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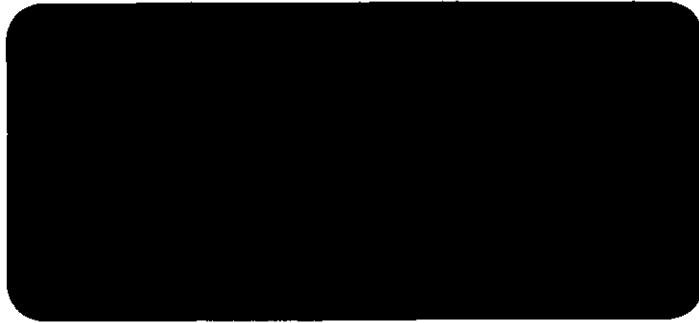
Bettridge Turner & Partners

J. SAINSBURY PLC
PROPOSED STORE EXTENSION
CANAL WAY, LADBROKE GROVE, LONDON
TRANSPORTATION REPORT

R.B.K. & C.
TOWN PLANNING
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1.0 **INTRODUCTION**

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- 1.1 Bettridge Turner and Partners have been instructed by J. Sainsbury plc to advise on the transport implications associated with the application to extend the sales area at their existing Canal Way, Ladbroke Grove foodstore.
- 1.2 The application seeks to enhance existing facilities for customers, ie. increased aisle widths, number of check out points etc. To achieve this enhancement it is proposed to extend the existing sales area which consists of approximately 3764sqm (40600sqft), by some 927sqm (10000sqft).
- 1.3 In order to rationalise the building area, the existing coffee shop, which is presently a separate unit located within the store car park, will be demolished and incorporated within the main building area.
- 1.4 This report will assess the potential implications involved in the proposals by considering each mode of transport ie. private car, public transport, cycle and foot.
- 1.5 At the request of Officers from The Royal Borough of Kensington and Chelsea, (RBKC), consideration will also be given to the proposed redevelopment of the former gas works site, located adjacent to the foodstore. This site is presently being considered for a 'mixed use' development, and consequently traffic attractions will increase. This report will therefore provide an assessment of the traffic impact of the store extension, and the implications the proposals will have on the gas works redevelopment.

Scope of Report

1.6 Following this introduction the report is structured as follows:

Section 2: **Existing Situation**: will assess the existing operation of the car park and access arrangements, drawing on information obtained from recent parking and vehicle turning count surveys taken at the site.

Section 3: **Development Proposal**: will provide an outline of the application.

Section 4: **Impact of Proposed Store Extension**: will assess the likely increase in customers that would be attracted to the foodstore as a consequence of the store extension. This increase in customers can be used to provide an indication of the future levels of traffic flow, and hence the impact of the proposals on the site's car parking and access arrangements.

Section 5: **Site Accessibility by Various Modes of Transport**: will consider the accessibility of the site by alternative modes of transport other than the private car.

Section 6: **Summary and Conclusions**: A collation of the pertinent points in the report.

2.0 **EXISTING SITUATION**

- 2.1 The foodstore is located west of Ladbroke Grove between the Grand Union Canal and the Great Western Railway, within the Royal Borough of Kensington and Chelsea.
- 2.2 The store, constructed in 1990/91, consists of a sales area of approximately 3764sqm (40600sqft) along with a coffee shop which has a seating capacity for 80 people.
- 2.3 There are presently 456 car parking spaces contained on the site, 28 of which are allocated for the disabled, and 8 for parent and child. Parking for the disabled is sectioned off from the main car park by electronically controlled barriers.
- 2.4 There is a single point of vehicle access for the site, which is by way of a priority T junction to Canal Way. Access to the wider highway network is via a three arm mini roundabout at the junction of Canal Way with Ladbroke Grove.
- 2.5 Within the southeast corner of the site is a petrol filling station with access to Canal Way.
- 2.6 *The site layout is shown on Plan 1 (drawing reference 1742/A3/01) prepared by the appointed Architect's, DMWR.*

Car Park Assessment

- 2.6 Traffic surveys were commissioned to provide information on the current operation of the store car park during typical peak trading periods. Two surveys were carried out:
- (i) A car parking beat survey between 0800 to 2000 hours on Friday and Saturday, 6 and 7 February 1998;
 - (ii) Vehicle registration plate survey, between 0800 hours to 2000 hours on Friday and Saturday 23rd/24th January 1998.

Manual Traffic Counts

2.7 A car parking beat survey was taken in order to identify the number of vehicles parked at 30 minute intervals on Friday and Saturday, 6th and 7th February 1998.

2.8 The results of the survey are shown in *Table 2.1* below.

Time Commencing (hour)	No. Of Vehicles Parked	
	Friday 6/2/98	Saturday 7/2/98
0800	112	115
0830	149	151
0900	193	200
0930	270	219
1000	305	243
1030	304	294
1100	331	347
1130	317	351
Max 1200	323	357
1230	286	353
1300	279	349
1330	296	318
1400	327	298
Max 1430	339	325
1500	296	345
1530	286	356
1600	273	317
1630	269	306
1700	278	343
1730	269	327
1800	254	296
1830	252	275
1900	242	251
1930	217	261
2000	214	267

Table 2.1 Car Parking Beat Survey

2.9 As shown the maximum parking demands observed were:

- Friday 6th February 1998: 339 vehicles (1430 hours).
- Saturday 7th February 1998: 357 vehicles (1200 hours).

2.10 *Based on the existing 456 spaces, the results indicate that at the peak time on Friday (1430 hours) the car park operates at 74% capacity with a corresponding figure for Saturday (1200 hours) being 78%.*

2.11 Whilst the above survey has shown that during typical peak trading periods the store car park operates within capacity, it is also appropriate to investigate the operation of the car park in terms of duration of stay. By investigating this aspect of the car park, any misuse of the facilities can be identified and corrected by way of a car parking management plan.

Registration Plate Survey

2.12 The registration plate survey carried out during store trading hours on Friday/Saturday 23rd and 24th January 1998 identified details of vehicles entering and exiting the car park. From this survey data it is possible to calculate the duration of stay for each vehicle.

2.13 Frequency distribution of durations of stay for the Friday and Saturday are shown in *Table 2.2*.

Average Duration hr/min	Friday 23/1/98	Saturday 24/1/98
	% Of Vehicles	% of Vehicles
< 0.15	16.83	6.95
0.15	15.26	16.01
0.30	17.29	19.11
0.45	18.65	21.16
1.00	13.62	15.12
1.15	7.32	10.11
1.30	4.24	4.85
1.45	2.10	2.35
2.00	0.93	1.02
2.15	0.78	0.49
2.30	0.38	0.46
2.45	0.22	0.30
3.00	0.39	0.13
3.15	0.00	0.13
3.30	0.14	0.22
3.45	0.04	0.16
4.00	0.18	0.12
4.15	0.14	0.11
4.30	0.04	0.08
4.45	0.11	0.03
5.00	0.11	0.26
5.15	0.07	0.13
5.30	0.28	0.16
5.45	0.00	0.16
6.00	0.04	0.00
6.15	0.07	0.00
6.30	0.17	0.08
6.45	0.07	0.00
7.00	0.07	0.00
7.15	0.04	0.00
7.30	0.07	0.00
7.45	0.00	0.02
8.00	0.10	0.20
8.15	0.00	0.00
8.30	0.00	0.00
8.45	0.00	0.02
9.00	0.04	0.00
9.15	0.04	0.03
9.30	0.14	0.00
9.45	0.00	0.03
10.00	0.02	0.00
10.15	0.00	0.00
10.30	0.00	0.00
10.45	0.00	0.00
11.00	0.00	0.00
11.15	0.00	0.00
11.30	0.00	0.00
11.45	0.00	0.00
12.00	0.00	0.00
Total	100.00	100.00

Table 2.2 Percentage Frequency Distribution of Durations of Stay

- 2.14 The distribution indicates that the greatest frequency of people stay in the order of 45 minutes on both Friday and Saturday, which is typical for a J.Sainsbury store.
- 2.15 The cumulative frequency distribution, which enables consideration to be given to the proportion of vehicles that stay in excess of certain time periods, is shown at *Table 2.3*.

Average Duration (hr/min)	Friday 23/1/98	Saturday 24/1/98
	% Of Vehicles	% of Vehicles
< 0.15	16.83	6.95
0.15	32.09	22.96
0.30	49.38	42.07
0.45	68.03	63.23
1.00	81.65	78.35
1.15	88.97	88.46
1.30	93.21	99.31
1.45	95.31	95.66
2.00	96.24	96.68
2.15	97.02	97.17
2.30	97.40	97.63
2.45	97.62	97.93
3.00	98.01	98.06
3.15	98.01	96.19
3.30	98.15	98.41
3.45	98.19	98.57
4.00	98.37	98.69
4.15	98.52	98.80
4.30	98.56	98.88
4.45	98.67	98.91
5.00	98.78	99.17
5.15	98.85	99.30
5.30	99.13	99.46
5.45	99.13	99.62
6.00	99.17	99.62
6.15	99.24	99.62
6.30	99.41	99.70
6.45	99.48	99.70
7.00	99.55	99.70
7.15	99.59	99.70
7.30	99.66	99.70
7.45	99.66	99.72
8.00	99.76	99.92
8.15	99.76	99.92
8.30	99.76	99.92
8.45	99.76	99.94
9.00	99.80	99.94
9.15	99.84	99.97
9.30	99.98	99.97
9.45	99.98	100.00
10.00	100.00	100.00
10.15	100.00	100.00
10.30	100.00	100.00
10.45	100.00	100.00
11.00	100.00	100.00
11.15	100.00	100.00
11.30	100.00	100.00
11.45	100.00	100.00
12.00	100.00	100.00

Table 2.3 Percentage Cumulative Frequency Distribution of Durations of Stay

2.16 The cumulative frequency distribution indicates that on;

Friday	Saturday	Duration
18.35%	21.65%	Of vehicles stay longer than 1 hour
3.76%	3.32%	Of vehicles stay longer than 2 hours, and
1.99%	1.94%	Of vehicles stay longer than 3 hours

2.17 The above figures are potentially deceptive, as they do not directly demonstrate the effects of lengthy durations of stay on car parking demand.

2.18 To provide an estimate of the effects of duration of stay, vehicle numbers have been weighted by their actual durations, to produce distributions which reflect the overall length of time vehicles take up spaces in the car park. For example, if a vehicle has a duration of stay of 2 hours this takes up the same time as 2 vehicles, each with a duration of only one hour. It is stressed, however, that this analysis is based on the time available in the car park over a full day and is not specific to the peak periods. The peak period will be assessed separately.

2.19 The weighted frequency distribution and weighted cumulative frequency distribution are indicated in *Tables 2.4 and 2.5* respectively.

Durations (hr/min)	Friday 23/1/98		Saturday 24/1/98	
	Acc Time	% of veh Acc Time	Acc Time	% of veh Acc Time
0.15	7080	4.65	3870	2.03
0.15	6420	4.22	8910	4.67
0.30	14550	9.56	21270	11.15
0.45	23535	15.46	35325	18.52
1.00	22920	15.05	33660	17.65
1.15	15375	10.09	28125	14.75
1.30	10710	7.04	16200	8.49
1.45	6195	4.07	9135	4.79
2.00	3120	2.05	4560	2.39
2.15	2970	1.95	2430	1.27
2.30	1350	0.89	2550	1.34
2.45	990	0.65	1815	0.95
3.00	1980	1.30	900	0.47
3.15	0	0	975	0.511
3.30	840	0.55	1680	0.88
3.45	225	0.15	1350	0.70
4.00	1200	0.79	1440	0.76
4.15	1020	0.67	1020	0.53
4.30	270	0.18	810	0.42
4.45	855	0.56	285	0.15
5.00	900	0.59	3000	1.57
5.15	630	0.41	1575	0.83
5.30	2640	1.73	1980	1.04
5.45	0	0	2070	1.08
6.00	360	0.24	0	0
6.15	750	0.49	0	0
6.30	1950	1.28	1170	0.61
6.45	810	0.53	0	0
7.00	840	0.55	0	0
7.15	435	0.28	0	0
7.30	900	0.59	0	0
7.45	0	0	465	0.24
8.00	1440	0.95	1920	1.01
8.15	0	0	0	0
8.30	0	0	0	0
8.45	0	0	1050	0.55
9.00	0	0	0	0
9.15	555	0.36	555	0.29
9.30	570	0.37	0	0
9.45	2340	1.54	585	0.31
10.00	0	0	0	0
10.15	1230	0.81	0	0
10.30	0	0	0	0
10.45	0	0	0	0
11.00	0	0	0	0
11.15	0	0	0	0
11.30	0	0	0	0
11.45	0	0	0	0
12.00	0	0	0	0
Total	137955	100.00	190680	100

Table 2.4 Frequency Distribution of Vehicle Accumulation Times

Durations	Friday 23/1/98		Saturday 24/1/98	
	Acc Time	% Weighting	Acc Time	% Weighting
0.15	7080	5.13	3870	2.03
0.15	13500	9.79	12780	6.70
0.30	28050	20.33	34050	17.86
0.45	51585	37.39	69375	36.38
1.00	74505	54.01	103035	54.03
1.15	89880	65.15	131160	68.78
1.30	100590	72.91	147360	77.28
1.45	106785	77.41	156495	82.07
2.00	109905	79.67	161055	84.46
2.15	112875	81.82	163485	85.74
2.30	114225	82.79	166035	87.08
2.45	115215	83.52	167850	88.03
3.00	117195	84.95	168750	88.49
3.15	117195	84.95	169725	89.01
3.30	118035	85.56	171405	89.89
3.45	118260	85.72	172755	90.59
4.00	119460	86.59	174195	91.35
4.15	120480	87.33	175215	91.89
4.30	120750	87.53	176025	92.31
4.45	121605	88.14	176310	92.46
5.00	122505	88.80	179310	94.86
5.15	123135	89.26	180885	94.86
5.30	125775	91.17	182865	95.90
5.45	125775	91.17	184935	96.98
6.00	126135	91.43	184935	96.99
6.15	126885	91.97	184935	96.99
6.30	128835	93.39	186105	97.60
6.45	129645	93.98	186105	97.60
7.00	130485	94.58	186105	97.60
7.15	130920	94.90	186105	97.60
7.30	131820	95.52	186105	97.60
7.45	131820	95.52	186570	97.84
8.00	133260	96.59	188490	98.85
8.15	133260	96.59	188490	98.85
8.30	133260	96.59	188490	98.85
8.45	133260	96.59	189540	99.40
9.00	133260	96.59	189540	99.40
9.15	133815	96.99	190095	99.69
9.30	134385	97.41	190095	99.69
9.45	136725	99.10	190680	100
10.00	136725	99.11	190680	100
10.15	137955	100	190680	100
10.30	137955	100	190680	100
10.45	137955	100	190680	100
11.00	137955	100	190680	100
Total	137955	100.00	190680	100.00

Table 2.5 Cumulative Frequency Distributions of Vehicle Accumulation Times

2.20 The cumulative frequency distribution, *table 2.5*, allows us to investigate time taken up in the car park by vehicles with differing durations of stay. The results indicate that:

Friday	Saturday	Duration
45.99%	45.97%	Of the time taken up in the car park results from vehicles that stay longer than 1 hour.
20.33%	15.54%	Of the time taken up in the car park results from vehicles that stay longer than 2 hours.
15.05%	11.51%	Of the time taken up in the car park results from vehicles that stay longer than 3 hours.

2.21 A general conclusion that can be made from the above is that if the longer durations of stay were removed, then more spaces could be made available in the car park. For example on Saturday if vehicles were only allowed to stay in the car park for up to 2 hours then with the present demand, the 15.54% of the current time taken up by vehicles parked longer than 2 hours, could be recovered. Again, it is stressed that this is a general conclusion based on an all day analysis. The following assessment will consider the peak demand period, which occurred during midday on Saturday, and the benefits in terms of increased capacity, that would be brought about by the introduction of a car parking policy that limits the durations of stay.

Peak Hour Parking Assessment

2.22 The peak parking demand was observed at 11.00 to 12.00 hours, on Saturday. It is during this period that consideration will be given to the benefits of introducing a parking duration policy.

- 2.23 By investigating the vehicle registration survey data during the peak period, it is possible to demonstrate the effects on available capacity of introducing a parking policy that limits the duration of stay.
- 2.24 **Table 2.6** shows parking accumulations along with the number of vehicles that stay longer than 2 and 3 hours, during the peak demand period on Saturday between 1200-1300 hours.

	Spaces Available	Vehicles Parked > 2 hours	Vehicles Parked > 3 hours
Saturday	456	87	59

Table 2.6 Peak Parking Demands

- 2.25 As shown, based upon the existing 456 spaces, 19% of the total capacity is taken up by vehicles staying in excess of 2 hours and 13% by vehicles staying in excess of 3 hours.
- 2.26 A typical average customer duration of stay for a J. Sainsbury store inclusive of a coffee shop, is in the order of 45 to 60 minutes. It is evident therefore that a parking policy that limits the duration of stay on Saturday is to say 2 hours could be introduced without prejudicing the service available to customers and would release further available capacity at peak periods.
- 2.27 However, it should be stressed that a proportion of the vehicles that stay in excess of two hours will be vehicles belonging to staff. Consequently without provision for staff parking these vehicles will remain within the car park. We are advised by the Store Manager that in the area of 30 vehicles during a Saturday will belong to staff.

- 2.28 Allowing for staff vehicles to remain within the car park (30 vehicles) an additional 12.5% of capacity could be anticipated by introducing a parking policy that limits the duration of stay to 2 hours.

$$\frac{87 - 30}{456} = 12.5\%$$

Traffic Attractions

- 2.29 Following discussions with officers of the RBKC, it has been agreed that an assessment will be provided, as a part of the application, to show the effects of the proposals on the site access arrangements.
- 2.30 It is agreed that the assessment will be based on a Friday evening network peak hours (1700-1800 hours). It is during this period that high network traffic flows coincide with rising retail trade to result in what is commonly accepted to be a 'maximum impact period'.
- 2.31 The assessment will consider the performance of the existing mini roundabout located at the junction of Canal Way with Ladbroke Grove. The layout of the junction is shown on Plan 2 attached.
- 2.32 Following a meeting with Officers of the RBCK it has been requested that the traffic impact assessment also takes account of the possible redevelopment of the former gas works site, located adjacent to the foodstore.
- 2.33 The former gas works site proposals seek to redevelop the area for a mixed use ie. employment / residential. As a consequence of the redevelopment it is anticipated that traffic flow along Canal Way and Ladbroke Grove will increase. To accommodate the increase in traffic, highway improvements are proposed. This includes the introduction of a traffic signalled controlled layout to replace the existing mini roundabout at the junction of Canal Way with Ladbroke Grove.

- 2.34 This report will therefore assess the existing performance of the roundabout junction of Canal Way and Ladbroke Grove. An assessment of the likely increases in traffic at this junction as a consequence of the foodstore extension, will then be provided. Based upon this assessment a view can then be taken, as to whether the J.Sainsbury application is likely to result in a significant change in traffic flow in this area, and whether the proposals warrant further investigation.
- 2.35 Existing traffic flows throughout the Canal Way / Ladbroke Grove junction for the assessment period, Friday evening peak hour, are *shown at Figure 1*.
- 2.36 The performance of the Canal Way / Ladbroke Grove roundabout junction has been assessed with the use of the ARCADY 3 program. The following table shows the maximum **Ratio of Flow to Capacity (RFC)** and vehicle **Queue (Q)** length for each approach arm. The computer printout is attached as Appendix 1.

Approach Arm	Peak Hour Capacity Assessment	
	RFC	Q Length (Max)
Ladbroke Grove (North)	0.883	6.9
Ladbroke Grove (South)	0.568	1.3
Canal Way	0.448	0.8

**Table 2.7 Evening Peak Hour Capacity Assessment
Ladbroke Grove / Canal Way Roundabout**

- 2.35⁷ As shown, Ladbroke Grove (North) is approaching its theoretical capacity, however the other approach arms appear to operate with ample reserve capacity. Nominal queue lengths are calculated.

3.0 DEVELOPMENT PROPOSAL

3.1 The proposals seek to enhance facilities for existing customers ie. increased ²isle widths, number of check out points, etc. To achieve this enhancement it is proposed to extend the existing sales area. It is also proposed to demolish the existing coffee shop and relocate the facility within the main building area and rationalise the car parking arrangements adjacent to the store.

3.2 The following table provides a schedule of areas for both the existing and proposed store.

	Existing	Proposed
Sales Area	3764sqm (40600sqft)	4691sqm (50600sqft)
Car Parking Spaces	456 spaces	442 spaces
<u>Inclusive</u>		
Parking For Disabled	28	11
Parking for Parent and Child	8	8

Reduction of 14

Table 3.1 Schedule of Existing / Proposed Areas

3.3 The vehicular access arrangements are to remain the same and no off site highway works are proposed.

3.4 *The proposed site layout is shown on Plan 2 (drawing reference 1742/A1/04) produced by the appointed Architect.*

4.0 TRAFFIC IMPACT OF PROPOSED STORE EXTENSION

- 4.1 The proposed extension to the J. Sainsbury foodstore at Ladbroke Grove is likely to lead to an increase in the number of customers using the store, and hence an increase in traffic attraction / parking demand. It is therefore necessary to investigate the likely increase in customers associated with the extension proposals, to determine the ability of the car park and access arrangements to cater for this additional demand.
- 4.2 Historical data is available to show the increases in customers as a consequence of previous J. Sainsbury store extensions. This data is provided in Table 3.2 below, which indicates that on average an increase of 39.6% in sales area yields a 8.7% increase in customer numbers.

Store	% Increase In Sales Area	% Increase In Customers
Cambridge	+33%	+12.1%
Hornchurch	+36%	+13.5%
Huddersfield	+47%	+4.1%
Tonbridge	+29%	+6.5%
Weston-Super-Mare	+53%	+7.2%
Average	+39.6%	+8.7%

Table 3.2 Historical Data on J. Sainsbury's Store Extensions.

- 4.3 The above research data can be applied to the 24.6% increase in sales area proposed for the Ladbroke Grove store, to provide details on the anticipated increase in customers, and hence traffic attraction / car parking demands.

4.4 Applying the research data to the proposals yields the following projected increase in customers.

$$\begin{aligned} \text{\% increase in customer numbers} &= \frac{24.6\% \times 8.7\%}{39.6\%} \\ &= 5.4\% \end{aligned}$$

4.5 Having established the projected increase in customers, this figure can be applied to the existing level of traffic attraction, and parking demands to provide details of future level of traffic.

Projected Parking Demand

4.6 The increase in customers has been applied directly to the existing peak parking demands to provide an indication of the future situation following completion of the store extension.

