

Technical Note – Calculation of School Trip Attraction and Traffic Assignment

Introduction

This technical note provides details of the methodology used to calculate the trip attraction and traffic assignment of a proposed 258 pupil primary school located within Rhoose. This primary school forms part of a proposed mixed use development to the south of Porthkerry Road, which will, in addition to the primary school, also comprise a 350 dwelling residential development. It is proposed that the development will be accessed from a single point of access located along Porthkerry Road between the Ceri Road and Ceri Avenue junctions.

A separate assessment has been undertaken of the residential development, which will be presented in the final Transport Assessment of the scheme. However, as there is likely to be interaction between the proposed residential and school developments, this note also provides further detail on the potential for internal trips to be made between the uses.

The development site forms half of a housing allocation (Housing Site 22) within the Vale of Glamorgan's (VoG) Unitary Development Plan (UDP) 1996 – 2011. A planning application has also already been submitted by Bellway and Persimmon homes for 350 houses, on the neighbouring site to the east which forms the other half of the sites allocation.

Trip Attraction

A trip attraction calculation has been undertaken of the site based on comparative sites within the 'Education – Primary' category of the TRICS database. Table 1 below provides a summary of the calculate trip attraction rates for the assessed AM (08:00-09:00) and PM (17:00-18:00) peak hours, and for the whole day (07:00 – 19:00). A full TRICS output has also been provided as Appendix A.

Table 1: School Trip Attraction Rates (per pupil) Calculated from TRICS

Mode Split	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)			Daily (07:00 – 19:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Total People	1.252	0.352	1.604	0.037	0.07	0.107	2.387	2.32	4.707
Vehicles	0.37	0.259	0.629	0.027	0.037	0.064	0.882	0.851	1.733
Vehicle Occupants	0.581	0.175	0.756	0.034	0.055	0.089	1.141	1.049	2.19
Pedestrians	0.641	0.174	0.815	0.003	0.014	0.017	1.157	1.191	2.348
Public Transport Users	0.023	0	0.023	0	0	0	0.07	0.061	0.131
Cyclists	0.007	0.003	0.01	0	0.001	0.001	0.019	0.019	0.038

The trip attraction rates in Table 1 have been used to calculate an initial trip attraction for the school. It is noted that, whilst the school will cater for 258 pupils, 48 of these pupils will be nursery children which will be split so that half (24 pupils) attend school during the morning period and the other half (24 pupils) attend during the evening. Thus, the trip attraction figures have been calculated on the basis of 234 full day pupils (i.e. 210 primary pupils and effectively 24 full day nursery places). Details of this analysis are provided in Table 2 below.

Table 2: School Trip Attraction (Based on 234 full day pupils) Calculated from TRICS

Mode Split	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)			Daily (07:00 – 19:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Total People	293	82	375	9	16	25	559	543	1101
Vehicles	87	61	147	6	9	15	206	199	406
Vehicle Occupants	136	41	177	8	13	21	267	245	512
Pedestrians	150	41	191	1	3	4	271	279	549
Public Transport Users	5	0	5	0	0	0	16	14	31
Cyclists	2	1	2	0	0	0	4	4	9

The results in Table 2 have been used to calculate the TRICS based daily mode split for the school as shown in Table 3 below.

Table 3: TRICS Based School Daily Mode Split

Mode Split	Daily Total TRICS Based Trip Attraction (07:00 – 19:00)	TRICS Based Mode Split
Total People	1101	100%
Vehicles	406	37%
Vehicle Occupants	512	47%
Pedestrians	549	50%
Public Transport Users	31	3%
Cyclists	9	1%

Mode Split Adjustment

Data has been supplied by VoG regarding the mode of travel of pupils attending the nearby Rhws primary school. This local data has been used to calculate the mode split of the proposed school which has been used to adjust the TRICS based trip attraction figures in Table 2. The details of this analysis are discussed below.

Modal Splits

The Rhws School pupil travel mode data is summarised in Table 4. In addition, this data has been grouped into the relevant TRICS mode split categories as outlined in Tables 1 and 2, with details of this provided in Table 5.

Table 4: Rhws School - Mode of Travel

Mode	Numbers of Pupils
Car (one pupil in car)	72
Car share (more than one pupil in car)	120
Bus	8
Walk	96
Cycle	2
Train	1
Any other way (please specify)	8
Total No in class	307

Table 5: Rhws School - Mode of Travel (Grouped into TRICS categories)

Mode	Numbers of Pupils
Total People	307
Vehicles	132
Vehicle Occupants	192
Pedestrians	104
Public Transport Users	9*
Cyclists	2

*includes trips in the 'Any other way' category

For the purpose of this analysis it has been assumed that those pupils recorded as car sharing would do so with one other pupil. Therefore, the vehicle numbers shown in Table 5 have been calculated by halving the car sharers in Table 4 ($120 / 2 = 60$) before adding the total of the single pupil car journeys ($60 + 72 = 132$). This analysis therefore represents a worst case assessment of the proportion of vehicles as in some instances more than two pupils may share a vehicle.

The pupil numbers shown in Table 5 have been used to calculate the total daily mode split for the school as shown in Table 6. It is assumed that this mode split will also apply to parents and staff travelling to and from the school.

Table 6: Daily Mode Split of Proposed School

Mode	Numbers of Pupils
Total People	100%
Vehicles	43%
Vehicle Occupants	63%
Pedestrians	34%
Public Transport Users	3%
Cyclists	1%

Adjustment of TRICS Calculation

Mode split adjustment factors have been calculated by dividing the local mode splits shown in Table 6 by the TRICS based mode splits shown in Table 3. These factors are shown in Table 7 below.

Table 7: Mode Split Adjustment Factors

Mode	Mode Split Adjustment Factors
Vehicles	1.17
Vehicle Occupants	1.34
Pedestrians	0.68
Public Transport Users	1.05
Cyclists	0.81

The factors shown in Table 7 have been applied to the trip attraction figures in Table 2. The results of this analysis, which represents the forecast trip attraction of the school, are shown in Table 8 below.

Table 8: Forecast School Trip Attraction

Mode Split	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)			Daily (07:00 – 19:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Total People	292	83	375	11	20	31	564	538	1101
Vehicles	101	71	172	7	10	17	241	233	474
Vehicle Occupants	183	55	238	11	17	28	359	330	689
Pedestrians	102	28	130	0	2	3	184	189	373
Public Transport Users	6	0	6	0	0	0	17	15	32
Cyclists	1	1	2	0	0	0	4	4	7

Linked Vehicle Trips

The school vehicle trips will be split into those linked with other uses and designated school trips. For the purpose of this analysis it has been assumed that all linked trips will be work based drop-off / pick-up trips. Thus in the AM peak it is assumed these trips will drop pupils off at school before travelling onto their work destination. Similarly the reverse is assumed to happen in the PM peak as parents drive into school to pick up their children prior to driving home.

The Department for Transport's 'National Travel Survey – 2004' states that:

“17 per cent of morning escort education trips for both men and women were followed by a trip to work or business.”

On this basis it has been assumed that 17% of all school trips will be linked work trips with the remaining 83% consisting of designated (single purpose) school trips. The vehicle numbers in Table 8 have therefore been split based on these percentages with the resultant traffic flows shown in Table 9.

Table 9: Forecast School Trips Split by Linked Work trips and Designated Trips

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)			Daily (07:00 – 19:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Linked Work Trips	17	12	29	1	2	3	41	40	81
Designated School Trips	84	59	143	6	8	15	200	193	393
Total	101	71	172	7	10	17	241	233	474

Removal of Development Linked Vehicle Trips

The developer (Taylor Wimpey) has confirmed that approximately 91 of the schools 234 full day pupils should come from the development site itself (i.e. from the proposed residential development). For the purpose of this analysis it has been assumed that, with the exception of linked trips, all of the trips from the development will be pedestrian.

As discussed earlier, a separate traffic assessment has been undertaken for the residential development site, which has assessed traffic movements at the site access and the external highway network. Thus, whilst there may be some diversion of traffic from the residential development to the school in the form of linked trips, the impact of these trips on the external highway network would already be taken account of in the traffic assessment of the residential development. Thus, in order to avoid the double counting of these trips, these vehicles therefore need to be subtracted from the net traffic impact of the school. Further details regarding this assessment are provided below.

