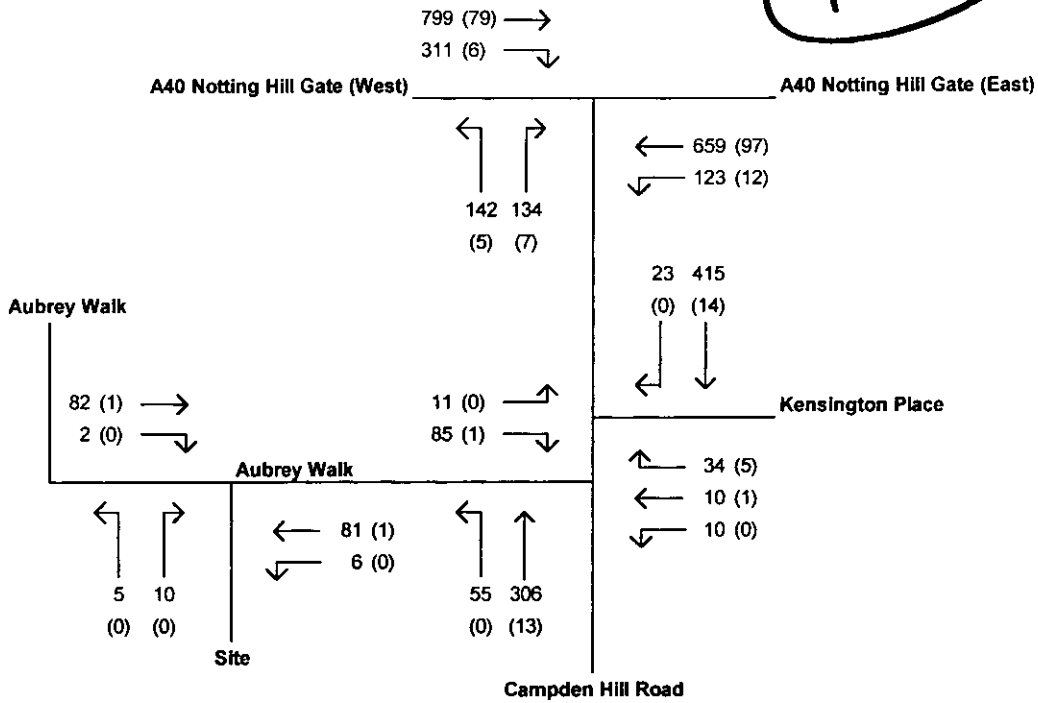
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REF FIGURE 10	DRWG NO 10145/16	REV B
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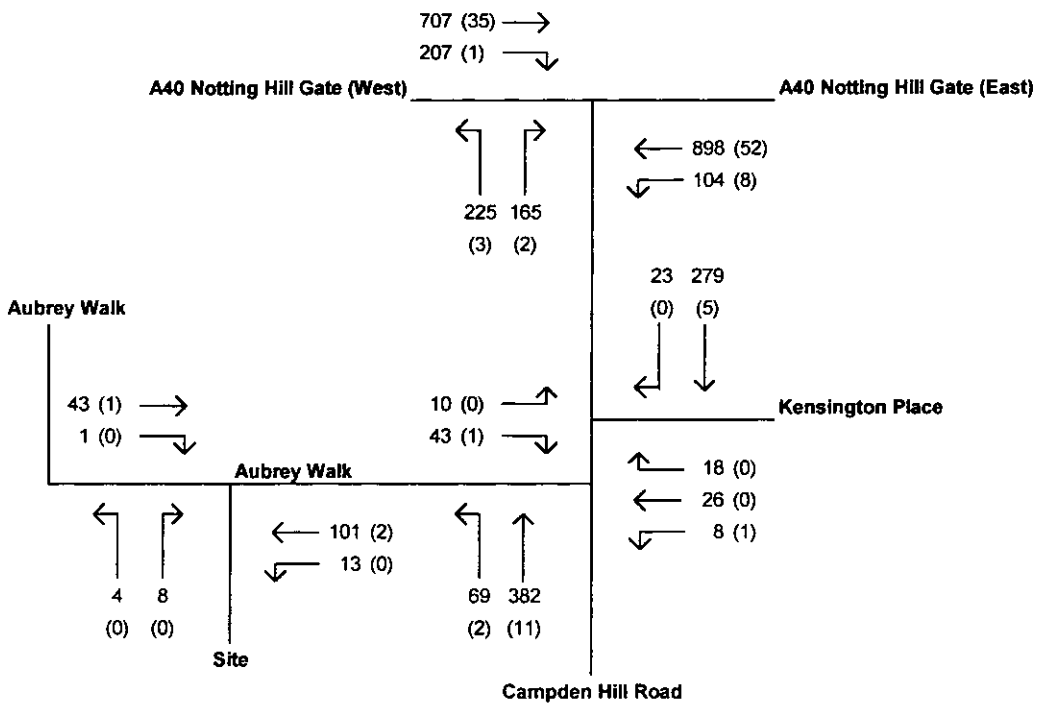
AM PEAK (0830 - 0930)