	Existing Demand	x	Increase in Customers	=	Projected Parking Demand
Friday	339	x	1.054	=	358
Saturday	357	x	1.054	=	376

4.7 Based on the proposed 446 spaces the resultant typical peak utilisation of available capacity is:

Friday $\frac{358}{442} \times 100 = 81\%$

Saturday $\frac{376}{442} \times 100 = 85\%$

4.8 *As shown the car park would continue to operate within capacity even during typical peak trading periods on Saturday, when a maximum utilisation of capacity of 85% is calculated. This assessment assumes a worst case situation that no parking restraint policy, that limits duration of stay, is introduced.*

4.9 *Based upon the above assessment we would conclude that the proposed level of parking is sufficient to cater for typical peak demands. Should further capacity be required at any future stage, then a car parking management plan could be introduced that limits the duration of stay. However this management system is not warranted as a part of the present application.*

Projected Traffic Attractions

4.10 As above, the projected increase in customers has been applied to existing peak hour traffic attraction, to provide an indication of the future levels of trade. This assessment has been carried out over the Friday evening peak hour in order to assess the development traffic impact over the local highway network, as agreed with officers of RBKC.

4.11 The projected increase in customers would yield the following Friday evening peak hour traffic flows to the proposed foodstore.

Existing Evening Peak Hour Traffic Attraction		Projected Increase In Customers	Increase in Traffic Flow	
Arrivals veh/hr	Departures veh/hr	%	Arrivals veh/hr	Departures veh/hr
328	326	1.054	+18	+18

**Table 4.1 Projected Increase in Traffic Attraction
Friday Evening Peak Hour**

4.12 It is commonly accepted that when considering food retail developments, the majority of the total traffic attraction will be on the highway network in any event, and the effect of the proposal is to divert existing trips.

- 4.13 To account for the level of potential pass-by traffic that would divert, a figure of 30% has been assumed. This figure is typically considered appropriate when assessing food retail proposals and the traffic impact on the adjacent roads.
- 4.14 The resultant increases in traffic flow have been assigned to the site access roundabout at Canal Way with Ladbroke Grove in accordance with existing traffic turning patterns.
- 4.15 The resultant increases in traffic flow at the Canal Way / Ladbroke Grove roundabout junction are shown at *Figure 2*.
- 4.16 To quantify the increases in traffic attraction to the foodstore, consideration has been given concerning the percentage impact to existing traffic flows on the approach roads to the access roundabout, as shown in *table 4.2* below.

Approach Arm	Existing Traffic Flow (veh/hour)	Increase in Development Traffic (veh/hour)	% Impact
Ladbroke Grove (North)	1280	+6	0.5%
Ladbroke Grove (South)	734	+7	0.9%
Canal Way	465	+18	3.8%

Table 4.2 Development Percentage Traffic Impact

- 4.17 The above increases in traffic flow are well within the daily fluctuations in traffic flow that will occur in any event (typical daily fluctuation +/- 10%).
- 4.18 Consequently it is concluded that the proposals are unlikely to result in a material change in traffic flow and therefore do not warrant further detailed assessment.
- 4.19 The Institute of Highways and Transportation support the above view in the document entitled 'Guidelines for Traffic Impact Assessment'. The document recommends that a TIA should normally be produced where one or the other of the following thresholds are exceeded.
- " • *traffic to and from the development exceed 10% of the existing two way traffic flow on the adjoining highway.*

 - *traffic to and from the development exceeds 5% of the existing two-way traffic flow on the adjoining highway where traffic congestion exists or will exist with the assessment period or in other sensitive locations.* "
- 4.20 It is evident from the above assessment of the increases in traffic associated with the foodstore extension that the proposals would not have a material impact on either the existing or modified Canal Way / Ladbroke Grove junction arrangements.

5.0 SITE ACCESSIBILITY

General

5.1 This report has, so far, focused on the traffic implications of the proposed food store extension on the car park and operation of the local highway network.

However to respect the Government's objectives on bringing forward a more sustainable environment it is important to assess the accessibility of the site by alternative mode of transport, other than the private car.

5.2 The following assessment provides details of the accessibility of the site by other mode of transport than the private car.

Bus Service

5.3 The site is ideally situated to maximise the benefits of local bus services, with a 'bus terminus' being located off Canal Way, adjacent to the site. *Table 5.1* below outlines services presently operating in the vicinity of the site.

Route No.	Route	Frequency
23	Sainsburys - Aldwych via Paddington / Liverpool St	Monday - Sunday Every 5-10 minutes
295	Ladbroke Grove - Hammersmith via Sainsburys	Monday - Sunday Every 12-15 minutes
302	Mill Hill - Nottinghill Gate via Sainsburys	Monday - Sunday Every 15 minutes
316	Neasdon - North Kensington via Sainsburys	Monday - Sunday Every 12-20 minutes
52	Willesdon - Ladbroke Grove via Sainsburys	Monday - Sunday Every 5-20 minutes
70	Acton - South Kensington	Monday - Saturday Every 10-30 minutes

Table 5.1 Bus Services

5.4 As shown the area is very well served by local bus services throughout the entire week.

LT Underground / BR Station

5.5 The closest train / underground station is Kensel Green Station which is approximately a 12 minute walk from the site.

5.5 Whilst it is acknowledged that only a small proportion of customers are likely to use the Train / Underground as a mode of transport, it is undoubtedly an important mode of transport for staff.

5.6 The accessibility of the site has been rated, using the Public Transport Accessibility Level (PTAL) calculations, published by London Borough of Hammersmith and Fulham. By using the PTAL calculation it is possible to grade the accessibility of the site and thereby compare it with other sites within the London area. The levels of accessibility range from 1 (lowest accessibility) to 6 (highest accessibility).

5.7 *Table 5.2* below shows a summary of the PTAL analysis.

PUBLIC TRANSPORT ACCESSIBILITY

J. SAINSBURY'S, LADBROKE GROVE, LONDON - SATURDAY STORE PEAK

PT ROUTE (No.)	FREQ (serv/hr)	DIST (m)	MEAN WAIT (mins)	WALK TIME (mins)	ACCESS TIME	EDP (serv/hr)
BUS 7	6.00	750	6.80	9.38	16.18	0.93
BUS 23	12.00	0	4.30	0.00	4.30	6.98*
BUS 52	8.00	700	5.55	8.75	14.30	1.05
BUS 70	6.00	0	6.80	0.00	6.80	2.21
BUS 295	6.00	0	6.80	0.00	6.80	2.21
BUS316	5.00	0	7.80	0.00	7.80	1.92
TUBE	12.00	950	3.70	11.88	15.58	1.93*
RAIL	4.00	950	8.70	11.88	20.58	1.46*
						18.67
						PTAL's BANDING
						4

Key

* *Most accessible service for each mode.*

5.9 As shown the J. Sainsbury store has a PTAL value of 4, which clearly demonstrates its high degree of accessibility by public transport.

Access by Bicycle

5.10 To encourage this mode of transport it is proposed to implement a covered cycle rack adjacent to the foodstore. This detail is shown on the site layout plans, submitted as a part of the planning application.

Access by Foot

5.11 There are two pedestrian access points in the existing layout, both of which will be retained.

(i) To Canal Way

The primary pedestrian access route links the store entrance with Canal Way adjacent to the bus terminus via an internal walkway, through the car park. This is a high quality pedestrian access route and will be retained as a part of the application.

(ii) To Grand Union Canal Towpath

There is an existing link between the store and the Grand Union Canal towpath which will also be retained.

5.12 **Access for the Disabled**

There are presently 28 parking spaces allocated on the site for disabled. This provision has been proven to be in excess of the actual requirement and consequently there will be a reduction to 11 spaces as a part of the application. This revised level of parking for the disabled is typical of the standard at other J.Sainsbury foodstores.

What of our disabled staff?

5.13 As shown on the application drawings, spaces allocated for the disabled are adjacent to the store for ease of access.

5.14 The 'shop mobility bus stop', presently located within the area designated for parking for the disabled, is to be relocated. The bus stop will remain directly adjacent to the store entrance as shown on the application drawing.

5.15 **Access for Parent and Child**

A total of 8 spaces are to be allocated for 'Parent with Child' parking. This provision is typical for a J. Sainsbury foodstore. Again these spaces will be adjacent to the store for ease of access.

6.0 SUMMARY AND CONCLUSIONS

- 6.1 This report has investigated the transport implications involved in the proposals presented by J. Sainsbury Plc to enhance facilities available to their existing customers at the Canal Way, Ladbroke Grove foodstore.
- 6.2 To achieve the enhancement the proposals seek to extend the sales area, which presently consist of approximately 3764 (40,600sqft) by some 927sqm 25% (10,000sqft). It is also proposed to demolish the existing coffee shop and relocate the facility within the main building area, and rationalise the car parking arrangements adjacent to the store.
- 6.3 This report has assessed the implications by considering each mode of transport, ie. private car, public transport , cycle and foot.
- 6.4 At the request of officers of the Royal Borough of Kensington and Chelsea consideration has also been given to the traffic impact of the adjacent Gas Works site. This site is presently being considered for a mixed use development ie. employment/residential and consequently traffic attraction will increase.
- 6.5 Following our investigations we would summarise as follows:
- * The existing store car park operates within its available capacity during typical peak trading periods. A maximum utilisation of available capacity was observed during midday on Saturday 7th February 1998 at 78%.

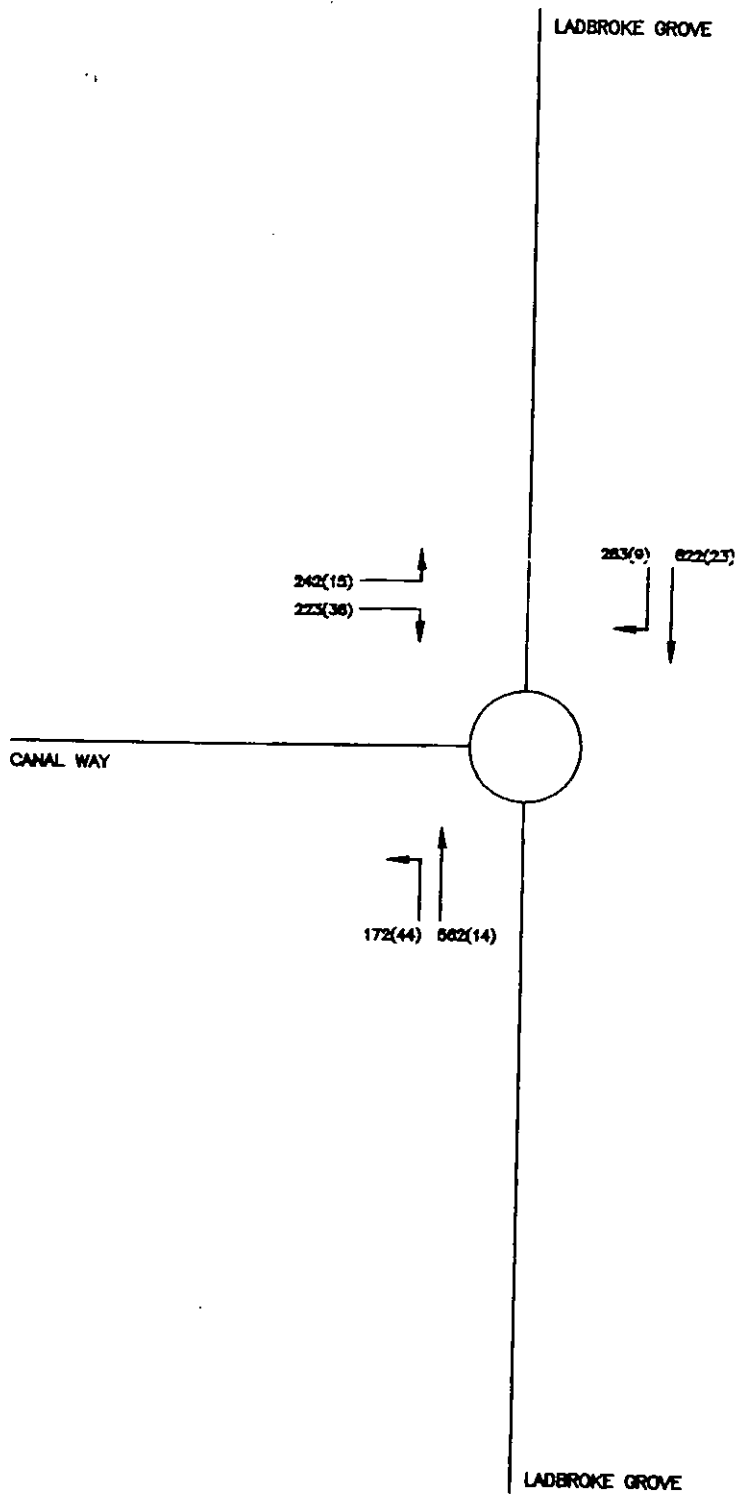
- * The store's access junction to Ladbroke Grove by way of a mini roundabout has been assessed for available capacity over a Friday evening peak hour (1700-1800 hours) as requested by RBKC. The assessment reveals that the Ladbroke Grove (northern arm) is approaching its theoretical capacity. The other two approach arms operate with ample reserve capacity.
- * Research undertaken at previous J.Sainsbury store extensions reveal that the proposal to extend the customer sales area is likely to yield an increase in customers of approximately 5.4%.
- * The percentage increase in customers has been applied to existing traffic attractions and parking demands to demonstrate the impact of the proposals.
- * The assessment reveals that the proposed store car park of 442 spaces is sufficient to accommodate the increased demand. The projected maximum utilisation of available capacity equates to 85%, which is sufficient to accommodate demand whilst not overly encouraging the use of the private car.
- * A car parking policy that limits the duration of stay would increase the available capacity with the car park. However, it has been shown that this parking policy is not warranted at the present time or as a part of the planning application.
- * The off site traffic impact of the proposals would be nominal and as such do not breach the thresholds normally considered appropriate for detailed assessment. It is therefore concluded that the application would not have a material impact on the site access arrangements and consequently will not prejudice the proposals to redevelop the former Gas Works site, adjacent to the foodstore.

- * The site is highly accessible by other modes of transport than the private car. There is a bus terminus adjacent to the site and an Underground / Railway station within a short walk. Pedestrian access is also of a high standard with good access routes linking the site to Canal Way and to the Grand Union Canal Towpath.

- * Access for cyclists, disabled and parents with children have been secured as a part of the application with facilities being made available for each customer group.

6.6 **Conclusion**

Based upon the above investigations we would conclude that the transport implications relating to the proposals would not be detrimental to existing standards of traffic flow and safety. Consequently we see no reason why this aspect of the application should prevent the proposals from proceeding.



Consulting Civil Engineers
& Transportation Planners

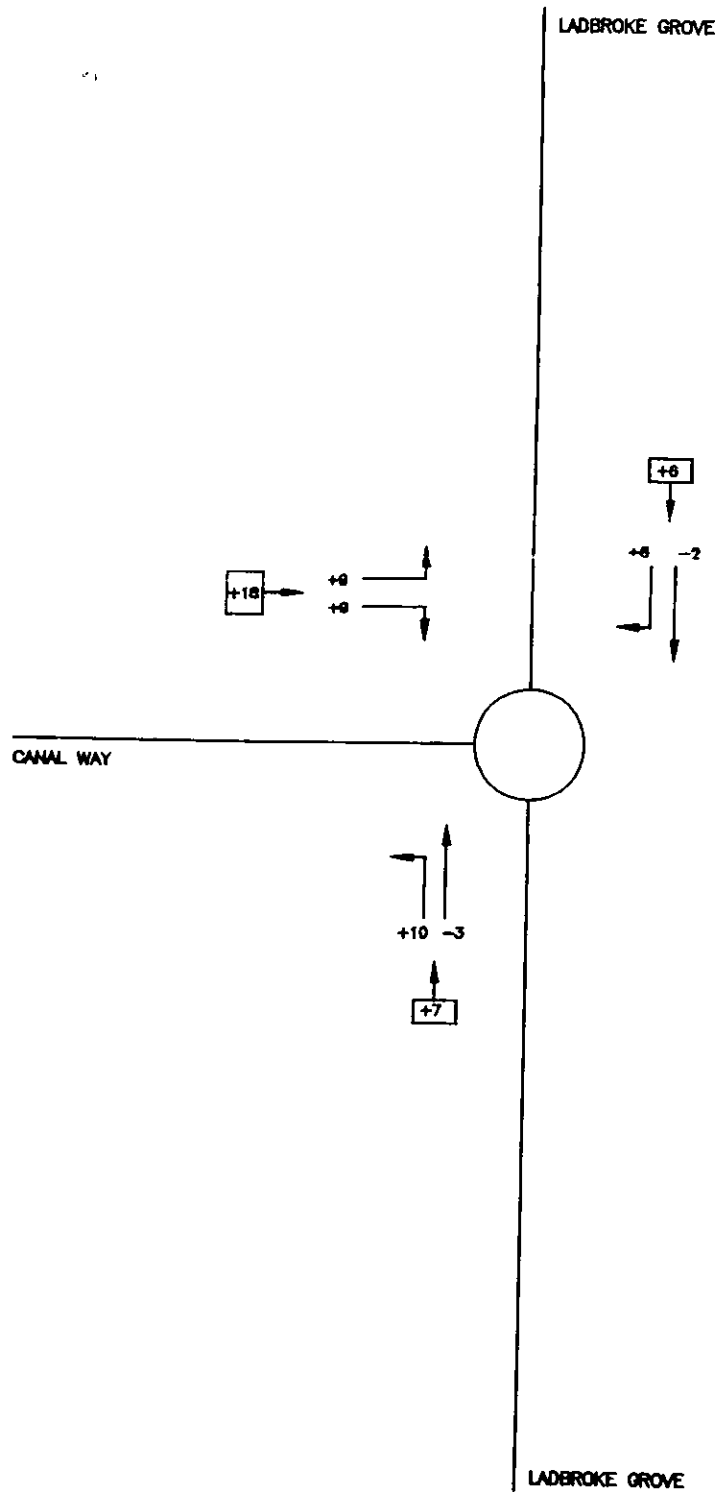
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Drawn By	JT
Checked By	[Signature]
Date Drawn	MARCH98
Job Number	98020

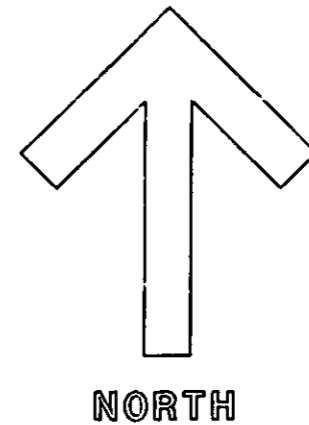
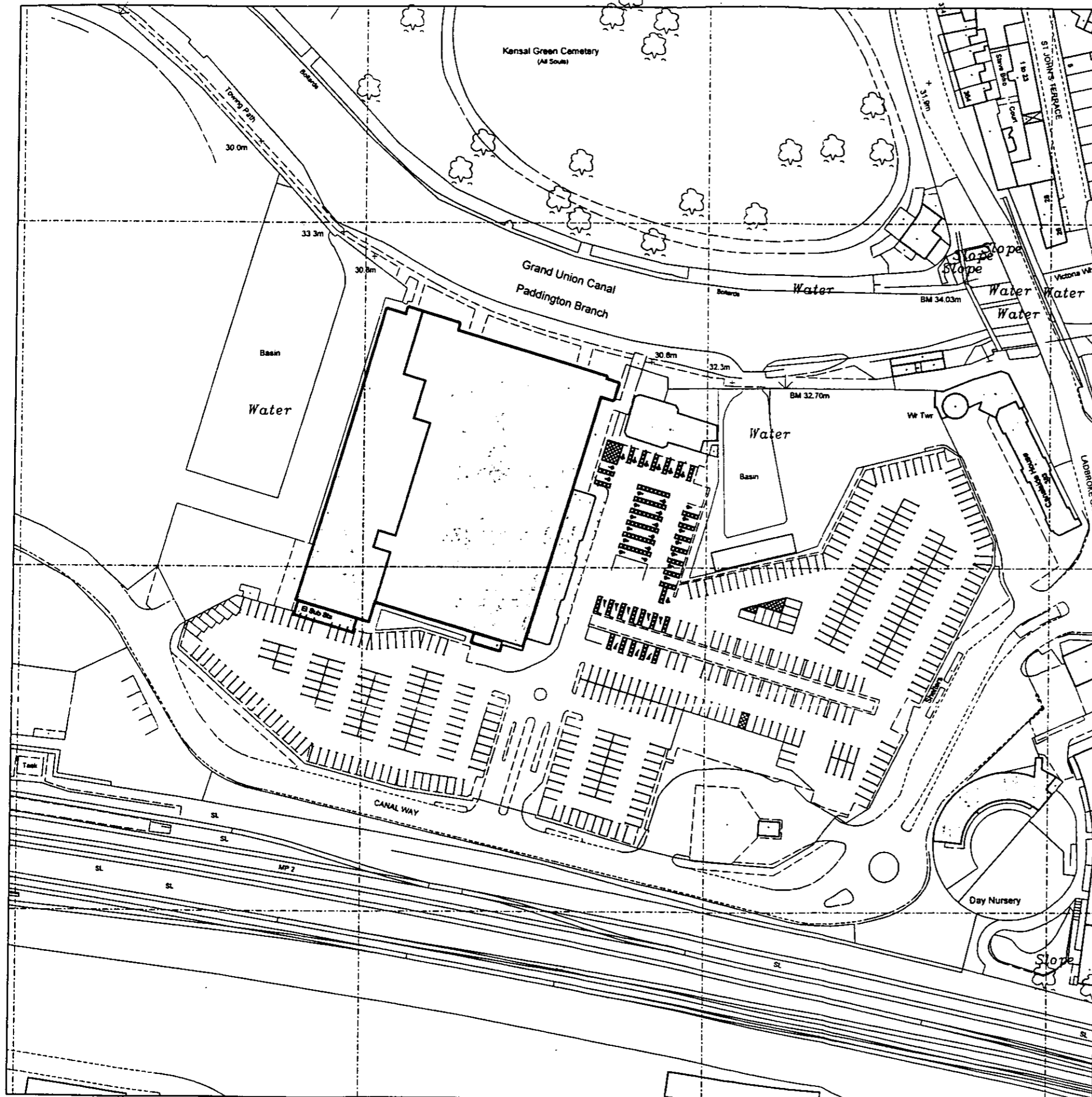
YEAR	1998
DAY	WEEKDAY
TIME	PM PEAK

Job.
JS LADBROOK GROVE

Title.
FIG 1 - BASE TRAFFIC FLOWS

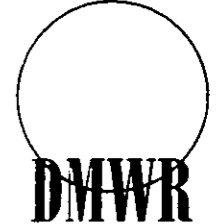


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		Checked By		DAY	WEEKDAY
		Date Drawn	MARCH98	TIME	PM PEAK
		Job Number	98020		
Job. JS LADBROOK GROVE		Title. FIG 2 - INCREASE IN FOODSTORE TRAFFIC			



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PROJECT
 Proposed Extension at
 Ladbrooke Grove

CLIENT
 Sainsbury's
 Supermarkets Ltd.