Calculation of Residential Development's Linked Trips

In order to calculate the linked school trips from the residential development a factor has been calculated which has been applied to the Linked Work Trips shown in Table 9. This factor has been calculated by dividing the estimated number of full day pupils (including nursery pupils) that will reside in the development site (91) by the number of full day pupils within the whole school ($91 / 234 = 0.39$). The resultant forecast school linked trips from the proposed residential development are shown in Table 10.

Table 10: Forecast Linked School Trips from the Proposed Residential Development

AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)			Daily (07:00 – 19:00)		
Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
7	5	11	0	1	1	16	15	31

The vehicle numbers in Table 10 have been removed from the Linked Work Trips in Table 9 in order to calculate the numbers of vehicles that will arrive and depart from the developments vehicle access. The results of this analysis are shown in Table 11 below.

Table 11: Forecast Additional School Trips Split by Linked Work trips and Designated Trips

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)			Daily (07:00 – 19:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Linked Work Trips	11	7	18	1	1	2	25	24	49
Designated School Trips	84	59	143	6	8	15	200	193	393
Total	94	66	161	7	9	16	225	217	442

Trip Reassignment

It is noted that, other than that generated by the proposed housing development, there will be no additional pupil demand proposed by the development. Furthermore, for reasons already discussed the Primary School education trips from the proposed residential site have already been extracted from the trip attraction figures shown in Table 11. The remaining pupil demand should already be included in the base traffic figures which include background traffic growth and traffic from committed developments. It is also noted that without the introduction of the proposed school it is likely that all of the residents of Rhoose would continue to use Rhws School which would obviously need to expand their facility to cater for the additional numbers of pupils. On this basis, it is forecast that the school will lead to a reassignment of traffic flows, from the Rhws school access (located west of the development site along Fontgary Road) to the development access, rather than additional traffic on the network. The calculation of this reassignment is discussed below.

AM Peak

Arrivals

Details of school catchment areas are shown in diagrams included within Appendix A of the VoG Local Development Plan Background Paper titled 'Education Facilities'. The diagram showing the catchment for the English Medium Schools has been extracted and included as Appendix B of this document.

It can be seen from the diagram in Appendix B that the catchment of the Rhws primary school predominantly serves the area of Rhoose. It is considered appropriate to assume that the introduction of the proposed school will effectively divide this catchment in half with the new school taking in some of the overflow from the Rhws School and at the same time providing additional capacity required for the development site (350 dwellings), adjacent Bellway development (350 dwellings), and development site south of the railway line (50 dwellings).

Given that the majority of vehicle catchment is likely to be accessible from the east it has been assumed that 75% of the vehicles will arrive from this direction. Thus it is assumed that the remaining 25% of vehicles will arrive from the west. Thus in terms of turning movements at the developments vehicle access junction it has been assumed that 25% will turn into the junction via the Porthkerry Road (W) arm and 75% of the vehicles will turn into the junction via the Porthkerry Road (E) arm.

As discussed earlier it is likely that the introduction of the school will result in a redistribution of traffic (i.e from Rhws School to the development site) rather than additional traffic on the assessed network. Thus, whilst it has been forecast that 75% of the schools arrivals will turn into the site from the east, it has also been assumed that the same traffic volume will be removed from the straight ahead movement of the junction and subsequent movements on approach from the existing school. Moreover, whilst it is assumed that traffic approaching from the east will travel to the site via Porthkerry Road and / or the Pentir De junction, these trips should not represent additional trips on the network.

It is considered likely that the eastern boundary of the catchment for the proposed school will stop short of the Rhoose Road / Station Road / Fonman Road junction as it is assumed that all households west of this junction will be within the catchment of Rhws School. Notwithstanding this point it is likely that half of the western portion of the catchment ($25\% / 2 = 12.5\%$) will be accessible via Station Road. It is assumed that vehicles arriving from this junction would therefore turn right at the Station Road junction onto Rhoose Road, before continuing onto Porthkerry Road and turning right at the development's proposed vehicle access. It is likely that this traffic would have previously turned left at Station Road to access the existing school and therefore an equivalent reduction in traffic has been assumed for the left turn out of this junction.

It is assumed that the remaining 12.5% of the western catchment would reside in the residential streets to the northwest of the development site and to the east of Station Road. These vehicles would also access the site via Rhoose Road / Porthkerry Road and on arrival would also turn right into the development access from the west. It is likely that this traffic would have previously travelled westwards across the Station Road junction to access the existing school and therefore an equivalent reduction in traffic has been assumed for the straight ahead movement on the eastern approach to this junction.

Full details of the arrival distribution are provided in Figure 1. The total AM arrival traffic flows shown in Table 11 have been assigned based on the distribution figures shown in Figure 1, with the results of this analysis shown in Figure 2.

It is noted that, in the AM peak the distribution of the Designated and Linked Arrivals should be the same and therefore no separate distribution has been calculated for these trips.

Departures – Designated Trips

It has been assumed that designated trips would return to their origin in the AM peak. Thus the distribution of departing designated trips, as shown in Figure 3, is a reversal of the trip movements shown in Figure 1. The total AM peak hour designated school departure traffic flows shown in Table 11 have been assigned based on the distribution figures shown in Figure 3, with the results of this analysis shown in Figure 4.

Departures - Linked Work Trips

The distribution of the departing AM peak linked work trips is based on the same assumed departure distribution of the proposed residential development. This distribution is therefore based on that agreed for the neighbouring Bellway / Persimmon housing site to the east, as outlined in Figure 6.1 of the accompanying TA (produced by FMW in June 2010).

As discussed previously the introduction of the school should not represent an increase in traffic on the local network but should merely represent a reassignment of traffic from Rhws School access to the proposed school access. The reassignment of traffic therefore takes account of this.

The resultant distribution, or redistribution, is included as Figure 5 of this report. The AM peak hour linked school departure traffic flows shown in Table 11 have been assigned based on the distribution figures shown in Figure 5, with the results of this analysis shown in Figure 6.

PM Peak

Arrivals – Designated Trips

It is assumed that these trips will have the same distribution as the AM arrivals. On this basis the designated arrival trips shown in Table 11 have been applied to the distributions shown in Figure 1. The results of the analysis are shown in Figure 7.

Arrivals - Linked Work Trips

The distribution of the arriving PM peak linked work trips is based on the same assumed arrival distribution of the proposed residential development. This distribution is therefore based on that agreed for the neighbouring Bellway / Persimmon housing site to the east, as outlined in Figure 6.1 of the accompanying TA (produced by FMW in June 2010).

As discussed previously the introduction of the school should not represent an increase in traffic on the local network but should merely represent a reassignment of traffic from Rhws School access to the proposed school access. The reassignment of traffic therefore takes account of this.

The resultant distribution, or redistribution, is included as Figure 8 of this report. The PM peak hour linked school arrival traffic flows shown in Table 11 have been assigned based on the distribution figures shown in Figure 8, with the results of this analysis shown in Figure 9.

Departures

It has been assumed that departure trips would return to their origin in the PM peak. Thus the total PM departure trips shown in Table 11 have been applied to the percentage redistribution figures shown in Figure 3, with the results of this analysis shown in Figure 10.

It is noted that, in the PM peak the distribution of the Designated and Linked Departures should be the same and therefore no separate distribution has been calculated for these trips.