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PM PEAK (1730 - 1830)



Key
 69 All Vehicles
 (2) HGVs

TITLE		Campden Hill Reservoir	
EXISTING PLUS PROPOSED SITE TRAFFIC FLOWS			
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N.T.S.	FIGURE 11	10145/17	B



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 Transportation & Infrastructure Consultants
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TABLES

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Table 1: Bus Services to Notting Hill Gate

ROUTE NO.	FROM	TO	FREQUENCY OF SERVICE	
			0800-0900	1700-1800
94	Acton	Piccadilly Circus	5 mins	10 mins
	Piccadilly Circus	Acton	8-9 mins	10 mins
70	Acton	Sth Kensington	8-9 mins	8-9 mins
	Sth Kensington	Acton	10 mins	10 mins
27	Camden Town	Turnham Green	10 mins	10 mins
	Turnham Green	Camden Town	10 mins	10 mins
31	Camden Town	Chelsea World's End	10-12 mins	10-12 mins
	Chelsea World's End	Camden Town	10-12 mins	10-12 mins
28	Wandsworth	Golders Green	10-12 mins	10-12 mins
	Golders Green	Wandsworth	10-12 mins	10-12 mins
12	Notting Hill Gate	Dulwich Plough	7-12 mins	7-12 mins
	Dulwich Plough	Notting Hill Gate	7-12 mins	7-12 mins

Table 2: Trip Generation Rates

USE	AM PEAK			PM PEAK		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Industrial/depot (trips per 100m ²)	0.97	0.30	1.27	0.21	0.74	0.95
Office (trips per 100m ²)	1.56	0.06	1.62	0.06	1.47	1.53
Tennis Courts (trips per court)	0.24	0.12	0.36	1.76	2.06	3.82
Flats (trips per flat)	0.09	0.26	0.35	0.22	0.16	0.38
Houses (trip per house)	0.12	0.22	0.34	0.27	0.23	0.50

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Arm	AM Peak						PM Peak					
	Existing		Existing & Permitted		Existing & Proposed		Existing		Existing & Permitted		Existing & Proposed	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Notting Hill Gate (East)	0.828	8	0.836	8	0.833	8	0.882	10	0.890	10	0.888	10
Campden Hill Road	0.835	7	0.841	8	0.838	8	0.884	10	0.890	10	0.888	10
Notting Hill Gate (West) S	0.389	4	0.389	4	0.390	4	0.371	4	0.374	4	0.371	4
R	0.826	8	0.833	8	0.830	8	0.847	7	0.865	7	0.860	7

Table 3: Operational Assessments of Notting Hill Gate / Campden Hill Road Signalised Junction

Arm	AM Peak						PM Peak					
	Existing		Existing & Permitted		Existing & Proposed		Existing		Existing & Permitted		Existing & Proposed	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Campden Hill Road (North)	0.168	0	0.171	0	0.169	0	0.122	0	0.122	0	0.123	0
Kensington Place	0.076	0	0.096	0	0.083	0	0.102	0	0.107	0	0.116	0
Campden Hill Road (South)	0.259	0	0.273	0	0.287	0	0.134	0	0.167	0	0.157	0
Aubrey Walk	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0

Table 4: Operational Assessments of Campden Hill Road / Aubrey Walk / Kensington Place Staggered Priority Junction



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Table 5: Operational Assessments of Site Access Priority Junction

Arm	Existing & Proposed			
	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Aubrey Walk (East of Junction)	-	-	-	-
Proposed Site Access	0.032	0	0.024	0
Aubrey Walk (West of Junction)	0.003	0	0.002	0