DRAWING TITLE
 Location Plan

PROJECT No.
 1742

SCALE
 1:1250

DRAWING No.
 A3/01

REVISION

DRAWN SMB	CHECKED	DATE Apr. '98
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IN ASSOCIATION WITH THE DMWR
 PARTNERSHIP MANCHESTER

DEPARTMENT OF TRANSPORT
 TRANSPORT AND ROAD RESEARCH LABORATORY

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CAPACITIES, QUEUES, AND DELAYS AT ROUNDABOUTS

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1TRRL PROGRAM ARCADY3 PAGE 1
 SITE ACCESS 1998 BASE PM REV2 (SA98BPM2)

ROUNDABOUT CAPACITY AND DELAY

INPUT DATA

ARM A - LADBROKE GROVE NORTH
 ARM B - LADBROKE GROVE SOUTH
 ARM C - CANAL WAY

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	4.50	6.00	12.50	999.00	25.00	58.0	0.628	26.810
ARM B	5.00	6.00	15.00	20.00	25.00	33.0	0.668	29.106
ARM C	4.00	5.50	18.00	23.00	25.00	3.0	0.699	28.800

1TRRL PROGRAM ARCADY3 PAGE 2
 SITE ACCESS 1998 BASE PM REV2 (SA98BPM2)

TRAFFIC DEMAND DATA

0 TIME PERIOD BEGINS 16.45 AND ENDS 18.15
 0 LENGTH OF TIME PERIOD - 90 MINUTES.
 0 LENGTH OF TIME SEGMENT - 15 MINUTES.

0 DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	13.81	20.72	13.81
ARM B	15.00	45.00	75.00	9.18	13.76	9.18
ARM C	15.00	45.00	75.00	5.81	8.72	5.81

1TRRL PROGRAM ARCADY3 PAGE 3
 SITE ACCESS 1998 BASE PM REV2 (SA98BPM2)

TIME	TURNING PROPORTIONS			
	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.744	0.256
		0.0	822.0	283.0
		(4.8)	(4.8)	(4.8)
	ARM B	0.766	0.000	0.234
		562.0	0.0	172.0
		(7.9)	(7.9)	(7.9)
	ARM C	0.520	0.480	0.000
		242.0	223.0	0.0
		(11.0)	(11.0)	(11.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I
I	16.45-17.00									I
I	ARM A	13.81	23.74	0.582		0.0	1.4	19.6		I
I	ARM B	9.18	24.69	0.372		0.0	0.6	8.6		I
I	ARM C	5.81	21.20	0.274		0.0	0.4	5.5		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I
I	17.00-17.15									I
I	ARM A	16.49	23.38	0.705		1.4	2.3	32.9		I
I	ARM B	10.96	24.24	0.452		0.6	0.8	12.0		I
I	ARM C	6.94	20.26	0.343		0.4	0.5	7.6		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I
I	17.15-17.30									I
I	ARM A	20.20	22.88	0.883		2.3	6.4	81.2		I
I	ARM B	13.42	23.66	0.567		0.8	1.3	18.7		I
I	ARM C	8.50	18.99	0.448		0.5	0.8	11.7		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I
I	17.30-17.45									I
I	ARM A	20.20	22.88	0.883		6.4	6.9	100.2		I
I	ARM B	13.42	23.62	0.568		1.3	1.3	19.5		I
I	ARM C	8.50	18.97	0.448		0.8	0.8	12.1		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I
I	17.45-18.00									I
I	ARM A	16.49	23.37	0.706		6.9	2.5	41.5		I
I	ARM B	10.96	24.19	0.453		1.3	0.8	12.9		I
I	ARM C	6.94	20.24	0.343		0.6	0.5	8.1		I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I
I	18.00-18.15									I
I	ARM A	13.81	23.73	0.582		2.5	1.4	22.1		I
I	ARM B	9.18	24.67	0.372		0.8	0.6	9.1		I
I	ARM C	5.81	21.17	0.275		0.5	0.4	5.8		I

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	1.4 *
17.15	2.3 **
17.30	6.4 *****
17.45	6.9 *****
18.00	2.5 **
18.15	1.4 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.6 *
17.15	0.8 *
17.30	1.3 *
17.45	1.3 *
18.00	0.8 *
18.15	0.6 *

QUEUE AT ARM C

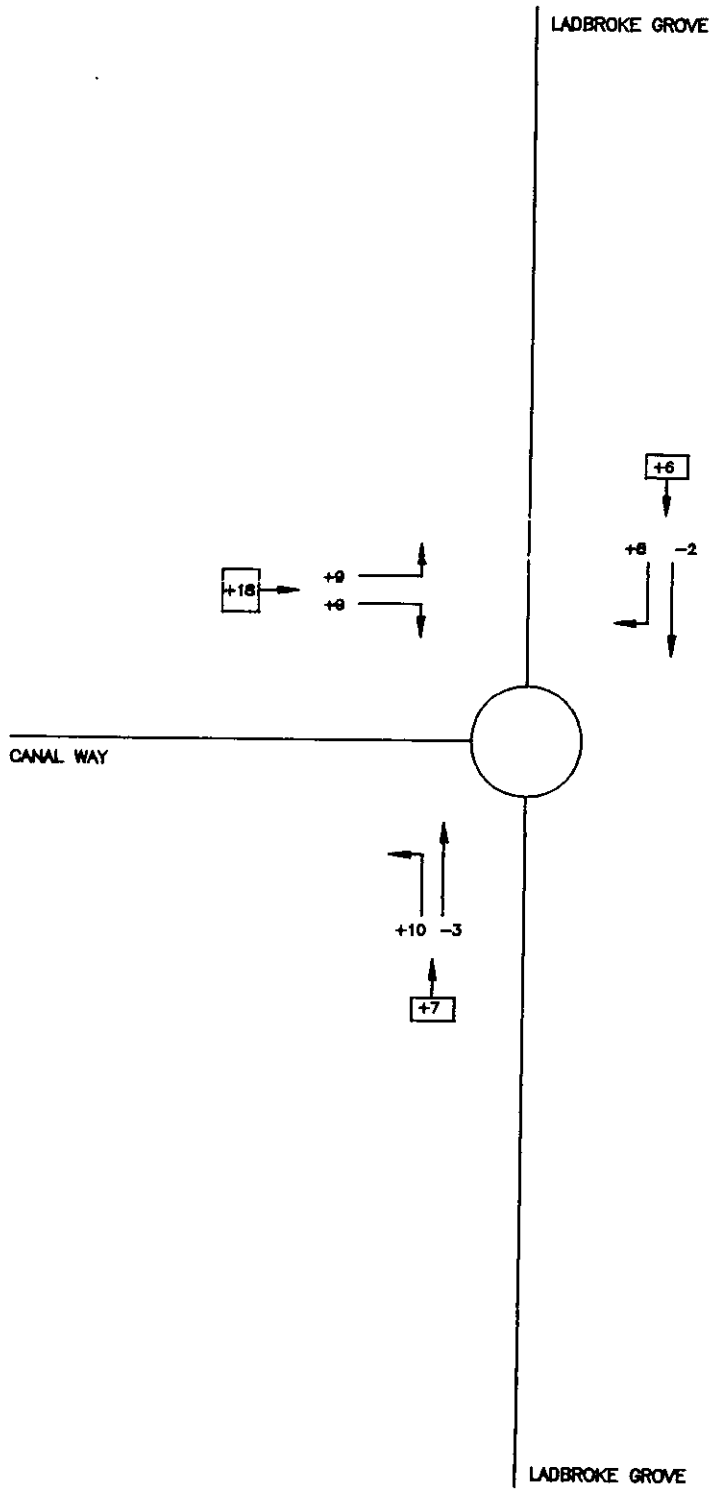
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE*
17.00	0.4
17.15	0.5 *
17.30	0.8 *
17.45	0.8 *
18.00	0.5 *
18.15	0.4


QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

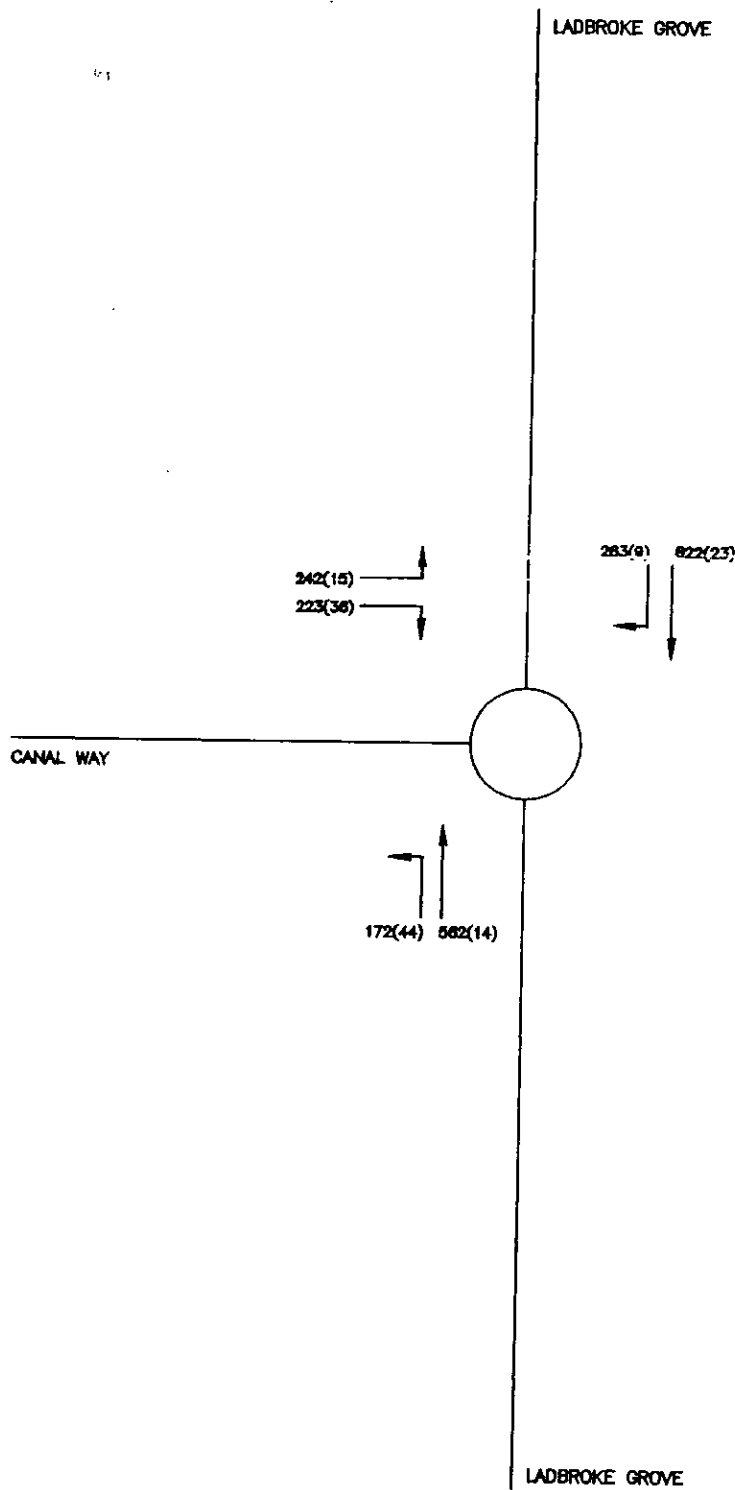
I	ARM	I	TOTAL DEMAND		* QUEUEING *		* INCLUSIVE QUEUEING *		I
			I	I	I	I	I	I	
I		I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	I
I	A	I	1515.2	1010.1	297.4	0.20	297.5	0.20	I
I	B	I	1006.5	671.0	80.8	0.08	80.8	0.08	I
I	C	I	637.6	425.1	50.7	0.08	50.8	0.08	I
I	ALL	I	3159.3	2106.2	428.9	0.14	429.0	0.14	I


* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB



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		Checked By		DAY	WEEKDAY
		Date Drawn	MARCH98	TIME	PM PEAK
		Job Number	98020		
Job. JS LADBROOK GROVE		Title. FIG 2 - INCREASE IN FOODSTORE TRAFFIC			



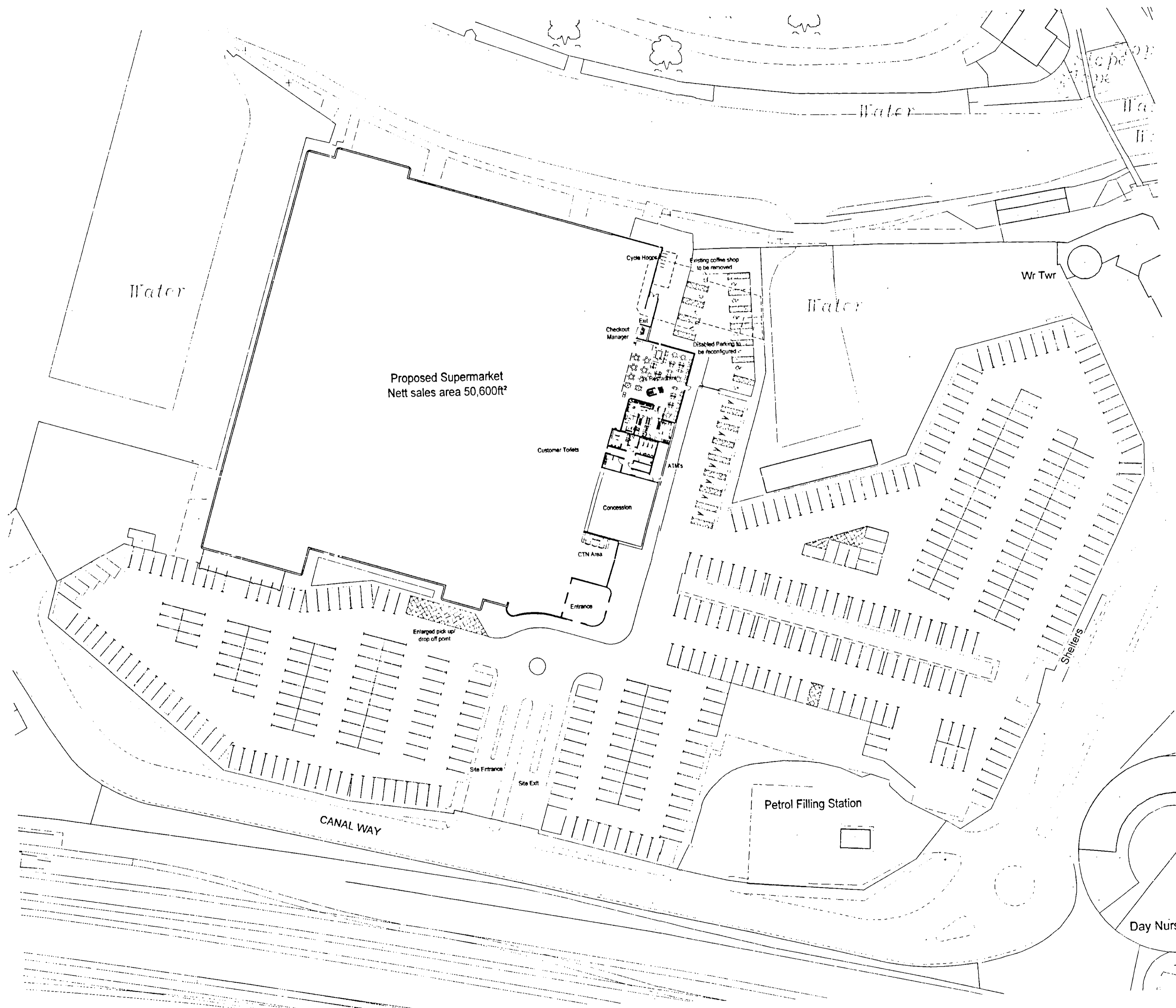
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		Checked By	<i>[Signature]</i>	DAY	WEEKDAY
		Date Drawn	MARCH98	TIME	PM PEAK
		Job Number	98020		
Job. JS LADBROOK GROVE		Title. FIG 1 - BASE TRAFFIC FLOWS			

Carpark Schedule

Standard spaces	426
Parent and Child	8
Disabled	11
TOTAL	442

Schedule of New Areas

New Sales	50,600ft ²
New Shop Front Including Toilets, ATM	5,224ft ²
New Restaurant	2,771ft ²
TOTAL	58,595ft²
Gross Internal Area of new work:	11,942ft²



REVISIONS

REV	NOTES	BY	CHKD	DATE
A	New shopfront area revised. Entrance moved to corner. Customer toilets / ATM's relocated	SMB		25/05/98

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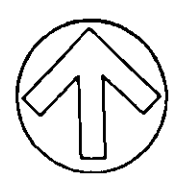
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PROJECT
Proposed Extension at Ladbroke Grove

CLIENT
Sainsbury's Supermarkets Ltd.

DRAWING TITLE
Proposed Site Plan

PROJECT No. 1742	NORTH POINT 		
DRAWING No. A1/04	REVISION A		
DRAWN SMB	CHECKED	DATE Apr. '98	SCALE 1:500

IN ASSOCIATION WITH THE TOWN PLANNING DEPARTMENT

1742 opening rev 01 01/04/98

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Bettridge Turner & Partners

Sainsbury's Supermarkets Limited
Proposed Store Extension, Ladbroke Grove

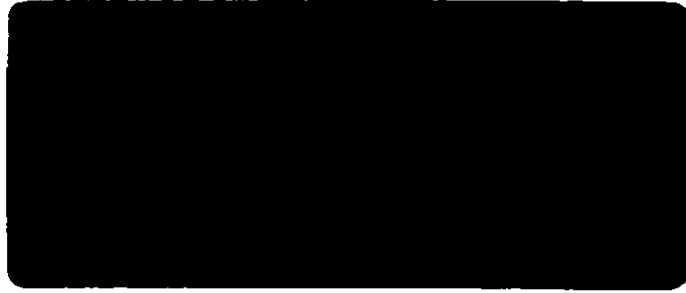
Contamination and Ground Investigation

- 1. Introduction - Page 2
- 2. 1981 Reports - Page 3
- 3. 1986 Report - Page 6
- 4. 1999 Investigation - Page 6
- 5. Discussion - Page 8
- 6. Conclusions - Page 9
- 7. Recommendations - Page 9
- 8. Figure 1 - Page 10
- 9. Appendix A - Page 12

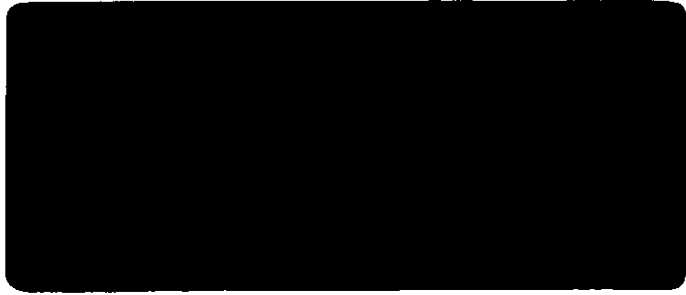
BTP Geotechnical Report

Trial Pit Logs - Page 15

Job no.	Prepared by	Approved by	Status	Issue Date
98,020	R S Cooper		Final	10/3/1999



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Introduction

The site is a former Gas Works, now occupied by a J Sainsbury store and associated car parking. It is proposed that the store building will be extended to accommodate additional facilities within store (as shown on DMWR dwg. 1742/A1/04).

The site was the subject of a detailed Site Investigation in 1981 by Ground Engineering Ltd., with further reporting carried out in 1986. These reports addressed both contaminative and structural elements of the site and were inspected at the office of Royal Borough of Kensington and Chelsea. A copy of all documentation in the Public domain has been obtained from RBK&C. Both reports note the site as being heavily contaminated with a variety of Gas Works related materials, including oils, coal tar hydrocarbons and metals. They also note a large number of underground tanks and old foundation features that would affect the methods of construction for the store.

A further site investigation was undertaken in February 1999, limited to the footprint of the proposed store extension.

1981 Reports

The **Clarke Nicholls Marcel Report on Desk Study** primarily identifies deep seated geology and former structures on the site. The geological succession shows the site to be underlain to great depth (in excess of 70.0m) with London Clay. The key former structure was the 1864 Retort House over which the current store building appears to be sited. Many other various structures have existed on the site within the J Sainsbury demise during the use as a gas works including buried tanks, gas holders, coal bunkers and minor brick structures.

The conclusion drawn from this is that the presence of buried structural features could be anticipated.

The **Clarke Nicholls Marcel Report on Chemical Site Investigation** interprets the findings of site works carried out by **Dr. Augustus Voelcker & Sons Limited** who in turn were commissioned by **Ground Engineering Limited** to carry out a chemical investigation of the site.

The investigative work included the excavation of some 58 trial pits; 127 soil samples; and 19 water samples. For analysis the site was divided up into 10 areas - Figure 1 shows these areas over DMWR Drawing SK00. From Figure 1 it can be seen that the J Sainsbury store was constructed in Area F, with Areas D (part), E, J, G, H, and K all falling within J Sainsbury demise. The report concluded that the site was contaminated over its whole area with the nature and degree varying from place to place and according to depth.

The findings summarised on an area by area basis are as follows:-

Area C. - High levels of coal tar close to ground level with ground water samples also showing heavy contamination by oils and coal tars. Low levels of Methane gas were detected. The report concluded that for Area C minimal work would be required for Light Industrial use, with only importing of topsoil necessary for Domestic use.

Area D. - Some contamination with heavy metals, and elevated levels of cyanides and phenols which would require use of Personal Protective Equipment by ground workers if still present. No gas was detected. This area is under car park and is not anticipated to be disturbed during new works.

Area E. - Similar to Area D but this area is covered by Canal Way and is not anticipated to be disturbed during new works.

Area F. - This area was the site of several old building structures. Isolated pockets of gas were encountered trapped in old floor voids and pipework. Very high levels of Coal Tar and Naphthalene were found around the area, with traces of complex Cyanides. The conclusion was that the site could be used for Light Industrial purposes if proper precautions were taken during construction.

Area G. - Pulverised Fuel Ash was the predominant feature in this area leading to elevated levels of Boron, otherwise the features were similar to the other areas.

Area H. - Again, similar general findings to the other areas but with high levels of Lead found in the soil. This was explained as being due to the former use as an old electrical store in the area, and dumping of old batteries.

Area I. - not within the site demise.

Area J. - Gas holder concrete base structures featured here, with cylinders of mineral oil dumped on site, and elevated levels of Toluene, Hydrogen Sulphide and Methane gas. The presence of the old structures would account for these features as they cause gasses to accumulate.

Area K. - As Area J but the base of the gas holders were not concreted over and accordingly levels were lower.

The Conclusion of the report generally stated that the site was contaminated, but that with the hard covering over the site it would be acceptable for use for light industrial purposes.

The overriding concern was for the health and safety of construction workers, as Protective Equipment accompanied by a Clean Working regime would be required. There were no major hazards reported for Ultimate Users; Animal and Plant Life; Building Structures and Service Lines on the basis that the site would be hard covered and all underground pipes and ducts were backfilled with clean inert fill.