Net School Development Traffic Impact

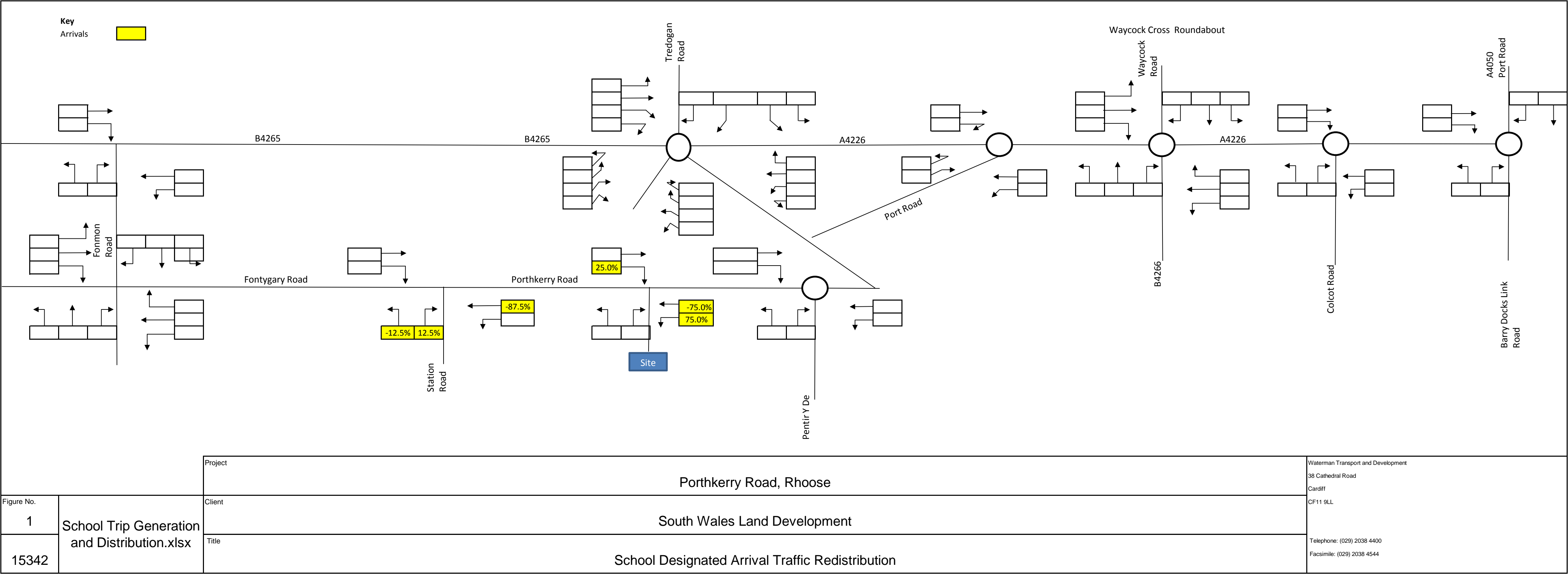
The following traffic scenarios have been combined to create the Net Development Traffic Flow diagrams shown in Figure 12 (AM Peak) and 13 (PM Peak):

- 'Figure 11 – School Net Traffic Impact – AM Peak' = 'Figure 2 – School Arrival Traffic Reassignment – AM Peak' + 'Figure 4 – School Designated Departure Traffic Reassignment – AM Peak' + 'Figure 6 – School Linked Departure Traffic Reassignment – AM Peak'
- 'Figure 12 – School Net Traffic Impact – PM Peak' = 'Figure 7 – School Designated Arrival Traffic Reassignment – PM Peak' + 'Figure 9 – School Linked Arrival Traffic Reassignment – PM Peak' + 'Figure 10 – School Designated Departure Traffic Reassignment – PM Peak'

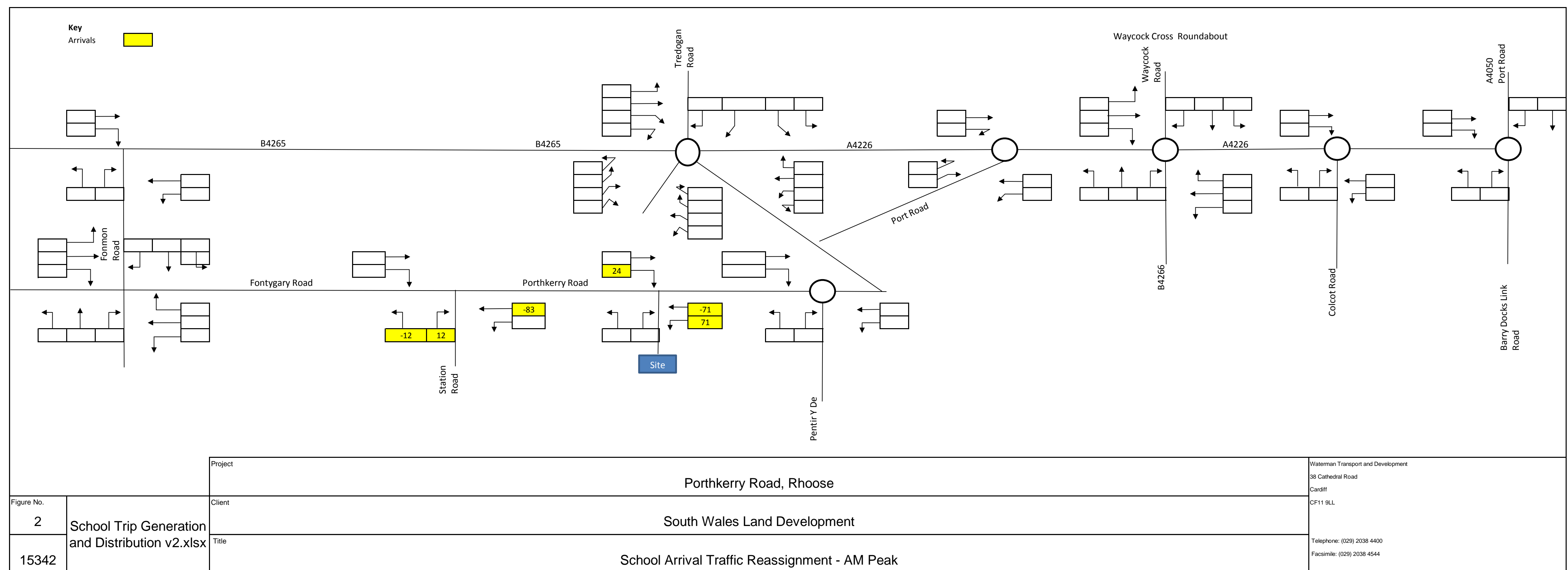
It is noted that these traffic flow diagrams represent a robust assessment of school traffic flows. The reasons for this are as follows:

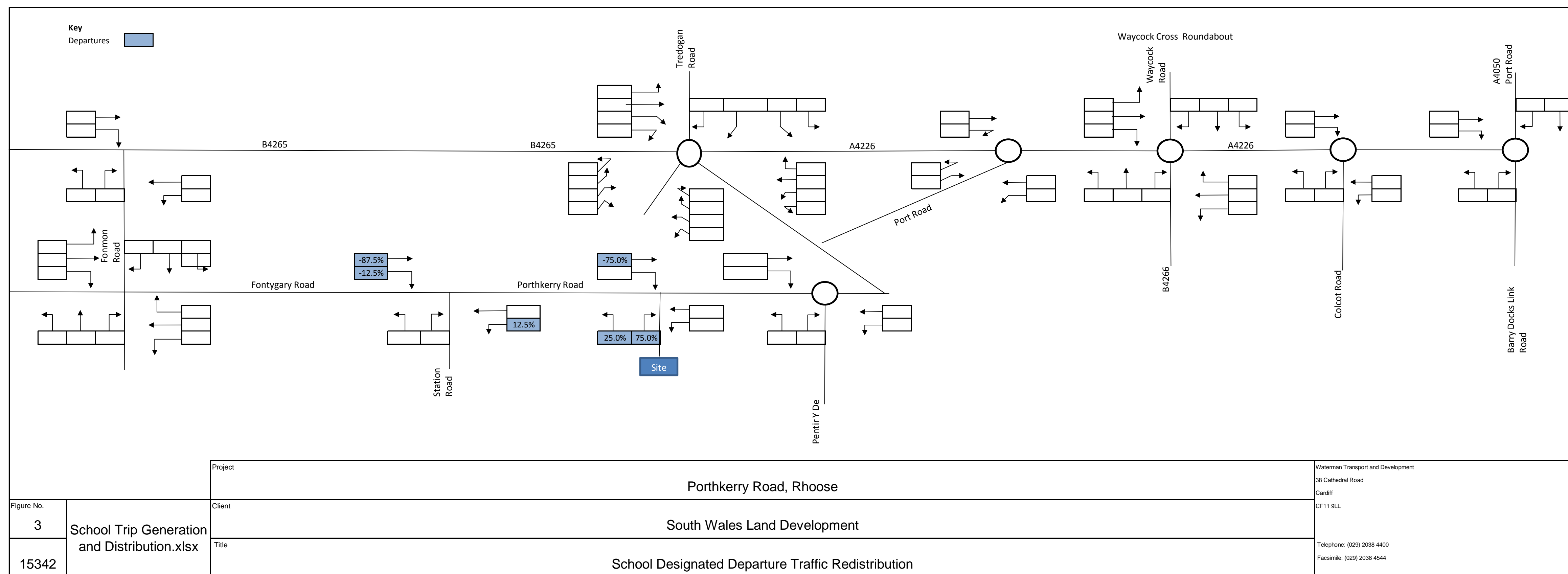
- With regards to car sharers it has been assumed that a maximum of two pupils will share a car when in reality this is likely to be higher.
- No reduction has been introduced to take into account the impact of travel plan measures.
- With the exception of some linked work trips it has been assumed that all of the traffic attraction of the school will be external to the site when in reality there may be some designated car trips within the site that will not create impact on the external traffic network.
- No reduction has been applied to take account of any potential transport links between the development and adjacent housing areas (e.g. the Persimmon / Bellway site to the east).