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APPENDICES

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APPENDIX A

Extracts from TRICS Data

Appendix 1 - Trip Rates

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Private Housing

Site	Day	AM Peak			PM Peak		
		Arrivals	Departures	Total	Arrivals	Departures	Total
GL-03-A-05	Thu	0.06	0.24	0.30	0.22	0.26	0.48
GL-03-A-02	Tue	0.08	0.22	0.30	0.30	0.24	0.54
GL-03-A-02	Tue	0.24	0.32	0.56	0.27	0.08	0.35
GL-03-A-02	Tue	0.08	0.11	0.19	0.30	0.32	0.62
	Mean	0.12	0.22	0.34	0.27	0.23	0.50

Offices

Site	Day	AM Peak			PM Peak		
		Arrivals	Departures	Total	Arrivals	Departures	Total
GL-02-A-10	Tue	3.88	0.32	4.20	0.75	2.80	3.55
GL-02-A-15	Thu	1.46	0.00	1.46	0.06	2.58	2.64
GL-02-A-11	Thu	1.41	0.00	1.41	0.00	0.70	0.70
GL-02-A-12	Thu	0.83	0.00	0.83	0.00	0.59	0.59
GL-02-A-13	Thu	0.23	0.00	0.23	0.00	0.70	0.70
	Mean	1.56	0.06	1.63	0.16	1.47	1.64

Tennis Clubs

Site	Day	AM Peak			PM Peak		
		Arrivals	Departures	Total	Arrivals	Departures	Total
GL-07-G-01	Wed	0.33	0.13	0.46	1.11	1.44	2.55
LC-07-G-01	Tue	0.13	0.11	0.24	2.50	2.75	5.25
	Mean	0.23	0.12	0.35	1.81	2.10	3.90

Industrial Depots

Site	Day	AM Peak			PM Peak		
		Arrivals	Departures	Total	Arrivals	Departures	Total
HC-02-D-02	Tue	1.39	0.30	1.69	0.31	1.33	1.64
GL-02-D-02	Thu	1.13	0.44	1.57	0.28	0.64	0.92
WS-02-D-03	Tue, Wed, Thu	0.91	0.11	1.02	0.12	0.71	0.83
GL-02-D-01	Tue, Wed, Thu	0.43	0.29	0.72	0.11	0.27	0.38
	Mean	0.97	0.29	1.25	0.21	0.74	0.94

Flats

Site	Day	AM Peak			PM Peak		
		Arrivals	Departures	Total	Arrivals	Departures	Total
GL-03-D-01	Tue	0.16	0.35	0.51	0.27	0.24	0.51
GL-03-D-02	Wed	0.07	0.15	0.22	0.11	0.15	0.26
GL-03-C-01	Tue	0.04	0.28	0.32	0.27	0.09	0.36
		0.09	0.26	0.35	0.22	0.16	0.38

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**The Redevelopment of Water Tower House and the
Former Campden Hill Reservoir, Aubrey Walk,
London, W8**

**An Archaeological Desk-Based Assessment
for St James Homes**

by Steve Ford
Thames Valley Archaeological Services

Site Code: CHRL98/64

October 1998

7042



**The Redevelopment of Water Tower House and the Former
Campden Hill Reservoir, Aubrey Walk, London, W8
An Archaeological Desk-Based Assessment**

by Steve Ford

Report 98/64

Introduction

This desk-based study is an assessment of the archaeological potential of a plot of land located at Aubrey Walk, Kensington, London W8 (TQ 250801) (Fig 1). The project was commissioned by Mr Martin Simms of St James Homes Limited, 102 The Green, Twickenham, Middlesex, TW2 5AG, as a part of their plans to redevelop the site for residential use. The desk based assessment comprises the first stage of a process to determine the presence/absence, extent, character, quality and date of any archaeological remains which may be affected by redevelopment of the area.