Groundwater issues were discussed and it was recommended that groundwater should not be discharged to sewers or a water course. Given the depth of London Clay overlying the aquiferous chalks the issue of potable supply contamination was considered extremely unlikely.

The Clarke Nicholls Marcel Report on Engineering Site Investigation interprets the findings of **Ground Engineering Report** on the site. This work entailed the sinking of 10 boreholes by percussive methods, and the excavation of a series of pits and scrapes.

Generally the site was found to be covered with an assortment of fills, building materials and rubble, and locally derived material to a depth of up to 4.0m from ground level. Below this level the London Clay was found and proven by borehole to a depth of 15m.

In the area of the proposed extension the report notes that the ground has been well consolidated by previous structures and would not require insitu ground densification to support ground bearing floor slabs. It was strongly recommended that any new structure be aligned with the old 1864 Retort House. From interpretation of records it appears that the new J Sainsbury store was partially aligned with the old structure but it seems unlikely that any of the old foundations would have been used as they do not match the store footprint, and as stated previously, it appears that the store was founded on piles with a suspended floor slab. The extension works could encounter parts of the old structure or at least cross the foundation lines of the old structure.

This report notes that service pipes should not be plastic due to contaminants in the ground water.

Annexed to the report were calculations that in summary note a safe bearing capacity at 4m depth as 200kn/Sq.m; long term total settlements in the range 15 - 20 mm. Further calculations note that pad foundations would be uneconomical and explores pile designs. The result of this exercise was to prove adequate load carrying capability for pile lengths of 10 - 15m, with a range of diameters from 350 mm to 900 mm.

The 1986 Report

In June of 1986 Ernest Green and Partners commissioned **Ground Engineering Ltd.** to carry out further investigative works to the site. These works were to provide additional data for foundation design and involved sinking 9 boreholes with 8 standpipes.

Findings were consistent with the earlier report, although it is noted that ground water strikes featured more frequently than in the 1981 study, albeit wholly within the made ground. The report notes that the foundation solution chosen was a suspended floor slab on a grid of piles at 4m centres, with columns supported by groups of up to 5 no. 600kN piles.

The report recommends that concrete be designed to conform to Class 3 of B.R.E Digest 250.

1999 Site Investigation

Contamination - In February 1999 **ESU Services Ltd** - a firm of Environmental Consultants - were commissioned to carry out contamination investigation and testing to assess the existing ground conditions within the foot print of the proposed store extension. A copy of their full report is available separately.

The **ESU** report concludes:-

1. That the site within the footprint of the proposed extension contains evidence of minor contamination that would require a contractor working in the ground to exercise clean and safe working practices;
2. A chemist should be present on site during ground works to ensure correct classification/categorisation of arisings;

-
3. The materials encountered within the footprint of the proposed extension are considered to be environmentally suitable for the proposed end use of a building;
 4. Piled foundations and new service runs should be avoided if possible to minimise potential for contaminant to track.

Geotechnical - Bettridge Turner & Partners (BTP) attended site during the excavations by ESU. The detailed report is attached at Appendix B to this report.

The findings conclude:-

1. The substratum close to ground level would support a ground bearing slab used for retail floor area or restaurant use;
2. The London Clay is available at depths that would allow economic design to be based upon pad foundations, in conjunction with a ground bearing slab.

Discussion

The remediation methods recommended at the time of initial store construction involved removal of hot spots under buildings, infilling and capping of tanks, and a general strip off of the site with 1.0 - 1.5m filling with inert materials. No evidence was found in public files as to the actual remediation strategy adopted during the construction works.

Materials found in the 1999 investigation of the extension footprint are representative of the materials that would have been acceptable as capping/fill layer at time of original site remediation, and appears to confirm that the site was stripped and capped.

The contention that underground structures may exist and contain contaminants, could only be proven by extensive excavations, with all inherent risks to the population and environment generally. The existing capping of the site by fill and impermeable hardstandings is a valid remediation for the current use of the site, however this may not be the case if the site is redeveloped and accordingly a liability remains for future cleaning of the site.

The potential for groundwater contamination is always of great concern. The Environment Agency is especially keen to protect all groundwater, rivers, streams and so on, in particular aquiferous supply protection. The groundwater on the development site is protected by the thick London Clay stratum and the area is classified as a non-aquifer by Environment Agency.

The perched water found in the early studies was heavily contaminated by coal tars and oils according to current standards. It has been proven by site investigation that the levels of contamination within the ground under the proposed extension are acceptable and that it is not leachable. No ground water was encountered to depths in excess of anticipated foundation requirements.

Land gasses were not investigated for this report. The existing store has a gas protection system in place and it is assumed that this system will be extended to incorporate the extension works.

Conclusions

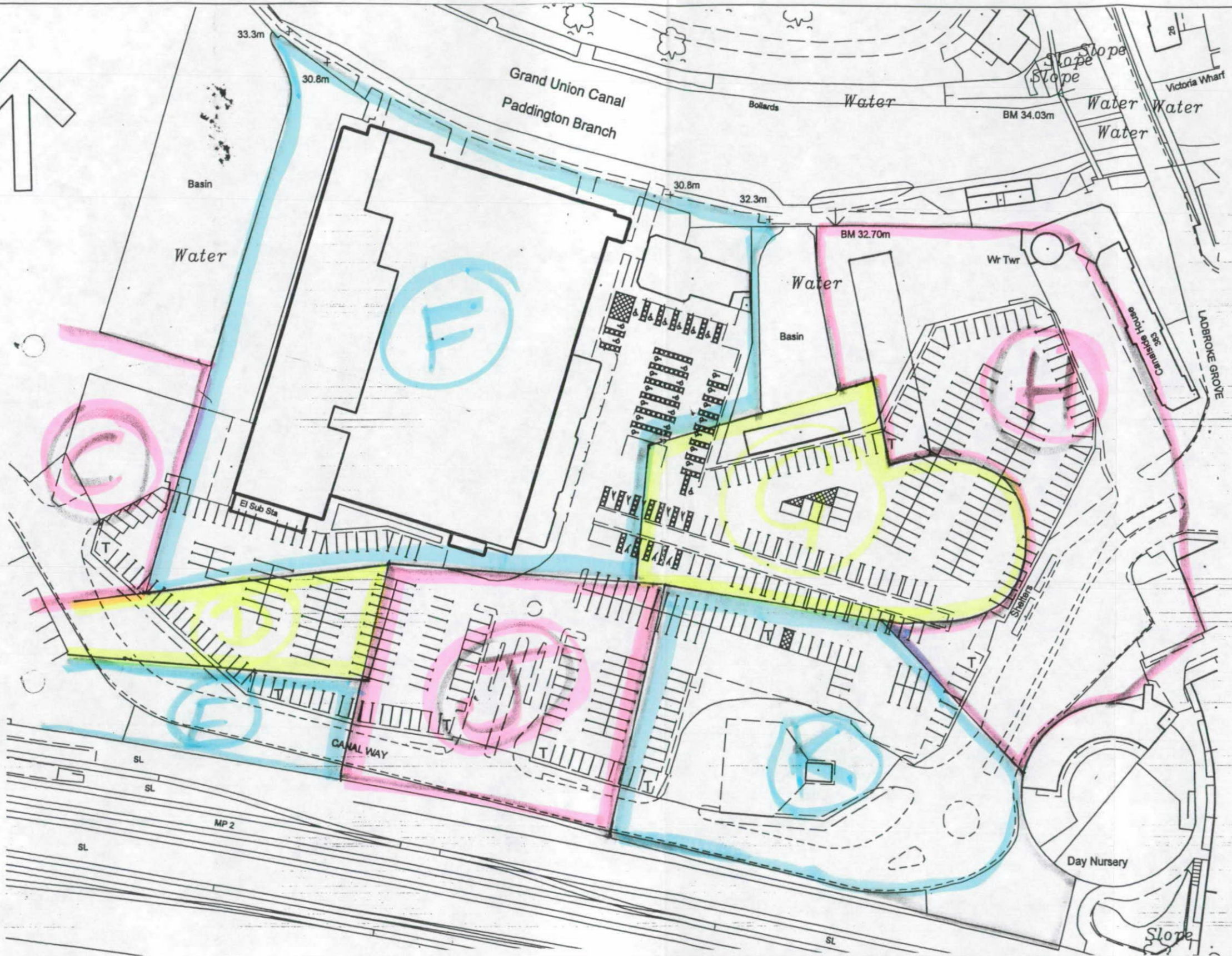
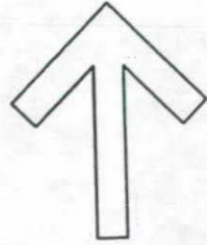
1. The site has been remediated generally by top strip and overlay with general fills under impermeable hardstandings. This is a valid treatment for current and proposed use.
2. There may be subterranean features left from the gas works history of the site, however none of these are anticipated under or proximate to the store extension. There is a potential liability for future cleaning up of the site in the event of total redevelopment uncovering contaminated features.
3. Contamination is present, but at a low level well within the guidelines for safe use under concrete slab within a store environment. The area under the proposed extension is described as Slightly Contaminated.
4. Levels of contamination are sufficient to require groundworks contractors to work in accordance with HSE document HS(G)66 "The Protection of Workers and the General Public during the Redevelopment of Contaminated Land".
5. Land fill gasses must be expected and allowed for in design and coordinated fully with existing protection systems for the store.
6. Sulphates are present and Class 3 protection as described in B.R.E Digest 250 should be allowed for in design of underground features.


Recommendations

It is recommended that the following courses of action be taken to address existing and anticipated contaminative issues for the proposed store extension works:-

1. Foundation solutions be designed based upon ground bearing slab and pad foundations;
2. All additional services runs are contained within the existing supply corridors on site;
3. A chemist is employed during all ground works to provide continual evaluation of site conditions, classification of waste for disposal of arisings, and to ensure appropriate PPE's are utilised by the workforce;
4. That all historical data of underground features, test results and reports are collated and placed within the Health and Safety File for the finished building to assist any future development/redevelopment of the site.
5. That this report and others are provided for use by Designers in detailed design.

Figures and Diagrams



	Bettridge Turner and Partners Consulting Civil & Structural Engineers and Transportation Planners		31 High Street Cobham Surrey KT11 3DP Tel: 01932 867773 Fax: 01932 866094
	Project PROPOSED EXTENSION AT LADBROKE GROVE Client J. SAINSBURY'S LTD. Drg Title FIGURE 1 - CONTAMINATION AREAS	Scale 1:1000 Date SEPT '98 Drawn By <i>RA</i> Checked By <i>Dr</i>	

APPENDIX A

Bettridge Turner & Partners - Geotechnical Report

Introduction

Given the requirement for ESU to open excavations for the purposes of Chemical and Contamination to complete their analysis and findings, the opportunity was taken to inspect the excavations and make visual assessments of soil strength as they may affect foundation solutions.

The site was attended on Tuesday 9th February 1999 by Barrie Lloyd, Structural Director, to inspect trial pit excavations within the footprint of the proposed extension, within an existing car park area.

The following findings are based solely on visual assessments of materials encountered in the trial holes. No laboratory testing or field works were undertaken to substantiate these preliminary observations.

Observations

We report observations as follows:

- 1 Three pits were excavated in front of the shop in the area of the proposed extension. Trial pits one and two were back filled before we were able to carry out our own inspection. However, we have recorded the trial pit log prepared by ESU. Trial pit three was excavated whilst we were on site and we have a full record of the soils excavated. The trial pit logs are appended at the end of this short report.
2. Trial pit one was excavated to a depth of 1.3m where a concrete base was exposed and the pit stopped at that level. All materials above the concrete slab were of imported general fill and well consolidated.

3. Trial pit two was excavated to a depth of 3.3m with concrete to a depth of 0.3m and firm ballast fill forming the subbase to the concrete to a depth of 0.9m below ground. Below this material from 0.9 to 3.3m was a mixture of clay fill with bricks and concrete mixed into the clay. At the base of trial pit at 3.3m clay fill was still in evidence. The London clay was not exposed in this pit.
4. Trial pit three exposed London clay at a depth of 2.8m which would be satisfactory for founding a proposed steel frame extension. Above this level was clay fill, ash and a concrete slab at 1.7m. At ground level the tarmac overlaid a thickness of 550mm of a lean concrete and ballast which was on top of the clay/brick fill.
5. The quality of the substratum close to ground level would in our opinion be sufficient to support a ground bearing slab for shop/restaurant usage, however we would not recommend this approach if the area of extension is subsequently to be used for storage of retail materials, or to support any racking systems.
6. The London clay exposed at 2.8m below ground in trial pit three would be suitable to sustain an increase in bearing pressure of 150kn/m². A steel frame extension with a span say 25m with frames at 6m centers would result in a column load of between 75 and 100kn giving a mass concrete pad approximately 1m x 1m on plan. However the depth would have to extend down to the virgin London clay through all the fill materials imported into the site for the original development. This may result in excavations of 4.0 metres depth, which is on the limit for normal safe working, and economic cost when compared to a piled solution.
7. If isolated pad foundation are to be used, then it was noted that the sides of the excavation were reasonably stable, free of water, and stood up for the duration of the excavation works. A temporary works system of support would be required for the sides of any pad foundation excavation, but this is within normal working systems.

Summary

1. The existing consolidated fill materials appear to be capable of supporting a ground bearing slab for lighter uses i.e.retail floor area, coffee shop and/or restaurant use. This should be investigated by laboratory and field testing as a part of detailed design.
2. The London Clay substratum appears to be of sufficient strength and at such depth as to make Pad Foundations a realistic option for supporting new steel frame to extension. This should certainly be the case if a ground bearing slab is used.
3. Jointing new build with existing structure will require careful detailing to ensure differential settlements will be allowed for.
4. Buried concrete, services and other features must be designed for Class 3 Sulphates as defined in BRE Digest 250.

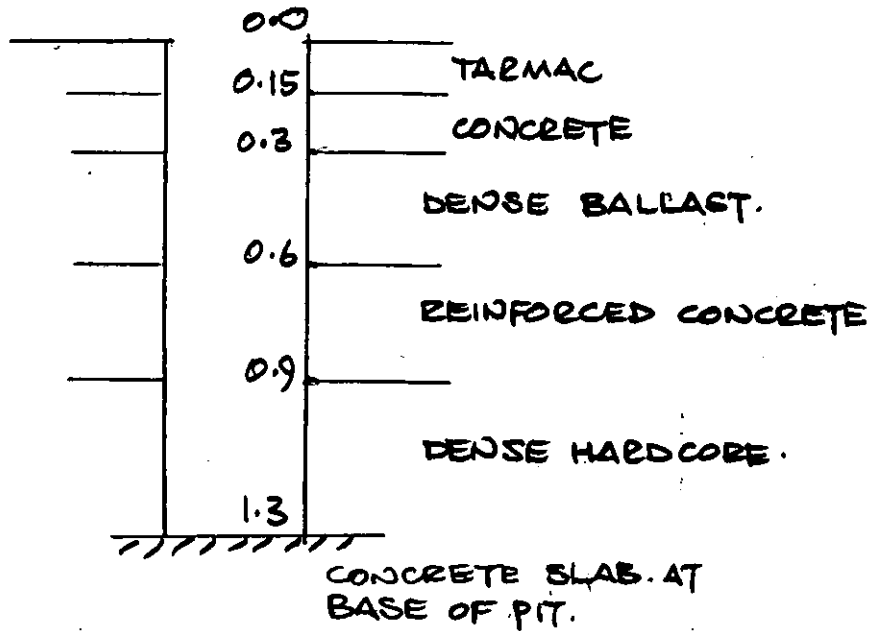
TRIAL PIT LOGS

BTP
BOOTH
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Job Title: JS Ladbroke Grove

Job No.: 98.020
 Date: Feb 99
 Sheet No. 1 of
 Made by: BDL checked by:

TRIAL PIT LOG TP 1



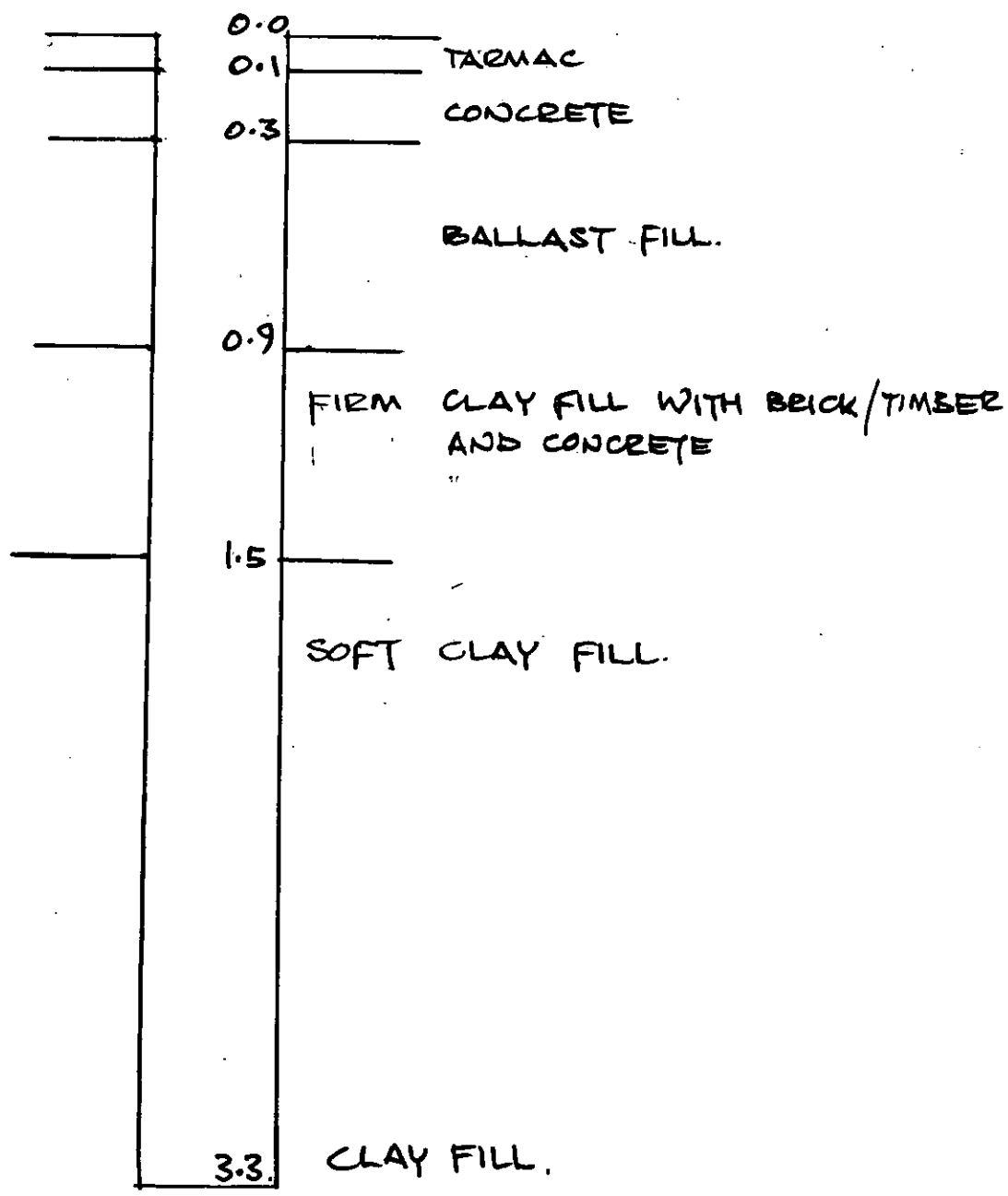
- SIDES STABLE.
- NO WATER.



Job Title: JS Ladbroke Grove

Job No.: 98.020
Date: Feb 99
Sheet No. 2 of _____
Made by: BDL checked by: _____

TRIAL PIT LOG TP 2.



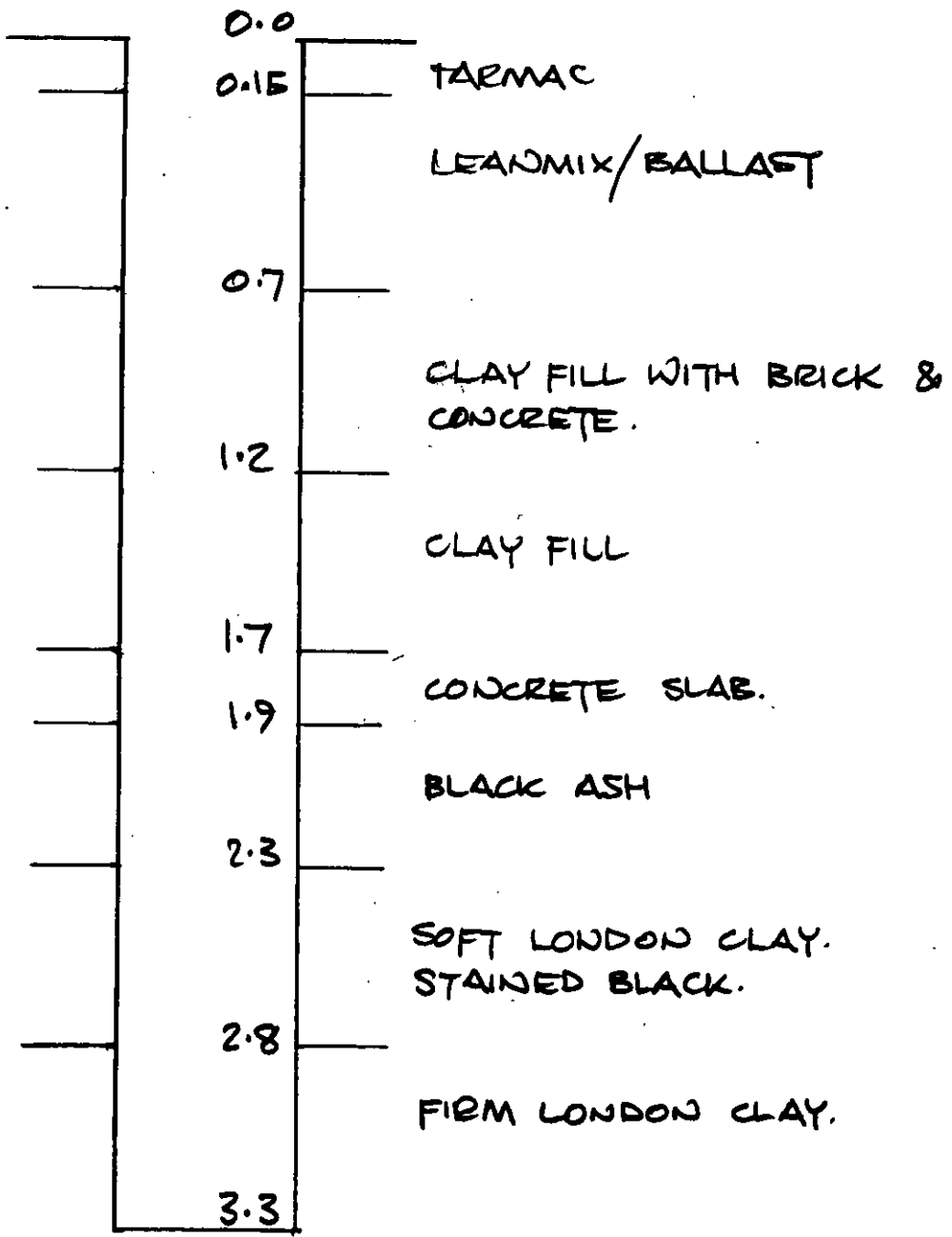
- SIDES STABLE
- NO WATER.