FIGURES



		Project	Porthkerry Road, Rhoose	Waterman Transport and Development 38 Cathedral Road Cardiff
Figure No.	1	School Trip Generation and Distribution.xlsx	Client	CF11 9LL
			South Wales Land Development	
15342			Title	Telephone: (029) 2038 4400 Facsimile: (029) 2038 4544
		School Designated Arrival Traffic Redistribution		





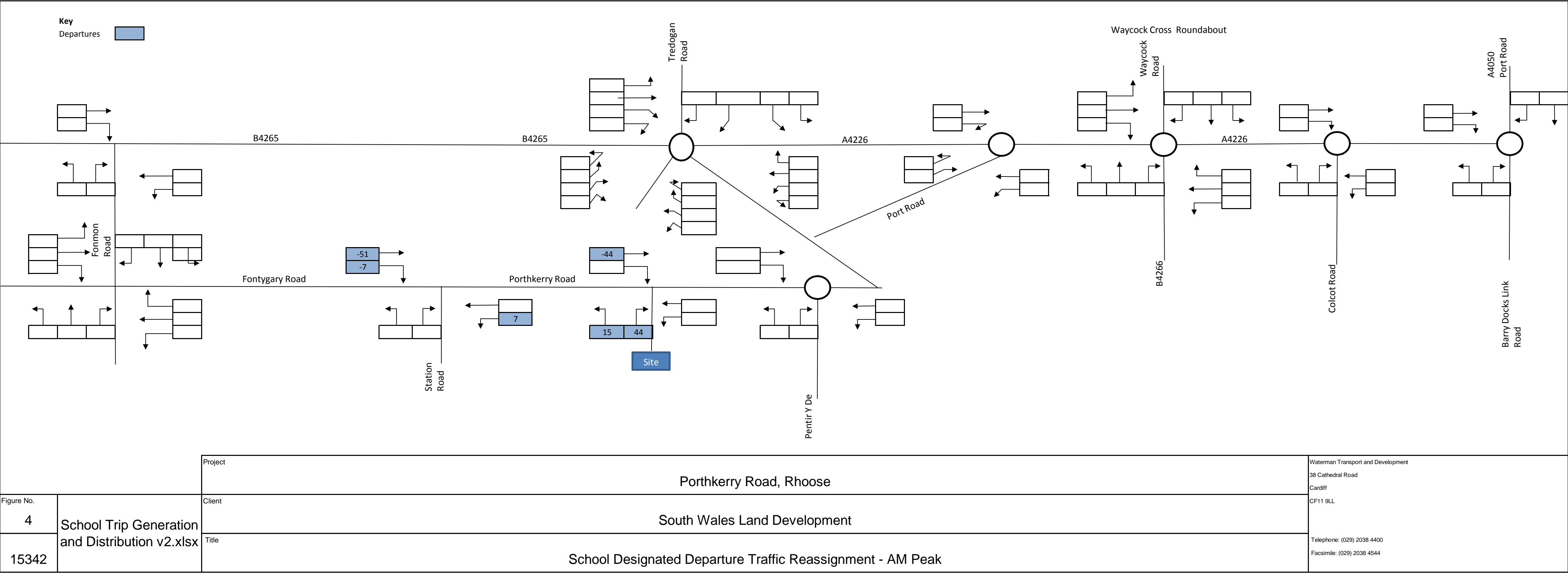
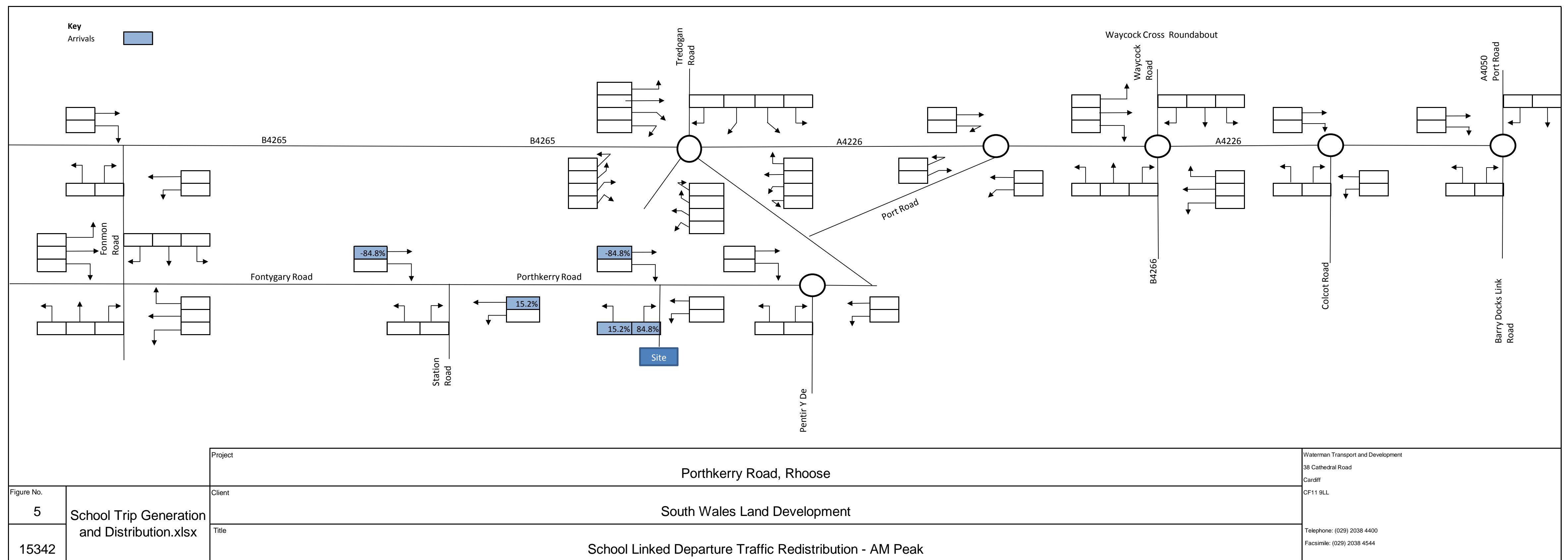