Site Description, Location and Geology

The plot of land is located on the corner of Aubrey Walk and Campden Hill Road to the east of Holland Park, Kensington (Figs 1 and 2). The site is roughly 'L-shaped' in plan and covers an area of approximately 1.54 hectares. It lies at a height of 37-38 m above Ordnance Datum (AOD) close to the summit of a gentle hill. The British Geological Survey (BGS 1981) indicates that the site lies on Head deposits although the site investigations indicate that the bedrock is London Clay. A site visit on 10th September 1998 revealed that approximately 3/4 of the site comprises a covered reservoir, the top of which is used as tennis courts. The remainder of the area is occupied by a former engine house, an office block with basements, a water shaft, and various access roads, storage areas and ancillary buildings (Fig 2). The covered reservoir is partly set into the ground, with the top of the ground slab at 34.6 m AOD and the roof at 42.5 m AOD.

Five boreholes were successfully drilled as a part of a site investigation carried out in January 1998 (Fig 2). The boreholes located around the margins of the reservoir (BH1, 2 and 3A) indicated 3-7 m of made-ground above clay. Boreholes 4 and 5 show a lesser thickness of made ground ranging from 0.4 m-1.6 m (Appendix 3).

Planning Background and Development Proposals

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Planning permission is to be sought for the redevelopment of the site mostly for housing. The scheme will involve the demolition of much of the reservoir, the engine house, Water Tower House and a smaller block of flats fronting onto Aubrey Walk. The replacement scheme will comprise twenty one houses, forty one apartments as well as tennis courts at the western end of the site. Figures 3 and 4 indicate the likely plans and profiles of the submitted scheme.

The Department of the Environment's Policy and Planning Guidance Note, *Archaeology and Planning* (PPG 16 1990) provides guidance relating to archaeology within the planning process. It points out that where a desktop study has shown that there is a strong possibility of significant archaeological deposits in a development area it is reasonable to provide more detailed information from a field evaluation so that an appropriate strategy to mitigate the effects of development on archaeology can be devised:

Paragraph 21 states:

'Where early discussions with local planning authorities or the developer's own research indicate that important archaeological remains may exist, it is reasonable for the planning authority to request the prospective developer to arrange for an archaeological field evaluation to be carried out...'

Should the presence of archaeological deposits be confirmed further guidance is provided. *Archaeology and Planning* stresses preservation *in situ* of archaeological deposits as a first consideration as in paras 8 and 18.

Paragraph 8 states:

'...Where nationally important archaeological remains, whether scheduled or not, and their settings, are affected by proposed development there should be a presumption in favour of their physical preservation...'

Paragraph 18 states:

'The desirability of preserving an ancient monument and its' setting is a material consideration in determining planning applications whether that monument is scheduled or unscheduled...'

However, for archaeological deposits that are not of such significance it is appropriate for them to be 'preserved by record' (ie fully excavated and recorded by a competent archaeological contractor) prior to their destruction or damage.

Paragraph 25 states:

'Where planning authorities decide that the physical preservation *in situ* of archaeological remains is not justified in the circumstances of the development and that development resulting in the destruction of the archaeological remains should proceed, it would be entirely reasonable for the planning authority to satisfy itself ... that the developer has made appropriate and satisfactory provision for the excavation and recording of remains.'

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The Policies covering Archaeology in the Unitary Development Plan of the Royal Borough of Kensington and Chelsea (RBKC 1995) are covered in section 9:

CD81: To encourage the conservation, protection and enhancement of sites of archaeological importance and their setting and their interpretation and presentation to the public.

CD82: To require where development is proposed on sites of archaeological significance or potential that archaeological field evaluation takes place before development proposals are determined; that remains and their settings are permanently preserved either in situ, or exceptionally by record; and that provision is made for an appropriate level of archaeological excavation and recording to take place prior to development commencing on site.

CD84: To preserve or enhance all scheduled ancient monuments and other nationally important archaeological sites and monuments in the borough.

This particular development site does not contain any scheduled ancient monuments and does not lie within an archaeological priority area

Methodology

The assessment of the site was carried out by the examination of pre-existing information from a number of sources recommended by Greater London Archaeological Advisory Service (GLAAS) guidance papers and the Institute of Field Archaeologists paper '*Standards in British Archaeology*' covering desk-based studies. These sources include historic and modern maps, the Greater London Sites and Monuments Record (GLSMR), geological maps, geotechnical reports and any relevant publications or reports.