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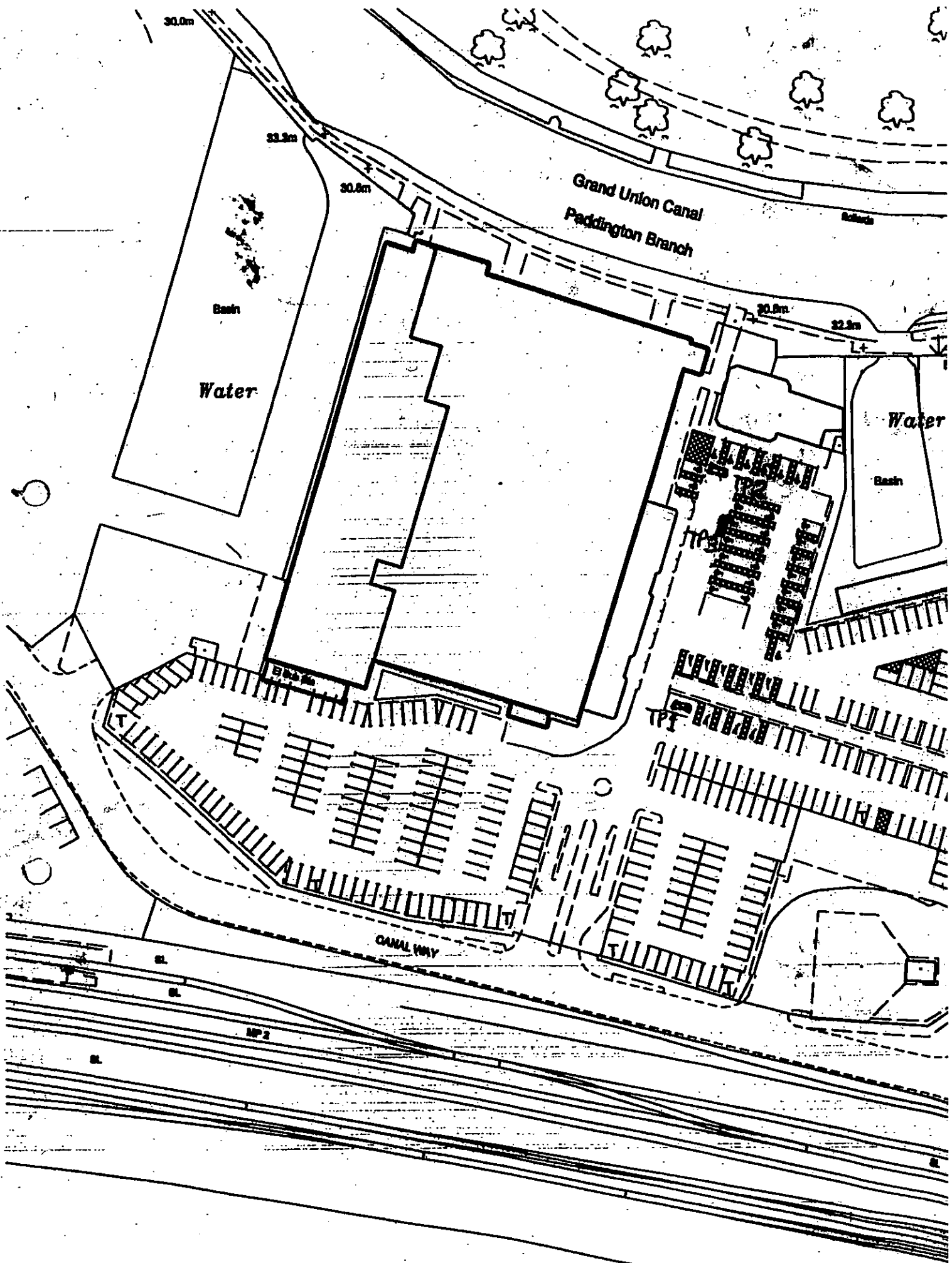
Job Title:
JS Ledbrooke Grove

Job No.: 98.020
 Date: Feb 99
 Sheet No. 5 of _____
 Made by: BDL checked by: _____

TRIAL PIT LOG TP 3



- SIDES STABLE
- NO WATER.



30.0m

31.5m

30.8m

Grand Union Canal
Paddington Branch

Railway

Basin

Water

30.8m

22.5m

Water

Basin

Basin

CANAL WAY

MP 2

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Environmental
Consultants

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Client: Sainsbury's Supermarkets

Date: February 1999

**Title: Contamination Investigation,
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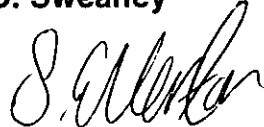
Title : Contamination Investigation, Ladbroke Grove

Version: Final

File Ref: F:\ESU\SAINSBURY\Ladbroke Grove\Investigation\TEXT.doc

Date: February 1999

Prepared under the management of
Name: Mr G.D. Sweaney

signature 

Reviewed and approved by
Name: Mr J.P. Barlow

signature 

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Report: Contamination Survey

Client: Sainsbury's Supermarkets

Date: February 1999

Document: f:\esulsainsbury\ladbrook grove\investigation\text.doc

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Executive Summary

1. A database search was carried out on the Sainsbury's store at Ladbrooke Grove in relation to a proposed extension at the store. This revealed that the site has historically been used as Kensal Green gas works. Information from previous reports into the area is that odorous, tarry and oily materials had been identified on site, as may be expected from a former town gas production site.
2. Background research revealed plans and other information into the former gas works site. This indicated cause for concern regarding the site as a whole, including the existence of two large tar and liquor tanks beneath the car park, approximately 20m from the outer extent of the proposed extension. Historical plans of the area of the site into which the investigation was commissioned indicated the presence of gasification plant, a settling tank, lorry accommodation, fuel tank and an above ground sludge tank. Below ground structures may exist in the area of the proposed extension, though none were identified in the plans studied.
3. A soil contamination investigation was carried out at in the footprint of the proposed extension at the store on 9th February 1999. This consisted in the excavation of 3 trial pits on the site, the recording of soil conditions and the collection and analysis of 14 soil samples for a full suite of chemical contaminants.
4. Analytical results indicated that Two samples collected displayed elevated concentrations of PAH, above Dutch intervention thresholds, though well below the ICRCCL threshold for the proposed end use of Landscaped areas, buildings and hard cover. Sulphate concentrations were elevated in a number of samples collected, reaching a maximum of 5200 mg/kg. This will need to be borne in mind when choosing building materials for foundations and

services. Cyanide concentrations were slightly elevated in a number of samples, but are well below ICRCCL thresholds.

5. Heavy metal concentrations in the samples taken were below Dutch Intervention thresholds, and had a leachable content below the limit of detection.
6. The materials encountered within the footprint of the proposed extension are considered to be environmentally suitable for the proposed end use of a building, however material arising from site may be classed as contaminated for waste disposal purposes.
7. As the site is a former gas works, localised structures tanks, and pockets of contamination could be present have not been detected by the trial pit pattern. It is therefore recommended that a site chemist be present during ground works to ensure accurate categorisation of ground conditions throughout the excavated area.
8. It is known that two large tar tanks have been present close to, but outside the area of investigation. Extreme care should be taken if excavations (eg of service runs) are to take place outside the area of investigation.
9. The preferred environmental option for foundations would be to avoid piling, as this process can create migration pathways for contaminants and crates a risk of unidentified underground structures being breached.
10. Landfill gas and land gasses were not investigated during this investigation. A gas survey for the entire site would be prudent. This would involve the installation of four x gas monitoring boreholes to the maximum depth of fill material on site.

11. Contaminated material was detected on site, therefore special health and safety measures will be necessary to protect workers and the general public during any groundworks on site. Guidance can be sought from the HSE document HS(G)66 'The Protection of Workers and the General Public during the Redevelopment of Contaminated Land'.

12. Potential environmental liability would have to be assessed for the site as a whole. Given the history of the site and the records of this and previous investigations, it is likely that further investigative and remediation work could significantly reduce the potential for liability associated with the site. Particular attention may be paid to the former tar tanks, believed to exist beneath the car park area.

13. All service runs should be filled with clean material. Special measures may be necessary to protect the potted water supply and any sewage system installed. The local water company should be consulted on this issue.

Site Summary

Current Site Status	The site is an operational Sainsbury's supermarket
Site History	<p>Archive records indicate previous use as a part of Kensal Green gas works. The area of the investigation was used for gasification plant, sludge tanks, settling tanks and lorry housing.</p> <p>Another area of the site, approximately 20m from the area investigated, was formerly occupied by two large underground tar tanks. It is not known whether these were decommissioned at the time of initial building of the store.</p>
Geology	The site is underlain with London Clay.
Hydrogeology	The site is classified by the Environment Agency as a non-aquifer.
Hydrology	The Grand Union Canal lies immediately to the north of the site.
Ground investigation Summary	<p>3 trial pits were excavated on the site. Soil conditions were recorded and samples were collected to represent the materials encountered. Samples were analysed for contaminants including Heavy metals, anions, civil parameters, cyanide, PAH, petroleum hydrocarbons and phenol. Leachate tests were also carried out.</p> <p>The investigation took place in the footprint of the proposed extension. No attempt was made to classify soil conditions outside of this area.</p> <p>The investigation was restricted by the operational status of the site. It was not possible to locate trial pits in areas that would compromise the operation of the site.</p>
Test Results Summary	<p>Elevated PAH and Petroleum Hydrocarbons were detected in some samples, though concentrations were well below ICRCCL thresholds for the proposed end use.</p> <p>Sulphate concentrations up to 5200 mg/kg were detected on site. Building materials will need to be selected that can withstand these concentrations.</p> <p>Heavy metal and cyanide concentrations were below Dutch intervention thresholds, though some were above Dutch Target Thresholds.</p> <p>Leachate analysis demonstrated that heavy metal sources are immobile to the limit of detection.</p>

Remediation requirements.	<p>The analysis suggests that ground conditions are environmentally suitable for the proposed use. Caution must be taken owing to the site's history. It is recommended that a site chemist be present during any ground works on site to further evaluate ground conditions.</p> <p>Historical research indicates that further investigation works of the site of the entire store and car park (outside the scope of this investigation) would be likely to identify areas of the site in which remediation would significantly reduce the potential for environmental liability.</p>
Monitoring/further investigation	<p>No gas investigation was carried out on site was very limited. Owing to the mixed nature of fill materials, it would be prudent to carry out a land gas investigation of the site.</p> <p>The investigation was commissioned to cover only a small portion of the site. Historical information has indicated that there is a potential for environmental liability to be associated with the wider site. In particular, two large tar tanks were formerly located under the car park area approximately 20m from the area of the proposed extension. Further investigation and (if practicable) remediation is strongly advised.</p>
<p>This sheet is intended to provide a summary only of the assessment study of the site. This sheet does not provide a definitive engineering analysis</p>	

Brief

Instructions were received from Mr R. Cooper of Betteridge Turner and Partners (BTP), acting on behalf of Sainsbury's Supermarkets Ltd to undertake contamination investigations related to the proposed extension at the existing store at Ladbroke Grove.

The brief included the investigation of the following facets:

1. Intrusive investigation and sampling.
2. Analysis of samples and factual reporting.
3. Risk Analysis based upon source target pathway analysis.
4. Reporting and recommendations.

Investigation works were confined to the footprint of the proposed extension. Groundworks were undertaken using a 3C's series JCB by Levin Contractors Ltd. A representative of BTP was present to view the excavations from a geotechnical perspective.

Introduction

The investigation involved the placement of 3 trial pits within selected areas of the site.

The general location of the site is shown on figure 1 while the approximate site boundary and trial pit locations are shown on figure 3.

The field work was undertaken during February 1999. Samples were collected from the trial pits to ensure that the extent and nature of contamination present on site was identified.

The investigation was subject to the following constraints:

- The site is a very busy store, which was operational at the time of the survey. Trial pits could therefore not be positioned within buildings, close to underground services, blocking access roads, or in any other area that would compromise the operation of the site.
- At the instruction of the client, the survey covered the area of the footprint of the proposed extension only. No attempt was made to investigate ground conditions in the remainder of the site.

This report was prepared solely for the use of Sainsbury's Supermarkets and appointed sub-contractors. No responsibility will be accepted where this report, either in its entirety or in part, is used by a third party.

The conclusions presented within this report assume that soakaways will not be included within the project design and that ground surface levels will remain the same. Any volumes quoted are therefore based upon the present ground level. Our calculations do not include volumes of materials to be removed or imported for engineering purposes or the removal of material associated with service runs.

The comments given in this report and the opinions herein are based on the ground conditions encountered during the site work and on the results of tests made in the field and laboratory. There may, however, be other conditions prevailing at the site which have not been disclosed by the investigation and which have not been taken into account in this report. Contaminants in the ground in solid, liquid and gaseous phases and other naturally harmful materials or phenomena may be present at the site which have not been disclosed by the investigation and which would require special investigation and assessment.

The comments on groundwater conditions are based on observations made at the time the site work was carried out. It should be noted, however, that groundwater levels vary owing to seasonal or other effects.

The Site

Figure 1 indicates the location of the site. The site is located on Ladbroke Grove / Canal Way, London W10 5AJ. The national Grid reference is TQ238823.

Archive sources indicate that the underlying geology is of London Clay.

An extract from the Environment Agency Groundwater Vulnerability maps of England and Wales, 1:100 000 scale, sheet 39 (West London) is shown in Figure 2. This classifies the site as a non-aquifer.

The nearest surface water feature to the site is the Grand Union Canal (Paddington Branch). This lies immediately to the north of the site.

Desktop Information.

As the investigation was to centre on targeting any contaminated materials in a particular part of the site, a full desktop study was not conducted for this site. Archive information from the Sainsbury's Central Unit Database was accessed, and historical plans for the site were identified, revealing the following information.

SITE HISTORY: Kensal Green Gas Works. A number of potentially contaminating structures were present on the site, including two large tar tanks 20m distant from the area of the proposed extension.

SURROUNDING USES: Grand Union Canal, domestic housing, offices.

PREVIOUS GROUND INVESTIGATIONS:

Environmental Report in 1991 by Gibb Environmental relating to a previous extension of the store. This reports odorous, tarry and oily material within trial pits, though the samples taken did not exceed ICRL thresholds. Material generated on site was classified as hazardous by the local waste disposal authority. Elevated sulphate concentrations were detected.

Geotechnical report in 1986 by Ground Engineering Ltd. This reported oily tar, wood and a white powder amongs other constituents of made ground. A strong oily or chemical odour was reported in made ground beneath the store.

AQUIFER STATUS: Non aquifer .

GEOLOGY: London Clay

HYDROLOGY: Adjacent to Grand Union Canal

CONCLUSIONS:

Direct evidence of contamination exists. This is consistent with former gas works use. Some underground structures including tar tanks are likely to remain beneath the site. The area of the proposed extension is likely to yield contamination, but is not known to contain underground tar tanks.

Ground Investigation

To enable the assessment of the influence of potentially contaminating land uses (in terms of chemical presence), a ground investigation was commissioned in February 1999. This investigation is summarised below with copies of factual information provided.

In accordance with government guidelines outlined in DD175: "Code of Practice for the Identification of Potentially Contaminated Land and its Investigation" and CIRIA publications, trial pits were excavated with a 3C's series JCB to a maximum depth of 4m.

Scope of Works

The following ground investigation was designed, planned and commissioned based on the knowledge gained from previous site investigations and preliminary site research:

- 1 A series of trial pits were distributed across the study area and sampled such that contamination, if present, could be reasonably characterised.
- 2 Further to a visual on site assessment of ground conditions soil samples were tested for a range of potential contaminants.

Samples were analysed for all or some of the following parameters:

- 1 pH and sulphate
- 2 arsenic, cadmium, zinc, lead, mercury, chromium, copper, nickel
- 3 Total PAH's and petroleum hydrocarbons
- 4 Calorific value

The data associated with the laboratory tests from the chemical contamination analysis are contained in appendix 1.

Samples were selected for analysis based on visual and olfactory evidence and relationship to on-site structures. The main perceived targets of any contamination were identified as being site users and developers, building materials, landscaping and the surface water and groundwater environments.

Ground Contamination Results

The location of the trial pits is illustrated in figure 3. These were located to obtain information from the majority of the site, to establish the nature and extent of contamination present.

The discussion below is based upon the samples collected from these trial pits and elsewhere at the surface of the study area. Other ground conditions and contamination may be evident within the study area in small isolated areas which were not identified by the excavations. Ground conditions on the remainder of the site are not within the scope of this investigation, though historical research indicates that a future investigation ought to be carried out in these areas.

Nature of the Ground

The nature of the ground encountered can be summarised as follows:

1. Tarmac, concrete and clean angular gravel hardcore– typically extending between 0.6 and 0.9m below site level.
2. Clay fill with inclusions of brick, traces of hydrocarbon material, timber fragments, steel, concrete, fibrous insulation type material.
3. Further concrete layers present in two trial pits.
4. Fuel ash residues present in one trial pit.
5. Natural London Clay was present in one trial pit at a depth of 2.8m in one trial pit. Fill was present to the maximum depth of 3.3m in another.
6. Groundwater was not encountered in any of the trial pits.

Assessment Criteria

Levels of ground contamination in this country are usually evaluated in accordance with the following guideline thresholds.

1. **The recommendations of the Inter-Departmental Committee on the Redevelopment of Contaminated Land (ICRCL).** The approach adopted is to define the concept of trigger concentrations of various soil contaminants depending on the nature of the development. If levels exceed threshold triggers, appropriate to the proposed end use, then the guidelines indicate that either further investigation or remediation should be considered. For a limited number of contaminants, principally those associated with former coal carbonisation industries, such as gasworks, higher action levels have been set.
2. **Dutch NVPG Guidelines.** The approach adopted in the Netherlands is to set "target values" below which the risk level is considered negligible and "intervention values" above which contamination is assessed to exist.
3. **HSE Guidelines for classification of contaminated soil.** The approach is to set five threshold values to classify contaminant concentrations in soils as 'typical values for uncontaminated soil', 'slight contamination', 'contaminated', 'heavy contamination', or 'unusually heavy contamination'.

The Environment Act (1990) and the Environmental Protection Act (1995) confirmed the philosophy of suitable for use. In addition, the concept of Source / Target / Pathway analysis was introduced, though universal numerical standards to determine the nature and extent of the source were not defined. The legislation developed the use of the concept of 'significant harm'. That is to say, harm that is being caused or a significant possibility of such harm being caused or pollution of controlled waters being caused or likely to be caused.

In the absence of defined numerical standards, this report uses the figures within the Dutch and ICRCL guidance to determine the level of contamination with respect to the thresholds. These are then combined with results of leachate analysis, based upon the Environment Agency methodology, to determine the mobility of the contaminants present. This data is used to undertake Source / Target / Pathway analysis to determine the risk of significant harm being caused.

General Summary of Contamination

The contamination investigated can be divided into a number of species; these consist of the following:

- metal contamination
- hydrocarbons
- phenols
- civil parameters
- cyanides

A total of 14 soil samples were chemically analysed. Leachate tests were also performed on all soil samples.

The test results indicate that the results never exceeded the Dutch Intervention thresholds for heavy metals. Dutch Target Thresholds were exceeded in a number of samples. Results exceeded the target thresholds in six samples.

Simulated rainwater analysis demonstrated that contaminants are not leachable from any of the samples collected

pH was in the range 7.1-8.8 on the site. This indicates 'slight contamination' as indicated in HG(G)66 and would not be a cause for concern.

Elevated sulphate concentrations were encountered in the majority of samples collected. A maximum value of 5200mg/kg was recorded.

A maximum cyanide concentration of 6.8mg/kg was recorded. This is above the Dutch Target Threshold, but below the intervention threshold.

Total PAH was elevated above the Dutch Intervention Threshold, though was well below the ICRCL threshold for landscaped areas. Petroleum hydrocarbons were detected in one sample, though concentrations were not extreme. Phenol was absent to the limits of detection.

Summary of individual Contaminants

Metal contamination can be divided into two components - those that present a risk to human health and those that would inhibit plant growth (phytotoxic).

The group of compounds which represent a hazard to health include the following key compounds, but the list below is not exclusive:

arsenic, cadmium, chromium, lead, mercury

Phytotoxic compounds include the following key components:

nickel, zinc and copper

The results of the soil samples tested show generally that a degree heavy metal contamination is present within parts of the made ground on site. Underlying the made ground the natural undisturbed deposits record heavy metal contamination levels below the Target levels. Results of groundwater analysis indicate that groundwater quality has not been impacted upon.

A summary of the contamination present is outlined below.

Cadmium

Cadmium, classed as a compound harmful to health is present at elevated levels in a number of samples collected from site. The mean concentration was 0.74mg / kg below the target level threshold of 0.8 mg/kg and the intervention level of 12 mg/kg. The maximum concentration of 2.05 mg/kg is above the target threshold but remains well below the intervention level. In total, 3 samples exceeded the target threshold, and none of these exceeded the intervention threshold. The leachate tests indicated that the mobility of the cadmium was negligible.

Mercury

Mercury, classed as a compound harmful to health, is present at elevated concentrations in one sample collected from site. The mean concentration was 0.1 mg/kg. This is below the intervention threshold of 10 mg/kg and the target threshold of 0.3mg/kg. The maximum concentration was 0.7 mg/kg, which is above the target threshold and below the intervention threshold. This was the only result to exceed the target threshold of 0.3 mg/kg. The leachate tests indicated that the mobility of the mercury was below the limit of detection.

Lead

Lead, classed as a compound harmful to health, is present at elevated concentrations in a number of samples collected from site. The mean concentration was 82.1 mg/kg. This is below the target level of 85 mg/kg and well below the intervention level of 530 mg/kg. The maximum concentration was 208 mg/kg, which is above both the target threshold and below the intervention threshold. Five results returned were above the Dutch target threshold. None of these exceeded the Dutch Intervention threshold. The leachate tests indicated that the mobility of the lead was below the limit of detection.

Total Polyaromatic Hydrocarbons (PAH)

Two samples returned elevated PAH concentrations of 141 and 299 mg/kg. These are above the Dutch Intervention threshold of 40 mg/kg, but well below the ICRCCL threshold of 1000 mg/kg for Landscaped areas, buildings and hard cover.

Acidity

Generally the pH of the site could be classed as neutral to slightly basic. The pH of samples ranged from 7.1 to 8.8.

Sulphate

Elevated sulphate concentrations were recorded in a number of samples. The maximum concentration of the samples analysed was 5200mg/kg. Sulphate concentrations should be taken into account when choosing construction materials for the site.