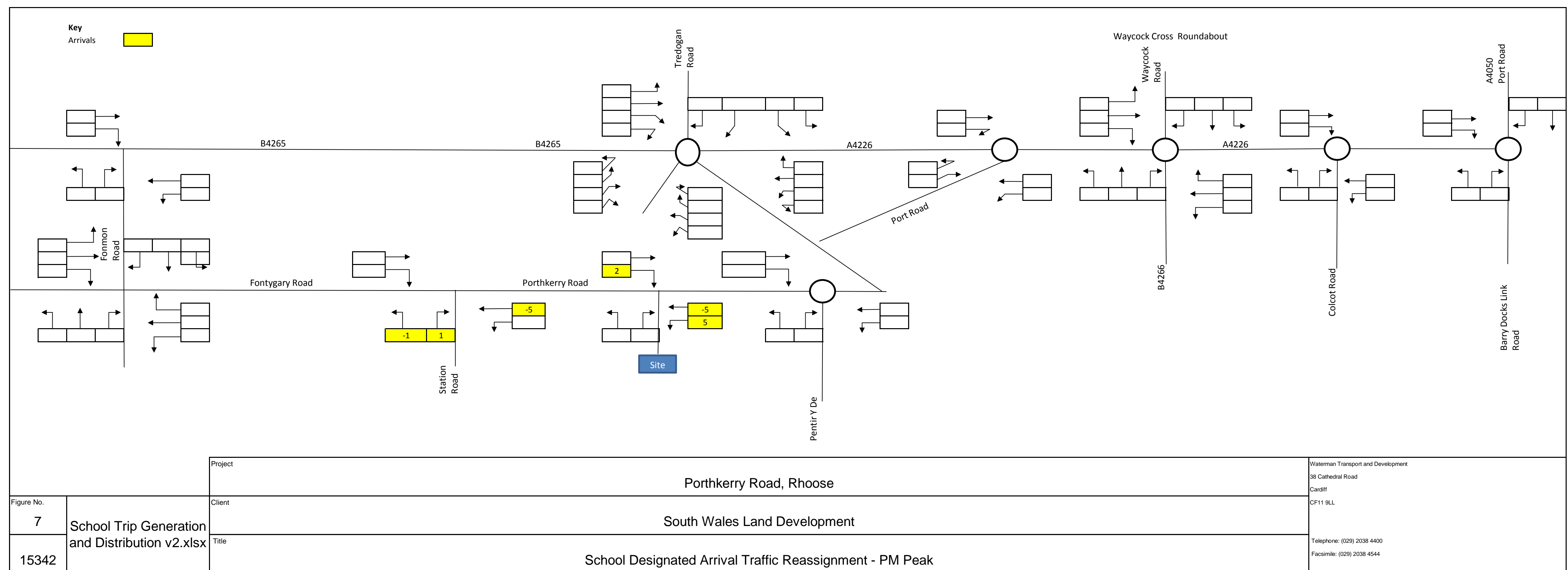
Figure No.
4
15342

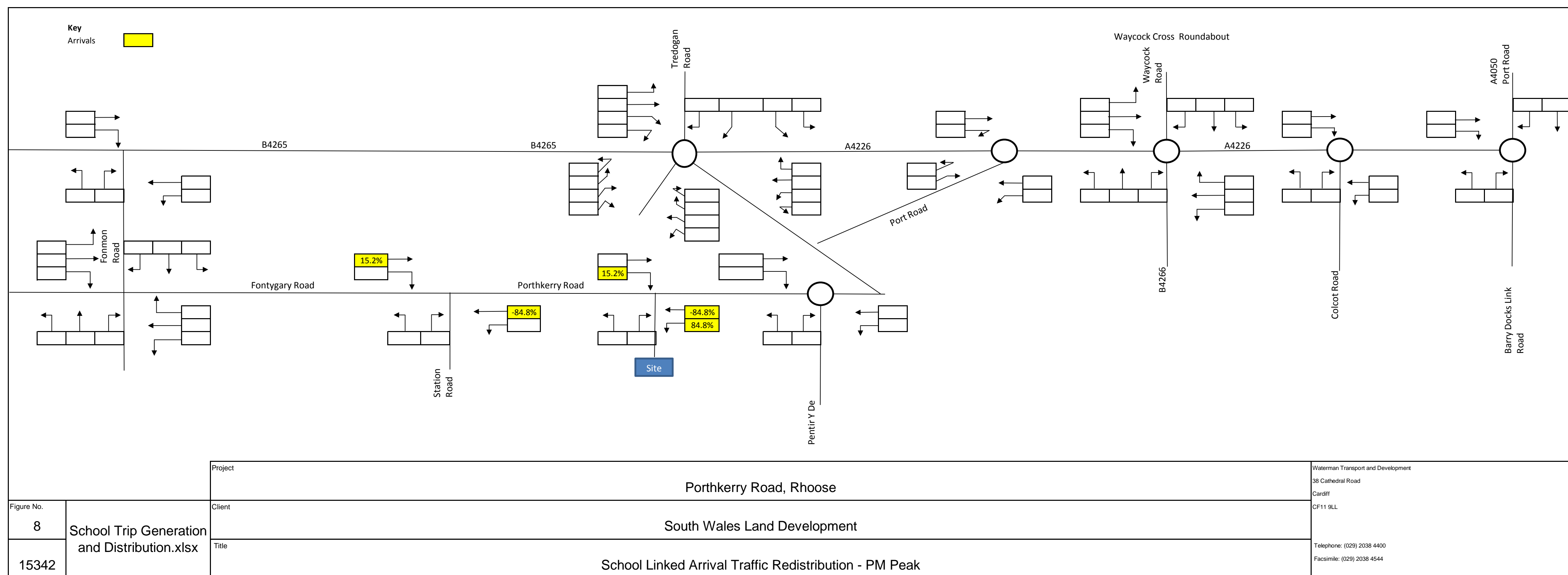
School Trip Generation and Distribution v2.xlsx

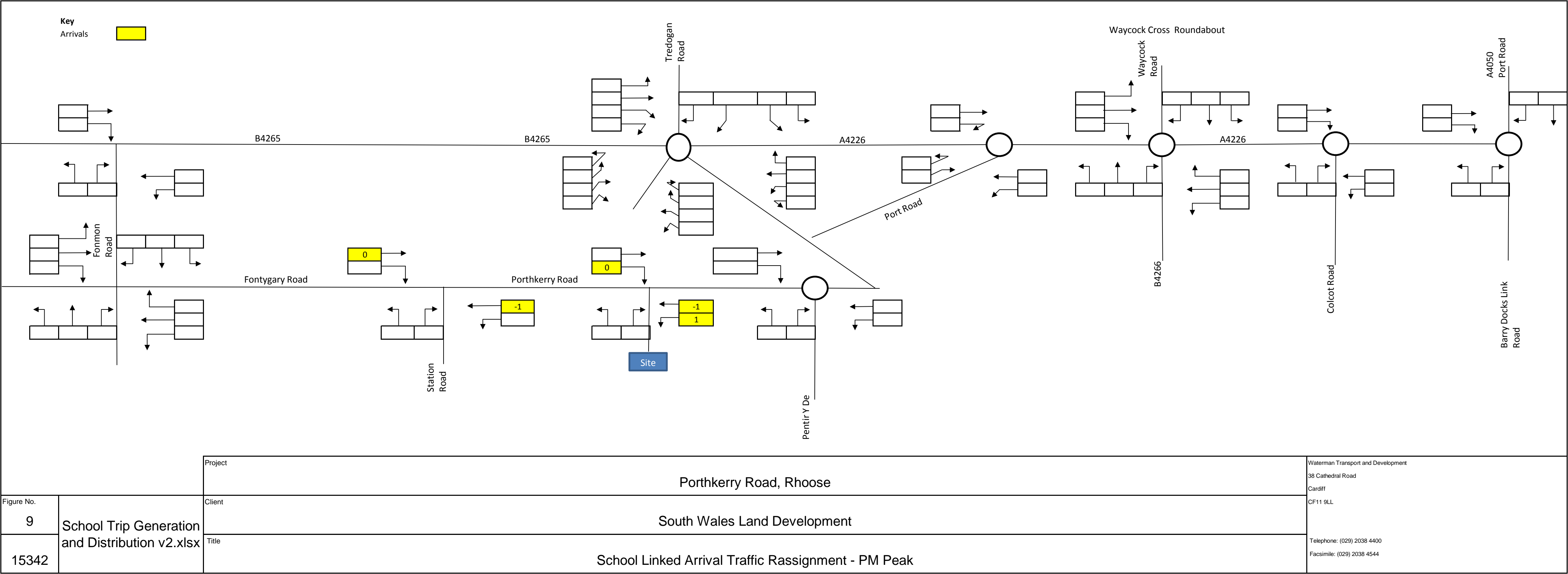
Project	Porthkerry Road, Rhoose
Client	South Wales Land Development
Title	School Designated Departure Traffic Reassignment - AM Peak