Archaeological Background

A search was made of the GLSMR on 27th August 1998 for an area of 0.5 km radius around the site. This revealed just 13 entries, which are summarised in Appendix 1 and located on Figure 1. No entries were located within the development site itself and the nearest entry is for Aubrey House, a listed grade II* building which lies 50 m to the west (Fig 1, 4). The majority of the entries are for sites of Medieval or post-Medieval date which include upstanding listed buildings such as Holland House (Fig 1, 5), and the approximate locations of settlements known only from documentary sources. A small excavation on a post-Medieval stable block at Holland House found traces of an earlier 15th century brick built structure which was thought by the excavator to be part of a building of the earlier manor of West Town.

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Very few entries of Roman or Prehistoric date are recorded. These comprise a Neolithic stone axe from the 'Kensington area' (Fig 1, 8) a Roman Sarcophagus from Ladbrooke Square (Fig 1, 1) and the possible location of a Roman beacon (Fig 1, 6) on the road from London to Silchester. Of more interest is the late Bronze Age bronze hoard found during the excavation of a railway cutting in 1866 (Fig 1, 8). The hoard consists of ten pieces of broken metalwork including parts of axes, knives, gouges, bronze sheet, a ?button and casting jets.

The GLSMR also includes two watching briefs carried out at locations to the north-west of the site which did not reveal any deposits of archaeological interest.

Cartographic and Documentary Sources

A range of Ordnance Survey and other historical maps of the area were consulted at the British Library and the Metropolitan Records Office in order to ascertain what activity had been taking place throughout the sites' later history and whether this may have affected any possible archaeological deposits within the proposal area (Appendix 2).

The earliest map consulted was John Ogilby's map of Middlesex dated 1672 (not illustrated). This map is at a small scale and shows the settlements of Kensington and Notting Hill in schematic form. Camden House is also shown and, by comparison with more detailed later maps, this lay to the south-east of the proposal area. The precise location of the development site cannot be identified but it did lie within an area of open land.

A survey of Westminster, Chelsea and Kensington by Desmertz (Fig 5) shows the environs of the site in more detail. The site can be located in relation to Holland House and its gardens to the west and a tree-lined avenue to the east which later became Campden Hill Road. Camden House lay to the south-east. The area of the site was occupied by parts of four hedged fields and may also have included parts of the garden of a large property on the southern margins of Notting (Noding) Hill.

On John Rocque's map of 1741 (Fig 6) the site is not dissimilar to the earlier map but is now located by reference to Aubrey House. At this time the site was farmland. Milne's map of 1800 (not illustrated) shows little change from Rocque's map of 1741. However, by 1822, although most of the site appears still to be farmland, the western end may have been occupied in part by the formal gardens of Aubrey House.

The site occupied two fields on Crutchley's map of 1829 (Fig 7). This also shows that Aubrey Walk had been constructed and that the gardens of Aubrey House (Notting Hill House) had contracted in size. Davies map of 1840 is similar (not illustrated).

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The Tithe map of 1844 (Fig 8) shows that the site was divided into three plots; the western one was occupied by a large house (Wycombe Lodge in 1867) and ancillary buildings. A second, smaller structure was present in the south-east corner of the middle plot. The only change shown on a parish map of 1846 (not illustrated) is that a reservoir now covered the eastern-most part of the site. This is shown more clearly on Wyld's map of 1848 (Fig 9). Stanford's map of 1867/77 shows that most of the proposal site was occupied by the Grand Junction Water Works. The reservoir at the eastern end of the site had been covered and a smaller reservoir lay beyond the southern boundary of the site. The reclaimed area of the first reservoir was occupied by a large building in the same position as the engine house in 1867 and is still in existence today.

The First Edition Ordnance Survey map of 1867 (Fig 10) shows little change from Stanford's map. However, by 1894 the Second edition Ordnance Survey map (Fig 11) shows a second reservoir added to the works. This involved the demolition of Wycombe Lodge to the west and the incorporation of this plot of land within the works complex. Also at this time the cover of the new reservoir became the Campden Hill tennis ground.

The Ordnance Survey maps of 1921 and 1965 (not illustrated) show very little change from the map of 1894 and it was not until 1975 that Water Tower House was built at the eastern end of the site and the original covered reservoir (outside of the proposal area) was decommissioned and redeveloped as Kensington Heights.