Cyanides

The maximum cyanide concentration detected in samples collected from site was 6.8 mg/kg. This is in excess of the Dutch Target threshold of 5 mg/kg, but well below the Dutch Intervention threshold of 50 mg/kg and the ICRCL threshold of 250 mg/kg for landscaped areas, buildings and hardstanding.

Leachate Analysis

Leachate concentrations were below the limit of detection in all samples collected from the site, indicating that the mobility of the heavy metal sources detected is negligible.

Source / Target / Pathway Analysis

Introduction

Source Target Pathway (STP) analysis is a method of assessing the risk of environmental or health and safety problems arising from a site.

The process involves considering the ways in which any sources of contamination that have been identified may impact upon any potential 'targets' for environmental harm. Possible targets could typically be humans, animals, surface water or groundwater systems, an ecosystem or a future construction material.

A source can affect a target through one or more exposure 'pathways'. A environmental risk will only exist if all three elements - a source, a target and a pathway - are present.

The task of STP analysis is to connect all known sources with all possible targets by all possible pathways. A risk of environmental harm can then be associated with each pathway, and any necessary remedial action can be devised. Remedial action may typically be to remove the source, to isolate the target from the source, or to block the pathway between source and target.

Source target pathway analysis will be carried out for the proposed use of the site in its current chemical condition.

Sources

A full discussion of the chemical contamination that has been identified on site is contained in the previous chapter. The principal source types identified on site are as follows:

- Phytotoxic heavy metal,
- Toxic heavy metals,
- Oils / hydrocarbons,
- Civil Parameters,

Targets

Five potential targets exist for contamination identified on site

- The Underlying Aquifer,
- The Local Surface Water System,
- Humans and / or any living organisms,
- Local ecological systems,
- The development and or surrounding buildings.

Pathways

The pathway will determine the dose of the source received by the target. The probability of a potential pathway existing in reality and the level of hazard associated with the potential contamination incident will combine to form the risk associated with the contamination source.

The table below contains a list of sources, with pathways to possible targets. A risk factor is listed for each pathway. This analysis is carried out on the study area only, NOT the entire site, most of which was outside the scope of the investigation. Reasoning behind the allocation of the risks is explained in the notes below.

Table 2 Source / Target / Pathway analysis (study area only):

Source	Pathways	Targets	Risk	Note
Phytotoxic heavy metals	Absorption through plant roots.	Local ecological systems	low	A
	Rainwater leaching	Surface water system	low	B
	Rainwater leaching	The Underlying aquifer	Very low	B
	Direct Groundwater leaching	Underlying aquifer	Very low	B
Toxic heavy metals	Direct Groundwater leaching	Underlying aquifer	low	B
	Rainwater leaching	Underlying aquifer	low	B
	Rainwater leaching	Surface Water System	very low	B
	Rainwater leaching	Nearby ecosystems	very low	B
	Ingestion	Humans and animals	low	C
Oils hydrocarbons /	Rainwater leaching	Surface Water System	Low	D
	Rainwater leaching	The underlying aquifer	Very low	D
	Direct groundwater leaching	The underlying aquifer	Very low	D
Civil Parameters	Chemical attack	The development and surrounding buildings	low	E

Notes regarding table 2 source target pathway analysis

- A Low concentrations and mobility of sources. Any landscaping proposals ought to take into account phytotoxicity levels.
- B Sources were identified. These were not extreme in concentration. Analysis using simulated rainwater extracts demonstrated that these sources were relatively immobile. The groundwater was protected from contaminated strata by an impermeable clay stratum.
- C The contamination is isolated by a cover layer and the access to the site restricted to prevent ingestion. No vegetable or other food products are grown on site. Concentrations of sources were not extreme in the study area.
- D Samples were identified with elevated concentration, many times below ICRCCL trigger levels. The sources were localised on site, indicating a restricted mobility. . The groundwater was protected from contaminated strata by an impermeable clay stratum. The site surface is to be sealed to prevent rainwater ingress.
- E Low risk providing appropriate building materials have been chosen.

Decontamination Options

The assessment of need for decontamination has been based upon the use of Source / Target / Pathway analysis. If a relationship can be proven then works will be required.

Interpretation of the chemical analysis has based on current soil and water contamination requirements and guidelines. It has also been borne in mind that further, more stringent, UK and EC soil and water contamination trigger levels may come into force in the future. Furthermore, it should be noted that contamination not disclosed by the site investigations might exist at the site

Based upon the nature of the materials identified and the nature of the site, and subsequent Source/Target/Pathway analysis, the risk of environmental harm associated with the ground conditions in the study area is low. Remediation works on this small area of the site would be unwarranted, and would have little impact on the potential for harm of the site as a whole.

Historical evidence collated in the preparation of this report indicates that further investigation into the contamination status of the whole site would be recommended with a view to possible remediation works to reduce any environmental liabilities that may be associated with the property.

Potential problem areas outside of the study area

Historical research undertaken as a part of the investigation has revealed that potential environmental hazards may be associated with ground conditions in areas of the site outside the study area. The approximate areas are indicated in figure 3 and can be summarised as follows.

Tar Tanks

Tar and liquor were collected from the purification process of town gas, and were often stored in underground tanks and sold as by-products. Tars and tar residues may still be present. Tanks are often of concrete and iron construction, depending on their age. Other tar tanks may be present which have not been discovered as a part of this research.

Gas Holders

These are not necessarily a source of contamination, but the concrete bases of decommissioned gas holders have been used to store contaminated materials during construction works in some instances. For this reason, they are considered to be an area of potential concern.

Derv Tank

A diesel tank is known to have existed in this location. These are often associated with ground contamination.

Purifiers

These were used to remove tars and cyanides from town gas. 'Spent oxides' and sawdust were waste products from this process, giving rise to the distinctive 'blue

billy' cyanide contamination and the additional risk of putrescible material within the ground.

Gasification plant and washers

This plant may have tanks and underground structures associated with it. There is potential for hydrocarbon and ammonia contamination.

Conclusions

1. Information from previous reports into the area is that odorous, tarry and oily materials had been identified on site, as may be expected from a former town gas production site.

2. Background research revealed plans and other information into the former gas works site. This indicated cause for concern regarding the site as a whole, including the existence of two large tar and liquor tanks beneath the car park, approximately 20m from the outer extent of the proposed extension. Historical plans of the area of the site into which the investigation was commissioned indicated the presence of gasification plant, a settling tank, lorry accommodation, fuel tank and an above ground sludge tank. Below ground structures may exist in the area of the proposed extension, though none were identified in the plans studied.

14. A soil contamination investigation was carried out at in the footprint of the proposed extension at the store on 9th February 1999. This consisted in the excavation of 3 trial pits on the site, the recording of soil conditions and the collection and analysis of 14 soil samples for a full suite of chemical contaminants.

15. Analytical results indicated that Two samples collected displayed elevated concentrations of PAH, above Dutch intervention thresholds, though well below the ICRCL threshold for the proposed end use of Landscaped areas, buildings and hard cover. Sulphate concentrations were elevated in a number of samples collected, reaching a maximum of 5200 mg/kg. This will need to be borne in mind when choosing building materials for foundations and services. Cyanide concentrations were slightly elevated in a number of samples, but are well below ICRCL thresholds.

16. Heavy metal concentrations in the samples taken were below Dutch Intervention thresholds, and had a leachable content below the limit of detection.
17. The materials encountered within the footprint of the proposed extension are considered to be environmentally suitable for the proposed end use of a building, however material arising from site may be classed as contaminated for waste disposal purposes.
18. As the site is a former gas works, localised structures tanks, and pockets of contamination could be present have not been detected by the trial pit pattern. It is therefore recommended that a site chemist be present during ground works to ensure accurate categorisation of ground conditions throughout the excavated area.
19. It is known that two large tar tanks have been present close to, but outside the area of investigation. Extreme care should be taken if excavations (eg of service runs) are to take place outside the area of investigation.
20. The preferred environmental option for foundations would be to avoid piling, as this process can create migration pathways for contaminants and creates a risk of unidentified underground structures being breached.
21. Landfill gas and land gasses were not investigated during this investigation. A gas survey for the entire site would be prudent. This would involve the installation of four x gas monitoring boreholes to the maximum depth of fill material on site.
22. Contaminated material was detected on site, therefore special health and safety measures will be necessary to protect workers and the general public

during any groundworks on site. Guidance can be sought from the HSE document HS(G)66 'The Protection of Workers and the General Public during the Redevelopment of Contaminated Land'.

23. Potential environmental liability would have to be assessed for the site as a whole. Given the history of the site and the records of this and previous investigations, it is likely that further investigative and remediation work could significantly reduce the potential for liability associated with the site. Particular attention may be paid to the former tar tanks, believed to exist beneath the car park area.

24. All service runs should be filled with clean material. Special measures may be necessary to protect the potted water supply and any sewage system installed. The local water company should be consulted on this issue.

Trial Pit Logs

Strata		Samples and tests		
Depth (m)	Description	Depth (m)	Type	Analysis required (Group)
0	Tarmac			
0.15	Concrete			
0.3	Orange/brown sand and angular gravel with rare inclusions of clay.	0.4	B	1,3
0.6	Reinforced concrete			
0.9	Mixed dense granular fill of brick, concrete, sand and brown clay	1.0	B	1,3
		1.2	B	1,3
1.3	Concrete base			
	Trial pit aborted at 1.3m as continuation was impractical without damage to site structures.			
Equipment Hand/JCB 3CX		trial pit dry		Logged by GS
Stable to maximum depth.				
Remarks/Notes				
See key sheet and appendices for explanation				
Trial Pit Record		Site: Ladbroke Grove		Date 09/02/99
© Copyright ESU Services Ltd		Client: Sainsbury's		Trial Pit No. 1

Strata		Samples and tests		
Depth (m)	Description	Depth (m)	Type	Analysis required (Group)
0	Tarmac			
0.1	Concrete			
0.3	Angular gravel in an orange sandy clay matrix.			
0.9m	Firm brown adhesive clay fill becoming soft by 1.2m. Inclusions of brick up to whole bricks, black streaks of hydrocarbon material, inclusions of organic material including timber fragments. Moderate petroleum hydrocarbon odour at 3.3m Trial Pit Aborted at 3.3m - maximum extent possible	0.9	B	1,3
		2.0	B	1,2,3
		3.3	B	1,2,3
Equipment Hand/JCB 3CX		trial pit dry		Logged by GS
Stable to maximum depth.				
Remarks/Notes				
See key sheet and appendices for explanation				
Trial Pit Record		Site: Ladbroke Grove		Date 09/02/99
© Copyright ESU Services Ltd		Client: Sainsbury's		Trial Pit No. 2

Report: Contamination Survey

Client: Sainsbury's Supermarkets

Date: February 1999

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Strata		Samples and tests		
Depth (m)	Description	Depth (m)	Type	Analysis required (Group)
0	Tarmac			
0.15	Concrete			
0.3	Angular gravel in an orange very sandy clay matrix.	0.6	B	1,3
0.7	Clay fill with inclusions of concrete, brick, steel. Slight hydrocarbon odour	1.4	B	1,3
	Service pipe present at 1.5m trial pit relocated south to TP3A.			
Equipment Hand/JCB 3CX		Trial Pit Dry		Logged by GS
Stable to maximum depth.				
Remarks/Notes				
See key sheet and appendices for explanation				
Trial Pit Record		Site: Ladbroke Grove		Date 09/02/99
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Report: Contamination Survey

Client: Sainsbury's Supermarkets

Date: February 1999

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Strata		Samples and tests		
Depth (m)	Description	Depth (m)	Type	Analysis required (Group)
0	Tarmac			
0.15	Concrete			
0.3	Angular gravel in an orange very sandy clay matrix.			
0.7	Clay fill with inclusions of concrete, brick, steel and stone. Slight hydrocarbon odour. Fibrous material present at 1.1m.	0.7-1.2	B (fibre)	1,3
		0.7-1.2		7
1.2	Soft adhesive brown clay fill with inclusions of brick and concrete.	1.4	B	1,2,3
1.7	Concrete base			
1.9	Black fuel ash	2.0	B	1,2,3
2.3	Black stained soft London Clay	2.3	B	1,2,3
2.8	Firm London Clay	3.3	B	1,2,3
	Trial pit aborted at 3.3m.			
Equipment Hand/JCB 3CX		Trial Pit Dry		Logged by GS
Stable to maximum depth.				
Remarks/Notes				
See key sheet and appendices for explanation				
Trial Pit Record		Site: Ladbrooke Grove		Date 09/02/99
© Copyright ESU Services Ltd		Client: Sainsbury's		Trial Pit No. 3A

Report: Contamination Survey

Client: Sainsbury's Supermarkets

Date: February 1999

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Figures:

Figure 1- Site Location

Figure 2 - Groundwater Vulnerability Map Of The Area

Figure 3 – Site Layout, Trial Pit Locations and Former Structures of Concern

Figure 1 – Site Location

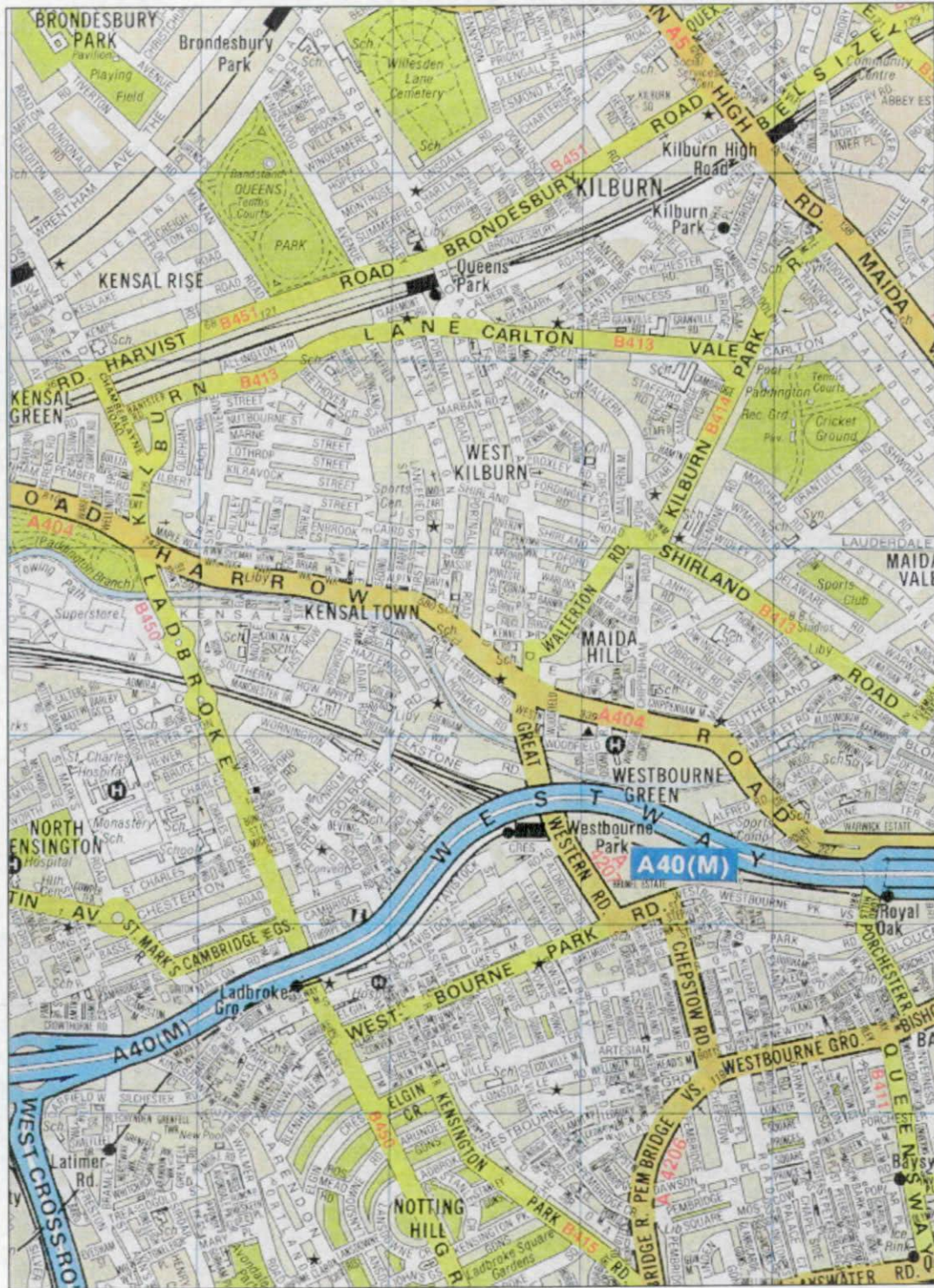


Figure 2 - Aquifer Vulnerability Map

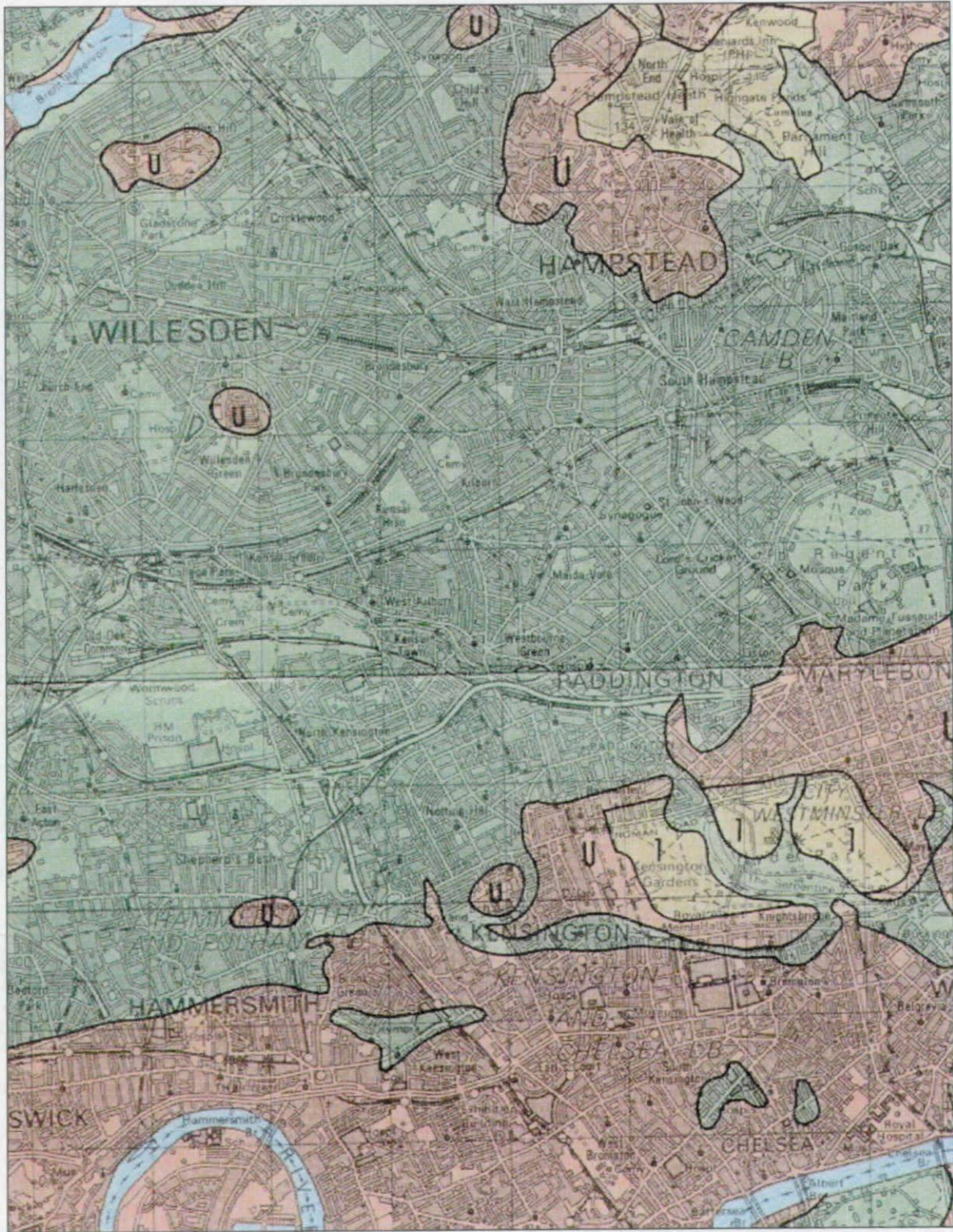


Figure 3 – Trial Pit Locations and Approximate positions of historical Structures of Concern

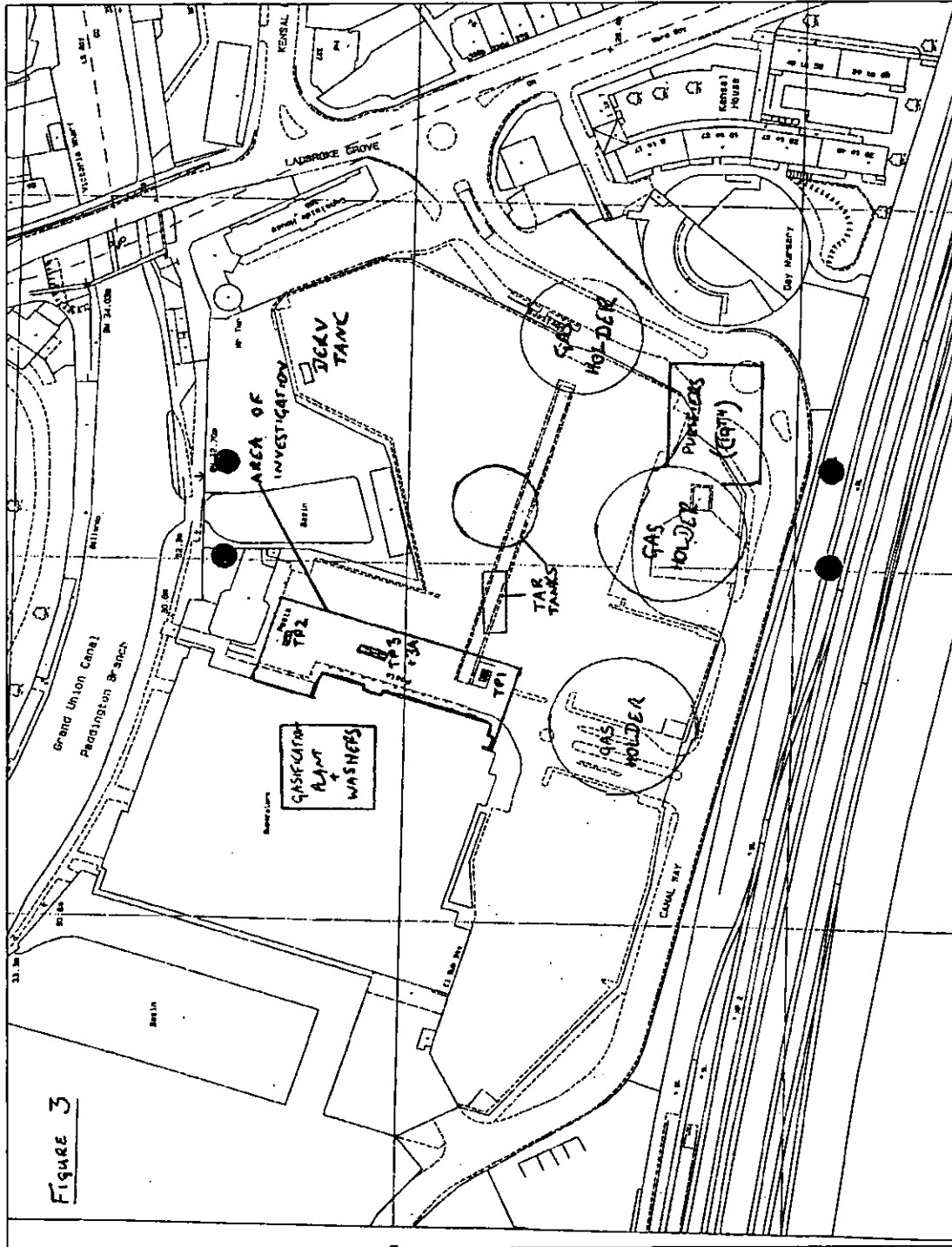


Figure 3

Report: Contamination Survey

Client: Sainsbury's Supermarkets

Date: February 1999

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Appendix 1 - Analytical Results