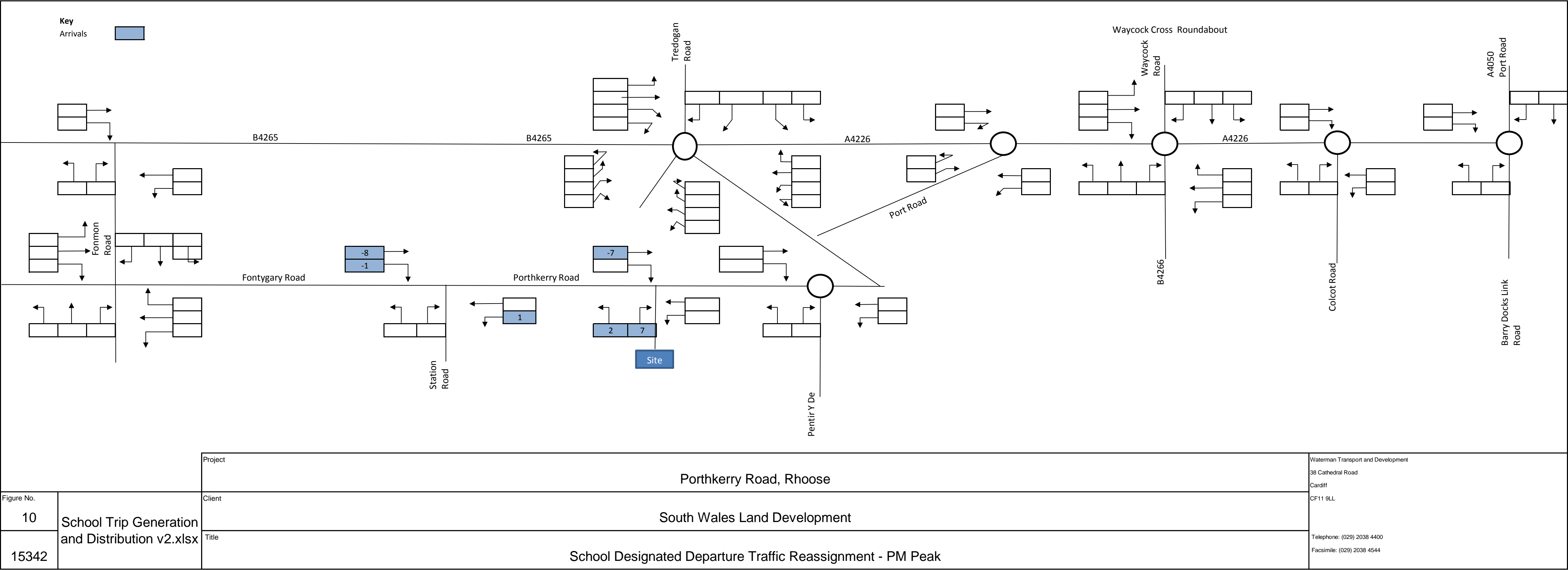
Waterman Transport and Development
38 Cathedral Road
Cardiff
CF11 9LL
Telephone: (029) 2038 4400
Facsimile: (029) 2038 4544

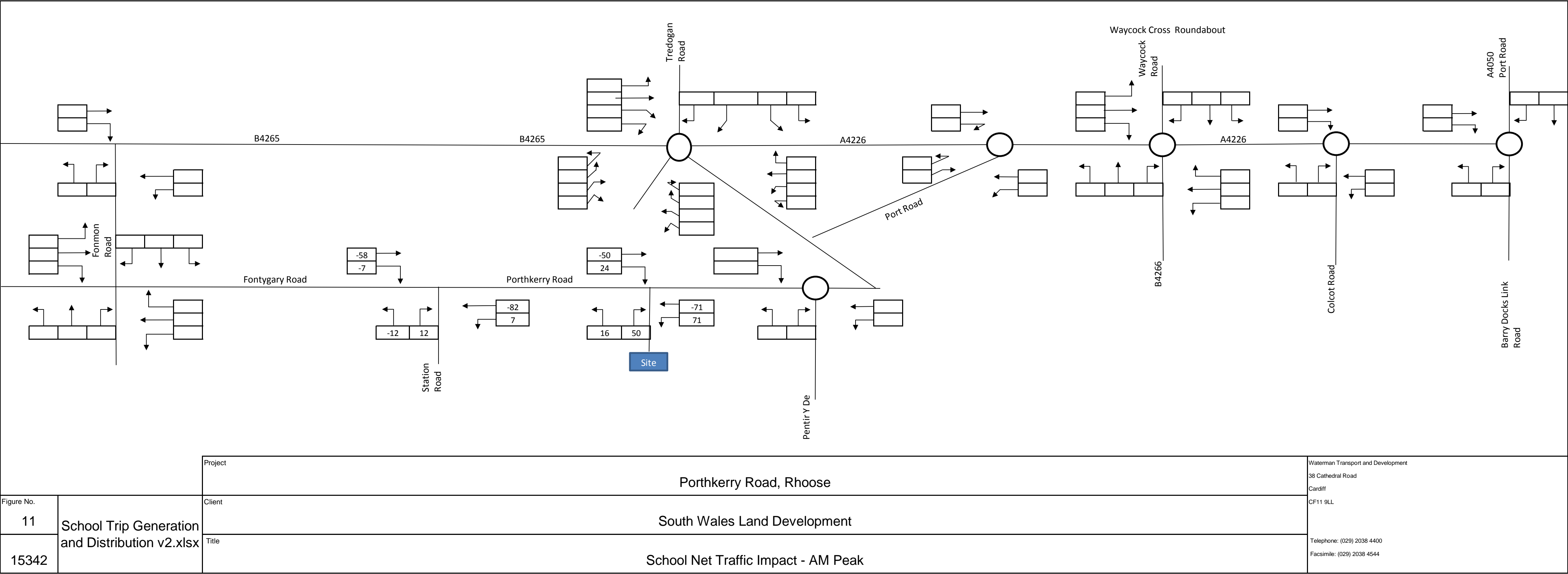


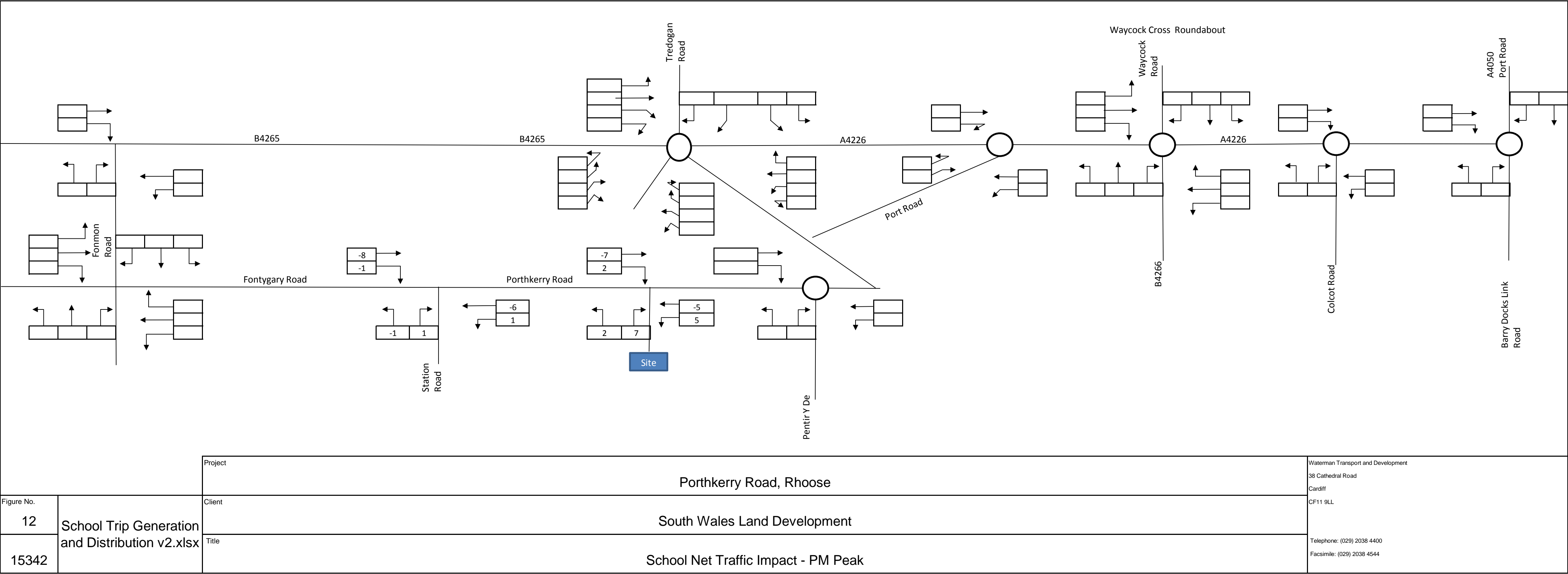












APPENDICES

A. School TRICS Output

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
 Category : A - PRIMARY
 MULTI-MODAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	SC SURREY	1 days
06	WEST MIDLANDS	
	WO WORCESTERSHIRE	1 days
08	NORTH WEST	
	MS MERSEYSIDE	1 days
10	WALES	
	WR WREXHAM	1 days
17	ULSTER (NORTHERN IRELAND)	
	DO DOWN	1 days

Filtering Stage 2 selection:

Parameter:	Number of pupils
Actual Range:	120 to 447 (units:)
Range Selected by User:	90 to 500 (units:)