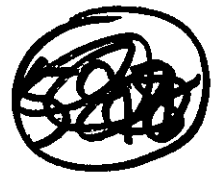
Listed Buildings

The reservoir structure was considered for listing as a building of special architectural or historic interest by English Heritage in 1996. As this reservoir is unexceptional for its type and period, and several other similar reservoirs survive elsewhere in London, the building was not added to the statutory list (Appendix 4).

Discussion

An assessment of the archaeological and cartographic evidence suggests that the site does not lie in an area of archaeological potential. Few sites or finds are recorded for the area in the Sites and Monuments Record and, although the site occupies part of a summit of a low hill, this is not a sufficiently distinct topographic location to have been preferentially occupied in earlier times. The cartographic evidence shows that the site saw no development until the mid-19th century and before this it would appear to have been farmland.

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Of more importance for its impact upon the archaeological potential of the site is the presence of the reservoirs. The currently disused reservoir occupying the western 3/4 of the site is set into the ground at least 4 m below modern ground level. Even allowing for some raising of levels in the surrounding areas by relatively modern made-ground, in this location and with relatively late development it is most unlikely that several metres of deposition would have occurred and it appears that substantial truncation of the archaeologically relevant levels has taken place. This argument is supported by the evidence of the site investigations. Borehole 4 (Fig 2), adjacent to Aubrey Walk, indicated that the bedrock lay at a height of 36.79 m AOD, whereas in Borehole 1, immediately adjacent to the reservoir, the bedrock lay at a height of 34.22 m AOD (Appendix 3). The cartographic study has also shown that the original reservoir on the site constructed in c 1846 (Fig 9) occupied the whole of the eastern portion of the site adjacent to Aubrey Walk and Campden Hill Road, now occupied by Water Tower House and the engine room, etc. Construction of this reservoir must also have involved truncation of the archaeologically relevant levels. On the basis of this evidence, it is argued that the vast majority (>95%) of the site has been truncated and that the site has no archaeological potential. It is recommended that there is no further need to consider archaeology on this site.

References

- BGS, 1981, *British Geological Survey*, Sheet 270, Drift Edition, 1:50000, Keyworth
PPG16, 1990, *Archaeology and Planning*, Department of the Environment Planning Policy Guidance note 16, HMSO
RBKC 1995, *Royal Borough of Kensington and Chelsea Unitary Development Plan*, Adopted August 20th 1995, Kensington

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Appendix 1: Sites and Monuments Records within a 0.5 km search radius of the development site

<i>No.</i>	<i>SMR Ref</i>	<i>NGR TQ</i>	<i>Type</i>	<i>Period</i>	<i>Comment</i>
1	081609	2474 8049	Sarcophagus	Roman	
2	214507	24750 79750	Holland Park	Post-Medieval	
3	081652 081648	248 796 248 796	Building? Moated Manor?	Medieval Medieval	Part of manor of west town?
4	214508 213528	24800 80600 24850 80082	Garden Square Aubrey House	Victorian Post-Medieval	Ladbroke Square Listed grade II*
5	213965	24867 79717	Holland House	Post-Medieval	Listed grade I
6	081610	250 804	Beacon?	Roman	Hypothetical
7	081656	2535 8045	Village	Medieval/post-Medieval	Notting Hill
8	081547 081548 081642	254 797 254 797 254 797	Stone axe Bronze tool hoard Vineyard	Neolithic Late Bronze Age Saxon/Medieval	
9	081675	256 796	Road	Medieval/post-Medieval	

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Appendix 2: Historic and modern maps consulted

- 1) 1672 Ogilby, survey of Middlesex
- 2) 1717 Desmertz, Survey of Westminster, Chelsea and Kensington (Fig 5)
- 3) 1741 Rocque, map of London (Fig 6)
- 4) 1800 Milne, land use map of London and environs
- 5) 1822 Map of parish of St Mary, Kensington
- 6) 1829 Crutchley (Fig 7)
- 7) 1840 Davies
- 8) 1844 Tithe map (Fig 8)
- 9) 1846 Map of parish of St. Mary, Kensington
- 10) 1848 Wyld (Fig 9)
- 11) 1867/77 Stanford
- 12) 1867 First Edition Ordnance Survey (Fig 10)
- 13) 1894 Second Edition Ordnance Survey (Fig 11)
- 14) 1921 Ordnance Survey
- 15) 1965 Ordnance Survey
- 16) 1975 Ordnance Survey