Client : J. Sainsbury Plc
Site : Ladbroke Grove

Cover information

Date: February 1999

**ESU SERVICES LIMITED
4 CUMBERLAND HOUSE
GREENSIDE LANE**

Client: J.Sainsbury Report No: R99/19

Issue Date: 24/02/99

Pages includes	Heavy Metal Analysis	Yes
	Civils Parameters	Yes
	Water Analysis	Yes
	Landfill / Landgas Gas	No
	Leachate Analysis	Yes

Sample Received: Feb-99

Job Reference No:

Lab Reference No: 2770

Site Reference: Ladbroke Grove

Order Placed By: Geoff Sweaney

Purchase Order No:

Signed

Steven Peaker
Laboratory Quality Manager

Ladbroke Grove Cover information

As	Cd	Cr	Cu	Hg	Pb	Ni	Zn
0.05	2	4.2	5.56	0.05	88.45	10.15	94.8
0.05	2.05	5.53	9.06	0.05	84.7	10.81	162
0.05	1.98	4.35	7.96	0.05	103	11.65	105
0.05	0.264	9.87	11.5	0.16	14.9	25.16	35.7
0.05	0.25	10.8	15.8	0.06	63.9	23.06	52.9
0.05	0.275	10.5	16.6	0.05	86.4	22.27	84.3
0.05	0.25	0.5	12.6	0.05	55.6	13.02	55.2
0.05	0.25	11.8	14.65	0.07	72.6	26.93	47.7
0.05	1.4	8.99	27	0.09	208	21.7	44.7
0.05	0.25	7.16	32.4	0.7	166	10.46	47.1
0.05	0.25	12.2	14.4	0.06	11.7	29.74	44.6
0.05	0.25	12.9	14.3	0.09	40.4	23.74	44.8
0.05	0.256	10.1	15.6	0.05	72.2	17.12	68.2

Site Ref	Lab Ref	As mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Hg mg/kg	Pb mg/kg	Ni mg/kg	Zn mg/kg
TP1 0.4 9-2-99	99-583	<0.05	2	4.2	5.56	<0.05	88.45	10.15	94.8
TP1 1.0 9-2-99	99-584	<0.05	2.05	5.53	9.06	<0.05	84.7	10.81	162
TP1 1.2 9-2-99	99-585	<0.05	1.98	4.35	7.96	<0.05	103	11.65	105
TP2 0.9 9-2-99	99-586	<0.05	0.264	9.87	11.5	0.16	14.9	25.16	35.7
TP2 2.0 9-2-99	99-587	<0.05	<0.25	10.8	15.8	0.06	63.9	23.06	52.9
TP2 3.3 9-2-99	99-588	<0.05	0.275	10.5	16.6	<0.05	86.4	22.27	84.3
TP3A 0.2-1.2 9-2-99	99-589	<0.05	<0.25	<0.5	12.6	<0.05	55.6	13.02	55.2
TP3A 0.7-1.2 Fibre 9-2-99	99-590	N/T	N/T	N/T	N/T	N/T	N/T	N/T	N/T
TP3A 1.4 9-2-99	99-591	<0.05	<0.25	11.8	14.65	0.07	72.6	26.93	47.7
TP3A 2.0 9-2-99	99-592	<0.05	1.4	8.99	27	0.09	208	21.7	44.7
TP3A 2.3 9-2-99	99-593	<0.05	<0.25	7.16	32.4	0.7	166	10.46	47.1
TP3A 3.3 9-2-99	99-594	<0.05	<0.25	12.2	14.4	0.06	11.7	29.74	44.6
TP3 0.6 9-2-99	99-595	<0.05	<0.25	12.9	14.3	0.09	40.4	23.74	44.8
TP3 1.4 9-2-99	99-596	<0.05	0.256	10.1	15.6	0.05	72.2	17.12	68.2

Site Ref	Lab Ref	pH	Sulphate mg/kg	Ammonia mg/kg
TP1 0.4 9-2-99	99-583	7.9	850	<1
TP1 1.0 9-2-99	99-584	7.7	1200	<1
TP1 1.2 9-2-99	99-585	8	540	<1
TP2 0.9 9-2-99	99-586	8	690	<1
TP2 2.0 9-2-99	99-587	7.7	2740	6
TP2 3.3 9-2-99	99-588	7.6	5200	4.7
TP3A 0.2-1.2 9-2-99	99-589	8.8	2340	<1
TP3A 0.7-1.2 Fibre 9-2-99	99-590	N/T	N/T	N/T
TP3A 1.4 9-2-99	99-591	7.9	1860	1.4
TP3A 2.0 9-2-99	99-592	7.8	1000	<1
TP3A 2.3 9-2-99	99-593	7.1	1160	23.7
TP3A 3.3 9-2-99	99-594	7.6	740	7.2
TP3 0.6 9-2-99	99-595	7.6	3890	6.2
TP3 1.4 9-2-99	99-596	7.9	1260	<1

Client : J. Sainsbury Plc
 Site : Ladbroke Grove

Civils I

Date: February 1999

PAH, results in mg/kg	TP2 2.0 9-2-99 99-587	TP2 3.3 9-2-99 99/588	TP3A 1.4 9-2-99 99/591	TP3A 2.0 9-2-99 99-592	TP3A 2.3 9-2-99 99-593	TP3A 3.3 9-2-99 99-594
Napthalene	<0.5	6.4	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	1.3	4.6	1.2	<0.5	<0.5	<0.5
Acenaphthene	<0.5	3	<0.5	0.7	<0.5	<0.5
Fluorene	<0.5	17.7	<0.5	<0.5	<0.5	<0.5
Phenanthrene	<0.5	50.8	<0.5	0.6	<0.5	<0.5
Anthracene	0.7	<0.5	<0.5	13.9	<0.5	<0.5
Fluoranthene	<0.5	14.9	<0.5	25.3	<0.5	<0.5
Pyrene	2.1	18.1	1	35.9	4	0.6
Benzo(a)anthracene	<0.5	<0.5	<0.5	39.7	2.7	<0.5
Chrysene	2.6	14.1	3.4	39.4	1.2	1.1
Benzo(b)fluoranthene & Benzo(k)fluoranthene	////	////	////	////	////	////
Benzo(a)pyrene	1.9	8.2	<0.5	49.6	<0.5	<0.5
Indeno(1,2,3-cd)pyrene & Di-benzo(a,h)anthracene	1.8	3.7	0.7	40.2	1.9	<0.5
Benzo(ghi)perylene	////	////	////	////	////	////
	<0.5	<0.5	<0.5	27.9	<0.5	<0.5
	<0.5	<0.5	<0.5	25.4	<0.5	<0.5
Total PAH	10.4	141.5	6.3	298.6	14.4	1.7

Site Ref	Sample Ref	Total Petroleum Hydrocarbons mg/kg	Total Phenols mg/kg	Total Cynide mg/kg
TP1 0.4 9-2-99	99-583	N/T	N/T	<1
TP1 1.0 9-2-99	99-584	N/T	N/T	1.4
TP1 1.2 9-2-99	99-585	N/T	N/T	4.6
TP2 0.9 9-2-99	99-586	N/T	N/T	<1
TP2 2.0 9-2-99	99-587	<5	<1	<1
TP2 3.3 9-2-99	99-588	36.2	<1	6.8
TP3A 0.2-1.2 9-2-99	99-589	N/T	N/T	N/T
TP3A 0.7-1.2 Fibre 9-2-99	99-590	N/T	N/T	N/T
TP3A 1.4 9-2-99	99-591	<5	<1	1.2
TP3A 2.0 9-2-99	99-592	<5	<1	1
TP3A 2.3 9-2-99	99-593	<5	<1	<1
TP3A 3.3 9-2-99	99-594	<5	<1	<1
TP3 0.6 9-2-99	99-595	N/T	N/T	<1
TP3 1.4 9-2-99	99-596	N/T	N/T	1.4

Client : J. Sainsbury Plc
Site : Ladbroke Grove

Civils3

Date: February 1999

Site Ref	Sample Ref	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Xylene mg/kg	Asbestos %
TP3A 0.7-1.2 Fibre 9-2-99	99-590	N/T	N/T	N/T	N/T	<0.001
TP3A 1.4 9-2-99	99-591	<0.05	<0.05	<0.05	<0.05	N/T

No Asbestos Found

Simulated Rainwater Extracts were carried out as stated in the NRA Guidance R&D Note 301: Leaching Test Assessment for Contaminated Land.

Site Ref	Lab Ref	As mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Hg mg/kg	Pb mg/kg	Ni mg/kg	Zn mg/kg
TP1 0.4 9-2-99	99-583	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP1 1.0 9-2-99	99-584	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP1 1.2 9-2-99	99-585	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP2 0.9 9-2-99	99-586	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP2 2.0 9-2-99	99-587	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP2 3.3 9-2-99	99-588	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 0.2-1.2 9-2-99	99-589	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 0.7-1.2 Fibre 9-2-99	99-590	N/T	N/T	N/T	N/T	N/T	N/T	N/T	N/T
TP3A 1.4 9-2-99	99-591	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 2.0 9-2-99	99-592	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 2.3 9-2-99	99-593	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 3.3 9-2-99	99-594	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3 0.6 9-2-99	99-595	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3 1.4 9-2-99	99-596	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25

Simulated Rainwater Extracts were carried out as stated in the NRA Guidance R&D Note 301: Leaching Test Assessment for Contaminated Land.

Site Ref	Lab Ref	As mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Hg mg/kg	Pb mg/kg	Ni mg/kg	Zn mg/kg
TP1 0.4 9-2-99	99-583	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP1 1.0 9-2-99	99-584	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP1 1.2 9-2-99	99-585	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP2 0.9 9-2-99	99-586	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP2 2.0 9-2-99	99-587	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP2 3.3 9-2-99	99-588	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 0.2-1.2 9-2-99	99-589	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 0.7-1.2 Fibre 9-2-99	99-590	N/T	N/T	N/T	N/T	N/T	N/T	N/T	N/T
TP3A 1.4 9-2-99	99-591	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 2.0 9-2-99	99-592	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 2.3 9-2-99	99-593	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3A 3.3 9-2-99	99-594	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3 0.6 9-2-99	99-595	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25
TP3 1.4 9-2-99	99-596	<0.05	<0.25	<0.5	<0.25	<0.05	<1.0	<0.25	<0.25

	As	Cd	Cr	Cu
Mean	0.05	0.75	8.38	15.19
Median	0.05	0.256	9.87	14.4
Mode	0.05	0.25	#N/A	#N/A
Range	0	1.8	12.4	26.84
Minimum	0.05	0.25	0.5	5.56
Maximum	0.05	2.05	12.9	32.4
Count	13	13	13	13
	Hg	Pb	Ni	Zn
Mean	0.12	82.14	18.91	68.23
Median	0.06	72.6	21.7	52.9
Mode	0.05	#N/A	#N/A	#N/A
Range	0.65	196.3	19.59	126.3
Minimum	0.05	11.7	10.15	35.7
Maximum	0.7	208	29.74	162
Count	13	13	13	13



**EXTENSION OF SAINSBURY STORE
CANAL WAY NORTH KENSINGTON
ROYAL BOROUGH OF KENSINGTON & CHELSEA**

FINAL REPORT

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August 2000

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1.0 INTRODUCTION

1.1 The Royal Borough of Kensington and Chelsea has received a planning application (Ref. TP/98/1187) on behalf of J Sainsbury Limited to extend their store at Canal Way, North Kensington. The proposed extension will increase the store's floorspace from 6,049 sq m gross to 7,412 sq m gross (65,111 sq ft to 79,783 sq ft). The net sales floorspace is expected to increase from 3,775 sq m to 4,695 sq m (40,634 sq ft to 50,537 sq ft). A breakdown of the extended store's floorspace implied by the proposed store plan (Drawing A1/105) is as follows.

Type of Space	Floorspace Sq M
Existing sales floorspace	3,775
Sales area extension	920
Total sales floorspace	4,695
Concession	182
CTN	74
Entrance area	90
Restaurant	275
Total other public areas	621
Other space (storage/toilets etc.)	1,826
Grand Total	7,142

1.2 A retail capacity/impact assessment and supporting statement has been prepared by MVM Planning (MVM). Nathaniel Lichfield & Partners (NLP) have been commissioned by the Royal Borough of Kensington and Chelsea to undertake an independent review of this statement.

Objectives

1.3 This report sets out our assessment of the robustness of the retail study submitted by MVM, including a review of:

- the data sources used;
- the methodology and key assumptions;
- the application of the sequential approach; and
- the validity of their interpretation of the impact/capacity assessment results.

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- 1.4 Where possible, assumptions and data have been compared with information contained within NLP's Borough Wide Retail Capacity Study 1999, referred to as the 1999 Retail Study in the remainder of this report.

2.0 METHODOLOGY AND DATA SOURCES

Introduction

- 2.1 The MVM report includes a retail impact and capacity assessment set out in Appendix E. The capacity assessment compares available expenditure within the catchment area with the expected turnover of existing convenience businesses in order to demonstrate *surplus* expenditure. The impact assessment seeks to identify the level of trade diversion from competing food stores.

The Study Area

- 2.2 MVM has defined a primary catchment area (PCA) for the Sainsbury store, as shown in MVM's Appendix A. The PCA is slightly smaller than the 10 minute drive time area from the store. The PCA appears to be broadly consistent with the study area defined within 1999 Retail Study. MVM's PCA covers a slightly larger area than the four northern sub-areas defined within the 1999 Retail Study.
- 2.3 The PCA also appears to broadly reflect the location of competing food superstore, for example Asda and Tesco to the north west, Sainsbury to the north east and Tesco at Hammersmith. Therefore, the PCA represents the likely catchment area of the extended Sainsbury store, from which the majority of the store's trade will be drawn.

Population

- 2.4 MVM has used population estimates provided by the London Research Centre. Population within the PCA is estimated to be 293,294 in 1999, and is projected to increase to 296,805 by 2002, and 300,143 in 2006.
- 2.5 The population estimate for the four northern sub-areas in the 1999 Retail Study was 248,717. However as indicated above, the PCA is slightly larger than the area defined within the 1999 retail study, which explains the higher population (plus 44,577) within MVM's PCA.
- 2.6 MVM estimate that the PCA population will increase by 1.2% between 1999 to 2002, and by 2.3% between 1999 to 2006. These growth rates are the same as those assumed within the 1999 Retail Study.

Price and Design Year

- 2.7 The MVM study states that the assessment has been undertaken on the basis of 1995 prices. This is the same price base used by NLP, therefore the figures should be directly comparable with those within the 1999 Retail Study. All monetary values within this report are at 1995 prices unless otherwise stated.
- 2.8 The MVM study assumes a base year of 1999 and a design year of 2002. No information has been provided on the proposed construction period for the extension. Normally we would suggest that a 12-month period for construction should be assumed followed by one year's trading post opening to establish a settled trading pattern. Therefore, a design year of 2002 is feasible.

Expenditure

- 2.9 MVM has adopted the Data Consultancy's (URPI) business based expenditure estimates. These figures include non-food expenditure spent within food stores. Therefore, MVM has not undertaken a separate capacity/impact assessment for convenience and comparison shopping. The proposed extensions is expected to increase the sales floorspace for both food and non-food items.
- 2.10 The national average annual expenditure per capita at convenience businesses has been used for the PCA, £1,384 in 1997. MVM has, correctly, excluded an allowance (4%) for special forms of trading. The 1997 national average has been projected to 1999 at a rate of 1.8% per annum, the Data Consultancy long term growth rate, giving a figure of £1,377 per capita. Expenditure per capita has been projected to 2002 and 2006 at the same growth rate (1.8%). This is the Data Consultancy's most conservative growth rate, as used in the 1999 Retail Study for the *Low Growth Scenario* projection.
- 2.11 The MVM study has used national average spending levels as opposed to local expenditures used in the 1999 Retail Study. However, the projected expenditure per capita estimates set out within Table E1 of the MVM study are within the range of estimates produced within the 1999 Retail Study. For example, the 1999 Retail Study estimated that expenditure per capita in 2002 within the North Kensington sub-area was between £1,432 and £1,468, compared with MVM's estimate of £1,453.

The Sainsbury Store's Turnover

- 2.12 MVM estimate that the existing Sainsbury store's turnover will is £42.90 million (Table E3, Appendix E). The average sales density of the store is therefore £11,363 per sq m

net. The current company average sales density (Source: Retail Rankings 1999), is only £10,202 per sq m. Therefore, MVM estimate that the store is trading 11% above the company average.

- 2.13 MVM's estimated turnover for the store is very similar to the figure produced by the 1999 Retail Study, which estimated the turnover to be between £42.52 million and £42.94 million.
- 2.14 The proposed store extension is expected to attract an additional turnover of £5.23 million. MVM assume that the extension will achieve an average sales density half that of the existing store, £5,682 per sq m. Therefore, the extension is expected to reduce the overall average sales density of the store from £11,363 per sq m to £10,249 per sq m, which is in line with the company average.
- 2.15 One would normally expect food store extensions to achieve a lower sales density than the existing store. Therefore MVM's turnover estimates for the extended store appears to be realistic and consistent with the 1999 Retail Study.

Other Convenience Businesses within the PCA

- 2.16 MVM has identified 27 other large foods stores (over 500 sq m net) within and adjacent to the PCA, Appendix A. MVM estimate that the 10 food stores within the PCA will have a total sales floorspace of 12,295 sq m net and a turnover of £72.99 million, based on company average sales densities, Table E2. The M&S food hall at Kensington High Street is also included, with a turnover of £3.64 million. Other small shops in the PCA are estimated to have a sales floorspace of 11,000 sq m with an assumed average turnover of £34.32 million.
- 2.17 We would not expect M&S food halls to be included within business based retail assessments, i.e. food store assessments that adopt *business* based expenditure figures. M&S stores are categorised by URPI as a mixed comparison business not a convenience business. Therefore, any food and grocery expenditure taken by M&S stores should in theory be excluded from URPI's business based expenditure figures. The exclusion of M&S would lower the expected turnover of convenience businesses assumed by MVM, and would therefore, increase the level of expenditure available to other food stores, i.e. it does not assist their supporting statement.
- 2.18 MVM's estimated company average turnover for the 10 large food stores (£72.99 million) is similar to NLP's benchmark turnover assumed in the 1999 Retail Study.

MVM has used a slightly lower sales density for small convenience shops, £3,120 per sq m compared with £3,500 per sq m. This different assumption would increase the total turnover of small shops by approximately £4 million.

MVM/s Retail Capacity and Impact Assessment

2.19 MVM's retail capacity assessment shown in Table E4 seeks to demonstrate that the expected turnover of the proposed extension will be offset by projected expenditure growth. This assessment is based on the following assumptions:

- the turnover of the extension will be £5.2 million (as described earlier);
- expenditure within the PCA will grow by 6.7% between 1999 and 2002 due to population and expenditure growth per capita discussed earlier;
- the turnover of existing food stores in the PCA will be in line with their company average turnover; and
- food stores in the PCA will maintain their current market share of expenditure within the PCA (34.5%) between 1999 and 2002.

2.20 The approach adopted by MVM is very broad brush. It is a standard capacity assessment that assumes that convenience shops within the catchment area are currently (1999) trading at company average levels. Company average trading levels imply a market share of 34.5% in the PCA. However, if existing food stores are trading below their company average turnover then the market share would be lower, and some of the growth in expenditure between 1999 and 2002 may be required to allow existing shops to increase their turnover, rather than accommodate new floorspace. Alternatively, if shops are trading above average then there may be more capacity than MVM has identified. In our view an analysis of the current trading performance of shops should have been included within MVM's impact assessment.

2.21 MVM's approach also assumes that shops within the PCA will maintain their market share of expenditure in the future. However, this may not be the case if other food stores are developed outside of the PCA. Therefore, the level of available expenditure in 2002 and 2006 could be lower. Alternatively, new food stores within the PCA may increase the market share. For example, the proposed new food stores at White City and Paddington are likely to increase the level of expenditure retained within the PCA.

2.22 In addition to the capacity analysis, MVM has provided an assessment of trade diversion and impact, Table E5 Appendix E. This assessment also assumes that existing shops will

achieve their company average turnover in 1999, and that their market share of expenditure will be maintained up to 2002.

2.23 Our analysis of MVM's quantitative assessment is outlined in the next section.

3.0 QUANTITATIVE ASSESSMENT

Retail Capacity

- 3.1 MVM's capacity assessment suggests that there will be £9.4 million of surplus expenditure at 2002, available to support new floorspace within the PCA. This surplus will increase to £22.2 million in 2006. The additional turnover of the proposed extension is only £5.2 million.
- 3.2 As indicated in the previous section, MVM's assessment assumes that shops within the PCA are achieving company average trading levels in 1999, apart from the Sainsbury store, which is assumed to be trading 11% above average. NLP's 1999 Retail Study suggested that convenience shops within the Borough as a whole were, on average, trading between 17% to 18% higher than the company average turnover in 1999.
- 3.3 If the convenience shops identified by MVM in the PCA were trading 17% above the company average in 1999, as suggested by the 1999 Retail Study, then their market share of expenditure in the PCA will be higher. The adoption of a higher market share will result in a higher level of surplus expenditure in the future. Therefore, MVM's approach may have under-estimated the scope for new food store floorspace.
- 3.4 However, MVM's capacity figures do not make any allowance for other food store commitments. MVM indicate that the proposed Sainsbury food store at White City is unlikely to be implemented for a number of years. However, it seems reasonable to assume that the store could be completed by 2006. In addition, MVM's analysis has not included the recently opened Sainsbury at Paddington Station and the proposed food store at Edgware Road. These food stores could have a combined turnover of approximately £80 million (8,000 sq m net at £10,000 per sq m). Therefore, these developments could soak up the surplus expenditure identified by MVM up to 2006.
- 3.5 These figures ignore the potential for the clawback of expenditure leakage from the PCA. MVM figures suggest that over £264 million is leaking from the PCA in 1999. This may be over-estimated by approximately £15 million, because existing shops in the PCA are trading above average. However, the level of leakage is likely to be significant, and exceeds inflow to the PCA. MVM estimate that only £14.7 million of the turnover of shops within the PCA is attracted from outside the PCA.