Public Transport Provision:

Selection by:	Include all surveys
---------------	---------------------

Date Range:	01/01/05 to 13/06/13
-------------	----------------------

Selected survey days:

Monday	2 days
Thursday	3 days

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	2
Neighbourhood Centre (PPS6 Local Centre)	2

Selected Location Sub Categories:

Residential Zone	2
Village	2
No Sub Category	1

Filtering Stage 3 selection:

Use Class:

D1	5 days
----	--------

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days

Filtering Stage 3 selection (Cont.):

Population within 5 miles:

5,000 or Less	1 days
75,001 to 100,000	3 days
250,001 to 500,000	1 days

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	3 days
1.6 to 2.0	1 days

Travel Plan:

Yes	1 days
No	4 days

LIST OF SITES relevant to selection parameters

1	DO-04-A-01	PRIMARY SCHOOL	DOWN
	CHURCH GROVE		
	KIRCUBBIN		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Number of pupils:	120	
	Survey date: MONDAY	19/12/11	Survey Type: MANUAL
2	MS-04-A-01	RC PRIMARY SCHOOL	MERSEYSIDE
	DERWENT ROAD		
	ST HELENS		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of pupils:	193	
	Survey date: THURSDAY	05/10/06	Survey Type: MANUAL
3	SC-04-A-01	PRIMARY SCHOOL	SURREY
	SCHOOL LANE		
	PIRBRIGHT		
	NEAR WOKING		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Number of pupils:	414	
	Survey date: THURSDAY	22/11/12	Survey Type: MANUAL
4	WO-04-A-01	PRIMARY SCHOOL	WORCESTERSHIRE
	ST PETERS CHURCH LANE		
	DROITWICH SPA		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of pupils:	447	
	Survey date: MONDAY	13/06/05	Survey Type: MANUAL
5	WR-04-A-01	PRIMARY SCHOOL	WREXHAM
	BODHYFRYD		
	WREXHAM		
	Edge of Town Centre		
	No Sub Category		
	Total Number of pupils:	283	
	Survey date: THURSDAY	13/10/11	Survey Type: MANUAL

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
BN-04-A-01	London Site
CN-04-A-01	London Site
DV-04-A-03	City Too Large
HK-04-A-01	London Site
LE-04-A-01	City Too Large
MS-04-A-02	City Too Large

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL VEHICLES
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	291	0.036	5	291	0.017	5	291	0.053
08:00 - 09:00	5	291	0.370	5	291	0.259	5	291	0.629
09:00 - 10:00	5	291	0.045	5	291	0.069	5	291	0.114
10:00 - 11:00	5	291	0.010	5	291	0.015	5	291	0.025
11:00 - 12:00	5	291	0.036	5	291	0.021	5	291	0.057
12:00 - 13:00	5	291	0.016	5	291	0.035	5	291	0.051
13:00 - 14:00	5	291	0.036	5	291	0.035	5	291	0.071
14:00 - 15:00	5	291	0.103	5	291	0.027	5	291	0.130
15:00 - 16:00	5	291	0.122	5	291	0.232	5	291	0.354
16:00 - 17:00	5	291	0.058	5	291	0.085	5	291	0.143
17:00 - 18:00	5	291	0.027	5	291	0.037	5	291	0.064
18:00 - 19:00	5	291	0.023	5	291	0.019	5	291	0.042
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.882			0.851			1.733

Parameter summary

Trip rate parameter range selected:	120 - 447 (units:)
Survey date date range:	01/01/05 - 13/06/13
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	6

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
 MULTI-MODAL CYCLISTS
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	291	0.003	5	291	0.000	5	291	0.003
08:00 - 09:00	5	291	0.007	5	291	0.003	5	291	0.010
09:00 - 10:00	5	291	0.001	5	291	0.002	5	291	0.003
10:00 - 11:00	5	291	0.000	5	291	0.001	5	291	0.001
11:00 - 12:00	5	291	0.000	5	291	0.000	5	291	0.000
12:00 - 13:00	5	291	0.001	5	291	0.000	5	291	0.001
13:00 - 14:00	5	291	0.000	5	291	0.000	5	291	0.000
14:00 - 15:00	5	291	0.001	5	291	0.001	5	291	0.002
15:00 - 16:00	5	291	0.005	5	291	0.003	5	291	0.008
16:00 - 17:00	5	291	0.001	5	291	0.008	5	291	0.009
17:00 - 18:00	5	291	0.000	5	291	0.001	5	291	0.001
18:00 - 19:00	5	291	0.000	5	291	0.000	5	291	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.019			0.019			0.038

Parameter summary

Trip rate parameter range selected: 120 - 447 (units:)
 Survey date range: 01/01/05 - 13/06/13
 Number of weekdays (Monday-Friday): 5
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys manually removed from selection: 6

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL VEHICLE OCCUPANTS
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	291	0.044	5	291	0.018	5	291	0.062
08:00 - 09:00	5	291	0.581	5	291	0.175	5	291	0.756
09:00 - 10:00	5	291	0.069	5	291	0.069	5	291	0.138
10:00 - 11:00	5	291	0.013	5	291	0.019	5	291	0.032
11:00 - 12:00	5	291	0.049	5	291	0.028	5	291	0.077
12:00 - 13:00	5	291	0.021	5	291	0.054	5	291	0.075
13:00 - 14:00	5	291	0.047	5	291	0.053	5	291	0.100
14:00 - 15:00	5	291	0.086	5	291	0.038	5	291	0.124
15:00 - 16:00	5	291	0.111	5	291	0.369	5	291	0.480
16:00 - 17:00	5	291	0.039	5	291	0.148	5	291	0.187
17:00 - 18:00	5	291	0.034	5	291	0.055	5	291	0.089
18:00 - 19:00	5	291	0.047	5	291	0.023	5	291	0.070
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.141			1.049			2.190

Parameter summary

Trip rate parameter range selected:	120 - 447 (units:)
Survey date date range:	01/01/05 - 13/06/13
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	6

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
 MULTI-MODAL PEDESTRIANS
 Calculation factor: 1 PUPILS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	291	0.009	5	291	0.002	5	291	0.011
08:00 - 09:00	5	291	0.641	5	291	0.174	5	291	0.815
09:00 - 10:00	5	291	0.058	5	291	0.111	5	291	0.169
10:00 - 11:00	5	291	0.009	5	291	0.008	5	291	0.017
11:00 - 12:00	5	291	0.021	5	291	0.016	5	291	0.037
12:00 - 13:00	5	291	0.014	5	291	0.012	5	291	0.026
13:00 - 14:00	5	291	0.021	5	291	0.040	5	291	0.061
14:00 - 15:00	5	291	0.161	5	291	0.027	5	291	0.188
15:00 - 16:00	5	291	0.194	5	291	0.709	5	291	0.903
16:00 - 17:00	5	291	0.021	5	291	0.074	5	291	0.095
17:00 - 18:00	5	291	0.003	5	291	0.014	5	291	0.017
18:00 - 19:00	5	291	0.005	5	291	0.004	5	291	0.009
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.157			1.191			2.348

Parameter summary

Trip rate parameter range selected: 120 - 447 (units:)
 Survey date range: 01/01/05 - 13/06/13
 Number of weekdays (Monday-Friday): 5
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys manually removed from selection: 6

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
MULTI-MODAL PUBLIC TRANSPORT USERS
Calculation factor: 1 PUPILS
BOLD print indicates peak (busiest) period