Retail Impact

- 3.6 MVM's retail impact assessment also assumes that shops in the PCA will trade at company average levels in 1999. This turnover is projected to increase in-line with expenditure growth between 1999 to 2002 (6.8%), i.e. it assumes that the market share will remain unchanged.
- 3.7 The impact assessment assumes that 85% of the proposed extension's turnover will be drawn from shops within the PCA (£4.45 million out of £5.23 million). The remaining 15% will be drawn from shops beyond the PCA.
- 3.8 MVM indicate that other large food stores will experience the greatest level of trade draw, for example Somerfield at Willesdon Green, Kwik Save at Cricklewood Lane and Safeway at Shepherds Bush. In general one, would expect large food stores to compete directly with other comparable large food stores. MVM's trade diversion estimates appear to reflect this.
- 3.9 MVM's impact figures shown in Table E5 suggest that all stores will achieve a higher turnover in 2002 (after the proposed extension) than that achieved in 1999, with the exception of Budgens in Harlesden. In effect, MVM's impact figures show that expenditure growth between 1999 and 2002 is expected to offset and exceed trade diversion to the proposed extension.
- 3.10 As indicated earlier, NLP's 1999 Retail Study suggests that food stores were trading above average in 1999. If a higher turnover was assumed in MVM's figures, then the residual turnover estimated by MVM (column 5 Table E5) would also be higher. These higher turnover levels would not necessarily alter the conclusions of the MVM study, and may in fact produce a stronger case for the extension.
- 3.11 However, the inclusion of other food store commitments highlighted earlier would result in a much higher cumulative impact. The small Sainsbury store opened in Paddington Station is likely to have a turnover of approximately £5 million. Given that the store is located near the edge of the PCA it will not attract its entire turnover from this area. This store attracts a high proportion of its trade from BR station users rather than local residents. If 50% of its turnover comes from shops within the PCA then trade division would be approximately £2.5 million. The majority of this trade would come from the nearby Tesco Metro at Edgware Road and Budgens at Bayswater.

- 3.12 The proposed food superstore at Edgware Road, Paddington is likely to have a turnover of approximately £36 million (3,600 sq m net at £10,000 per sq m). This store is also located near the edge of the PCA, therefore as a broad estimate, 50% of its turnover might be attracted from stores within the PCA, £18 million. Although, we understand that this store is still the subject of a legal agreement with Westminster Borough Council relating to road widening. As a result the store might not be open until after 2002.
- 3.13 Taken together these two commitments and the proposed Sainsbury extension could increase the total level of trade diversion from shops in the PCA from £4.45 million to approximately £25 million in 2002. This trade diversion estimate excludes the development of a further superstore at White City, but this store is unlikely to be completed until after 2002.
- 3.14 The exclusion of these commitments makes it difficult to comment on the validity of MVM's impact results and conclusions. However, NLP's 1999 Retail Study suggested that food stores were trading significantly above average in 1999. These high levels of trading and future expenditure growth could support food store commitments and the proposed Sainsbury extension without having an adverse impact on existing stores, as shown below.

The NLP Borough Wide Retail Strategy 1999

- 3.15 The 1999 Retail Study suggested that convenience shops within the Borough were trading at least 17% above average in 1999. In particular large food stores were estimated to be trading well above average. Available convenience expenditure was projected to increase by at least 6.4% between 1999 and 2002. However, the turnover of convenience shops within the Borough was expected to decrease by 6.5% (£18.31 million) during this period, due to the development of food store commitments in neighbouring boroughs, including the three stores highlighted earlier. The turnover of the North Kensington Sainsbury store was expected to reduce from £42.52 million to £38.85 million, an 8.6% reduction.
- 3.16 The residual turnover of this Sainsbury store at 2002 is still higher than its benchmark turnover based on the company average sales density (£38.85 million compared with £38.54 million). On average all convenience businesses within the Borough were estimated to be trading 9% above the benchmark company average in 2002 following the development of food store commitments. The potential delay of the White City and Edgware food store would increase actual trading levels in 2002.

3.17 Based, on these figures it appears unlikely that the proposed Sainsbury extension will have an adverse impact on other food stores within or neighbouring the Borough, particularly if the White City and Edgware food stores are completed after 2002. However, as highlighted within the 1999 Retail Study, the quantitative scope for new floorspace should not be viewed in isolation. There are other qualitative factors that should also be considered.

3.18 On balance, these capacity and impact figures suggest that there could be quantitative scope for the proposed Sainsbury extension and other food store commitments. However, we do not believe that the capacity evidence presented by MVM provides conclusive evidence of a qualitative requirement or need, due to the exclusion of committed developments described above.

4.0 QUALITATIVE ASSESSMENT

Government Guidance

- 4.1 Richard Caborn's statement in February 1999 suggests that developers must demonstrate that their retail proposals are needed. The need for a proposed development should not be regarded as being fulfilled simply by showing that there is capacity (in physical terms) or demand (in terms of available expenditure). It is necessary to consider the wider needs of the community.

Requirement for the Proposed Extension

- 4.2 MVM set out the improvements that the proposed extension will bring. The potential benefits these improvements will bring to the community are a relevant consideration. However, these benefits should also be weighed against any dis-benefits, for example trade diversion away from other shopping centres.
- 4.3 MVM argue that the growing range of products demanded by customers and the limited space within the existing store have resulted in customer dissatisfaction. The proposed extension is designed to address this qualitative deficiency by providing a better choice of products, more checkouts and reducing congestion by improving circulation space. The proposed extension is expected to increase the sales area of the store by approximately 24%, which should allow these improvements to be implemented. The extension is also expected to provide enlarged and improved areas for CTN sales and the restaurant.
- 4.4 MVM also point out that the proposed extension is not expected to materially change the nature of the store's existing offer, for example the introduction of new forms of retailing such as clothing. If the Council are minded to approve the application it may be appropriate to condition the planning permission to restrict the sale of comparison goods within the store to ensure that new forms of retailing are not introduced, as claimed by MVM. This issue is discussed in Section 5.
- 4.5 Despite this description of the benefits of the proposed extension, the MVM statement provides limited information on the wider community need for the proposed extension. The MVM statement focuses on the Sainsbury store's current deficiencies and the proposed improvements following the extension. They have provided limited commentary on the inability of other stores in the PCA to meet the community's needs.

4.6 The MVM statement provides a descriptive overview of existing shopping facilities in and around the PCA in Section 3. This commentary provides some analysis of the role and nature of existing convenience shopping facilities. MVM suggest that many of the food stores cater for basket and top-up food shopping rather than bulk food shopping. However, the larger food stores are seen as suitable for bulk food shopping, as follows:

- Tesco, Brent Park (5,670 sq m net);
- Asda, Park Royal (4,243 sq m net);
- Safeway, Acton (2,494 sq m net);
- Sainsbury, Chiswick (3,103 sq m net);
- Kwik Save, Cricklewood (3,503 sq m net);
- Safeway, Shepherds Bush (2,197 sq m net);
- Tesco, Warwick Road (2,787 sq m net);
- Sainsbury, Cromwell Road (2,322 sq m net); and
- Sainsbury, Finchley Road (2,560 sq m net).

4.7 Only two of these stores (Safeway, Shepherds Bush and Kwik Save Cricklewood) are within the PCA. In addition, only two of the stores have a sales floorspace greater than the existing Sainsbury store in North Kensington (3,775 sq m net).

4.8 It is generally accepted that a sales floorspace of at least 2,326 sq m net (25,000 sq ft) is required to offer a good range of convenience products. However, a larger floorspace is required to offer the full choice of products i.e. different brands of the same items and bulk purchase-packs. Larger food superstores also provide a range of ancillary comparison items and other services, e.g. concessions, restaurant. These larger food superstores can have a sales floorspace of between 4,000 to 5,000 sq m net.

4.9 The existing Sainsbury store is large enough (3,775 sq m net) to offer a good range of convenience items, but does not have the same choice of products available at larger stores, for example Tesco at Brent Park and Asda at Park Royal. The proposed extension will improve customer accessibility to a large superstore with a sales floorspace of over 4,000 sq m net within the PCA. For example residents within the south and east of the PCA currently have to travel beyond 10 minutes drive time to visit a store of this size. Therefore, the proposed extension will improve the level of choice in the PCA. The

benefits of the extended store will depend to some extent on the range of goods sold. This issue is addressed in the next section.

The Sequential Approach

- 4.10 Richard Caborn's February 1999 statement suggests that extensions to stores should be considered against the sequential approach, as acknowledged by MVM at paragraph 2.12. However, MVM argue that the need for the improvements to the Sainsbury store is locationally specific to the store, and as such, the improvements are incapable of being disaggregated and located away from the store. Therefore, MVM argue that the second stage of the sequential approach, i.e. site appraisals, is not relevant in this case.
- 4.11 In our view the purpose and nature of the proposed extension is relevant, as demonstrated by the Tesco Bursledon appeal decision. The first stage of the sequential approach is to establish whether the proposed development is needed. It is necessary to demonstrate that the extension is needed by the community. Notwithstanding this, the operational needs of existing retailers are a relevant planning consideration. MVM argue that Sainsbury need the extension from an operational perspective. The weight given to operational need must take into account what extent they reflect the wider planning need in the community.
- 4.12 The proposed extension will increase the sales floorspace of the store from 3,775 sq m net to 4,695 sq m net. As indicated in the previous sections, there may be capacity for this additional space in terms of available expenditure, but this additional floorspace could, in theory, be accommodated in principal shopping centres, i.e. sequentially preferable sites/premises. If the extension was expected to introduce predominantly new forms of retailing, particularly non-food not necessarily sold in food stores, then the new retail space could be disaggregated and accommodated within vacant shop units within principal shopping centres. However, MVM claim that the extension will not introduce a significant element of new forms of retailing.
- 4.13 If the store does not introduce a significant amount of new forms of retailing, as claimed, then the key issue is whether an enlarged food store of 4,695 sq m is needed by the community in this location. The 1999 Retail Study estimated that the Sainsbury store is trading significantly above the company average. Therefore, congestion within the store is an issue. The proposed extension should help to relieve existing congestion, which would benefit customers. Therefore, evidence suggests that there is a community need for the proposed extension.

- 4.14 We do not consider that there are available opportunities to either extend an existing food store or develop a new large food superstore in this part of the Borough. Therefore, if the Council agree that an extended store is needed by the community in North Kensington then the proposal may be in accordance with the sequential approach.
- 4.15 If the Council consider that the needs of the community can be met by the provision of a smaller food store within or adjacent to a Principal Shopping Centre, which will serve the same area as the Sainsbury store, then there may be sequential grounds to refuse the application. We are unaware of any suitable sites to accommodate this form of development in the locality.

5.0 COMPARISON AND CONVENIENCE SALES FLOORSPACE

Community Needs

- 5.1 As indicated within the previous sections of this report, evidence suggests that there is a quantitative and qualitative need for an enlarged food store within the north of the Borough, in terms of existing trading congestion and the provision of a store which offers a wide range and choice of goods, suitable for bulk food shopping. In our view there are no sequentially preferable sites to meet this need other than the Ladbroke Grove store. However, the nature of goods sold within the enlarged store is relevant, as different types of sales floorspace will cater for different needs.
- 5.2 The existing store sells predominantly food and grocery items with some ancillary comparison sales (85:15 as indicated by the applicant). The store is trading heavily and MVM claim that some of the new space will be required to accommodate new checkouts and increased circulation space. If the extension is to relieve sales congestion then a major element of the extension should be devoted to the provision of an enlarged convenience sales area and checkouts i.e. more of the same.
- 5.3 The expenditure growth projections within the MVM study and the 1999 Retail Study include ancillary comparison sales within food stores. Therefore, there is also some scope for an enlarged area for the sale of comparison goods. In addition, customers will expect to find a certain level of comparison goods within large food superstores.
- 5.4 It is unclear from the applicant's submission what additional items will be sold. No detailed store layout drawings (before or after the extension) have been provided. The applicant has suggested that a condition to restrict the future sale of comparison goods within the extended store should be introduced to deal with this issue.

The Applicant's Proposed Condition

- 5.5 The applicant has suggested the following condition to restrict the sale of comparison goods.

"Not without the Council's agreement in writing to use more than 17.5% of the sales and display area of the extend store for the sale or display of comparison goods.

The sales and display area is taken to mean the total area used for the sale and display of goods together with other publicly accessible areas used for the provision of services to customers. Comparison goods means those defined by The Data Consultancy."

- 5.6 The inclusion of 'other publicly accessible areas used for the provision of services to customers' implies that areas occupied by checkouts, the restaurant, concession, CTN and possibly the entrance area will be included. Therefore the 17.5% will be applied to the highest possible floorspace figure. It is also unclear whether the comparison sales area will include any checkouts.
- 5.7 The Data Consultancy's definition of comparison goods includes durable items such as clothes and electrical goods often sold in high street shops. It also includes other items one would normally expect to find within a food store e.g. pharmaceutical/medical goods, pet food, baby products toiletries/perfume, kitchenware, stationery/cards and seasonal goods such as Christmas decorations and barbecue equipment. The existing store already sells a range of these comparison products.
- 5.8 As indicated in Section 1, the extended store will have a sales area of 4,695 sq m and other public areas will provide a further 621 sq m. Therefore, the total floorspace included in the applicant's defined *sales and display* area will be 5,316 sq m. As a result the applicant's proposed condition would allow up to 930 sq m of comparison sales floorspace. If other public areas were excluded then the allowance would be marginally smaller at 870 sq m, therefore the difference is not significant.
- 5.9 Typically 10% of a large food stores net sales floorspace is devoted to checkouts and the associated circulation/packing area. Therefore, the sales floorspace of the extended store (based on the applicant's proposed condition and Plan A1/105) could be broken down as follows:

- Convenience sales = 3,295 sq m
- Comparison sales = 930 sq m
- Checkouts = 470 sq m
- Total = 4,695 sq m**

5.10 The applicant indicates that approximately 15% of the store is currently devoted to the sale of comparison goods. Again, it is unclear what this 15% figure relates to, i.e. net sales floor space, checkouts and other public space. Our own visits to the store suggest that no more than 15% of the sales floorspace, excluding checkouts etc, is devoted to the sale of comparison goods.

5.11 Based on this assumption the breakdown of the existing stores sales floorspace could be as follows:

- Convenience sales = 2,887 sq m
- Comparison sales = 510 sq m
- Checkouts = 378 sq m
- Total = 3,775 sq m**

5.12 The assumed floorspace breakdowns shown above imply that the proposed extension will increase the space devoted to each use, as follows:

- Convenience sales = 408 sq m (+ 14%)
- Comparison sales = 420 sq m (+82%)
- Checkouts = 92 sq m (+ 24%)
- Total = 920 sq m (+ 24%)**

5.13 The proposed condition would allow the comparison sales area to be increased by 420 sq m, out of a total increase in sales floorspace of 920 sq m. Therefore, the split between new convenience and comparison sales within the new extension would be approximately 50:50. It is unclear from the information provided by the applicant whether some of the increase in sales floorspace will be devoted to widening aisles rather than increasing the display areas.

- 5.14 Based on these estimates the split between comparison and convenience sales space (excluding checkouts) would be 78:22. Based on our experience, it is not uncommon for large food superstores with a sales floorspace in excess 4,500 sq m net to have approximately 20% to 30% of their sales floorspace devoted to the sale of comparison goods. A proportion of this comparison space will be devoted to the sale of toiletries, kitchenware, pet food, stationery and other comparison items commonly found within food stores. However, the condition proposed by the applicant provides limited control over the mix of comparison goods sold. Theoretically, all the space could be devoted to the sale of clothing and fashion, which could change the nature of the store. However, this is unlikely as the retailer will wish to stock and sell a range of comparison goods associated with convenience shopping, e.g. toiletries, pet products, kitchenware and seasonal goods.
- 5.15 It is also important to note that the condition attached to the original planning permission is relatively unclear. In our view this condition provides limited control on the sale of goods. Condition 11 states:

The Class I retail store shall be used primarily for the sales of food, and shall not be used as a retail warehouse or as a DIY store.

- 5.16 No guidance is given with regard to the minimum level of food sales that will be allowed i.e. what does primarily mean? As indicated above, approximately 78% of the sales floorspace (excluding checkouts) of the extended store would be devoted to convenience sales if the applicant's proposed condition is accepted. We believe that it would be difficult to argue that this split in sales floorspace contravenes condition 11. Sainsbury could choose to reconfigure their existing store to provide, say, 35% comparison sales (1,321 sq m) without planning permission. Nevertheless, the proposed extension does provide an opportunity to impose a tighter control on the store as a whole.

Planning Condition Options

- 5.17 There are a number of options available to control the sale of goods within the extended store. The applicant has suggested a maximum proportion of comparison space, which may allow up to 930 sq m of space to be devoted for the sale of comparison goods. The advantage of this approach is that it provides a clear measurable limit. If the Council impose a minimum level of convenience goods floorspace then the level of comparison

floorspace would be uncertain. For example, if Sainsbury choose to re-configure their store to provide more sales floorspace by reducing storage or other non-sales areas then all the net gain in sales space could be devoted to comparison goods. If the Council's aim is to restrict the level of comparison sales within the store then we believe that a maximum limit, as proposed by the applicant is the most appropriate approach.

- 5.18 The disadvantage of this approach is the lack of control over the mix of comparison sales. Some comparison sales purchased on a day-to-day basis are normally provided within a food store whilst other comparison goods can be seen as being more ancillary, such as clothing, toys, furniture and electrical goods. These ancillary sales may be less acceptable in planning terms. The Council may choose to impose tighter controls on ancillary goods. For example, a maximum limit for specified comparison items could be introduced. This type of condition would offer more control over the sale of comparison items more typically sold within high street shops, but would give the operator more flexibility to sell other day to day comparison items. However, in our view this tighter restriction will not be necessary if the 17.5% maximum limit is introduced because the store will continue to sale a range of day-to-day comparison goods, which will limit the scope for ancillary comparison sales.

Concessions

- 5.19 A small area (182 sq m) is proposed for a concession, which the applicant indicates is likely to be occupied by Minit Services, who undertake drycleaning, film processing, shoe repairs and key cutting. These types of services are often provided within large food stores.
- 5.20 The Council may be concerned that the concession area could be occupied by other uses that do not support the main food store use, which could otherwise be located within an identified shopping centre.
- 5.21 The proposed condition limiting the sale of comparison sales floorspace would cover the concession, and should restrict the potential for this concession to be occupied by a comparison retailer. It may be too restrictive to limit the concession to a specific operator or type of occupier. The inclusion of one concession is unlikely to have a significant impact on other shopping centres. However, the amount of space devoted to concessions could be restricted to ensure that the character of the store remains consistent with that tested by MVM and to prevent the emergence of a number of

concessions, who may compete with other shopping centres. The following condition could be used.

"The area devoted to concessions should not exceed 200 sq m."

6.0 CONCLUSIONS

The Need for the Proposed Extension

- 6.1 The approach adopted within MVM's retail capacity/impact assessment is relatively broad brush. However, our review of the MVM study suggests that the capacity and impact figures produced are relatively conservative, because no allowance has been made for:
- healthy food store trading levels in 1999 (i.e. above the company average); and
 - the potential for the clawback of expenditure leakage.
- 6.2 These factors suggest that MVM may have under-estimated the quantitative capacity for additional food store floorspace. However, the MVM study makes no allowance for other food store commitments, i.e. the proposed food stores at White City, the recently opened Sainsbury at Paddington Station and the proposed food store at Edgware Road. The White City and Edgware food store proposals may have been excluded by MVM due to uncertainty regarding the timing of these schemes. It may be fair to assume that these stores will not be open until 2003 at the earliest.
- 6.3 The NLP 1999 Retail Study did make an allowance for these commitments. Projections within the 1999 Retail Study suggest that there should be quantitative scope for the proposed extension and the existing commitments by 2006, and that there is unlikely to be an adverse impact on existing food stores.
- 6.4 The 1999 Retail Study indicated that there are no obvious areas of food superstores within the Borough, particularly after the White City development. The study concluded that does not appear to be a need to allocate a further site for a large food store development. However, the study also suggested that above average trading levels within existing stores would offer some scope for additional food store floorspace (including ancillary comparison sales), up to 910 sq m net by 2006. Therefore, the proposed Sainsbury extension would meet most of this floorspace projection.
- 6.5 The applicant claims that the proposed extension will address customer dissatisfaction with the existing store, by providing a better choice of products and reducing

congestion. Most of the existing food stores in North Kensington cater for basket and top-up food shopping rather than bulk food shopping. The proposed extension will improve customer accessibility to a large superstore with a sales floorspace of over 4,000 sq m net, and will reduce the need for residents to travel outside the Borough to visit a store of this size.

The Sequential Approach

- 6.6 Government guidance suggests that extensions to stores in out-of-centre locations should be considered against the sequential approach. The first stage of the sequential approach is to demonstrate that the proposal is needed. The second stage is to demonstrate that there are no alternative town centre or edge of centre opportunities to meet this need.
- 6.7 The 1999 Retail Study suggests that there is quantitative scope for the proposed extension and that there will be qualitative benefits to customers if the extension is permitted. However, the Council should consider whether this need can be accommodated within or adjacent to an existing principal shopping centre, which would serve the same area of North Kensington.
- 6.8 In addition, it is necessary to consider whether the additional retail floorspace proposed could be disaggregated and accommodated on smaller sites/premises in principal shopping centres. If the proposed extension is appropriately conditioned to prevent the introduction of a significant amount of new forms of retail sales then the identified need for the extension is, in our view, locationally specific to the Sainsbury store. Therefore, the potential disaggregation of the new floorspace can be rejected.
- 6.9 We recommend that, if the Council is minded to approve the application then a maximum level of sales floorspace devoted to the sale of non-food and grocery items should be imposed as discussed in Section 5. The 17.5% restriction proposed by the applicant will allow up to 930 sq m of comparison sales compared with 510 sq m within the existing store.
- 6.10 A comparison sales floorspace of 930 sq m is not unusual for a food superstore of the size proposed. However, if the Council is concerned that some of the proposed comparison sales could be better located within an existing shopping centre then it may

be appropriate to negotiate a lower limit. If the Council is not convinced that the condition proposed by the applicant will prevent a significant amount of new forms of retail sales being provided in the Sainsbury store then the decision should be deferred, and more detail information requested from the applicant, i.e. a detailed store layout showing displays and the goods sold.

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