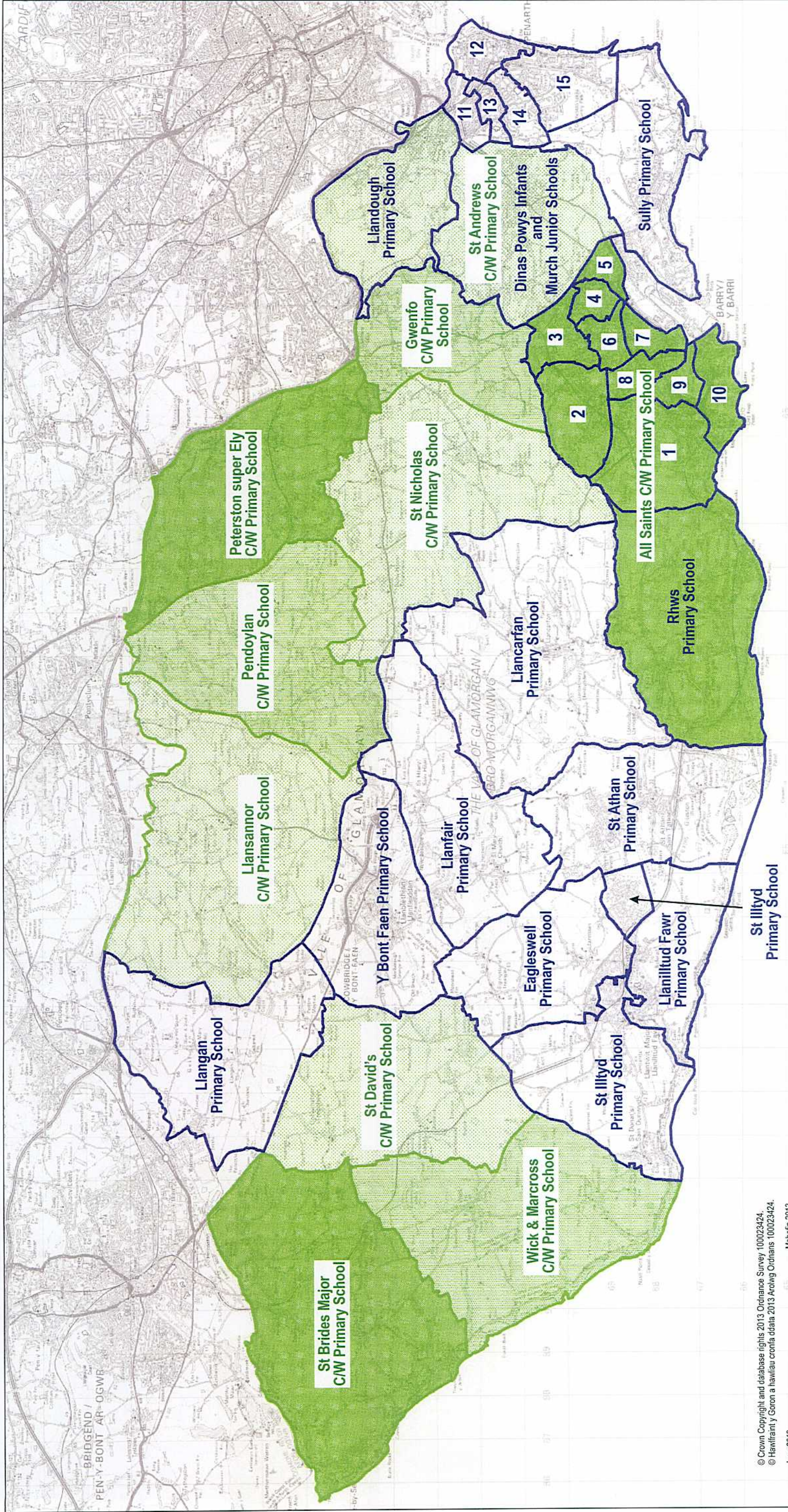
Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	291	0.000	5	291	0.000	5	291	0.000
08:00 - 09:00	5	291	0.023	5	291	0.000	5	291	0.023
09:00 - 10:00	5	291	0.000	5	291	0.000	5	291	0.000
10:00 - 11:00	5	291	0.000	5	291	0.000	5	291	0.000
11:00 - 12:00	5	291	0.000	5	291	0.000	5	291	0.000
12:00 - 13:00	5	291	0.020	5	291	0.001	5	291	0.021
13:00 - 14:00	5	291	0.000	5	291	0.000	5	291	0.000
14:00 - 15:00	5	291	0.023	5	291	0.030	5	291	0.053
15:00 - 16:00	5	291	0.004	5	291	0.030	5	291	0.034
16:00 - 17:00	5	291	0.000	5	291	0.000	5	291	0.000
17:00 - 18:00	5	291	0.000	5	291	0.000	5	291	0.000
18:00 - 19:00	5	291	0.000	5	291	0.000	5	291	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.070			0.061			0.131

Parameter summary

Trip rate parameter range selected:	120 - 447 (units:)
Survey date date range:	01/01/05 - 13/06/13
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	6

B. Catchment of Existing Welsh Medium Schools – Extracted from Vale of Glamorgan Local Development Plan

Catchment Areas for English Medium Primary Schools in the Vale of Glamorgan



© Crown Copyright and database rights 2013 Ordnance Survey 100023424.
© Hawlfraint y Goron a hawliau cronfa ddata 2013 Arolwg Ordians 100023424.

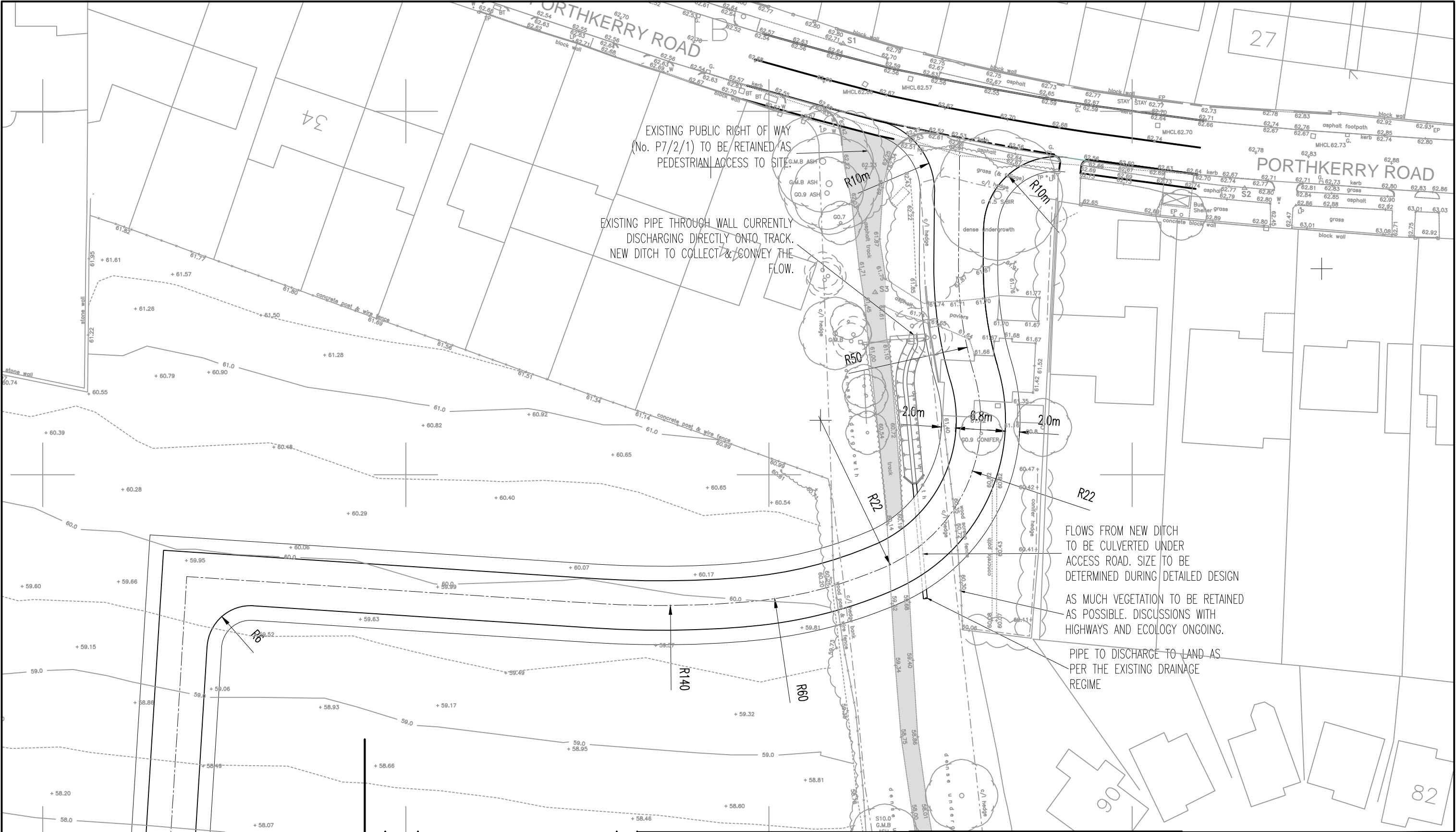
Primary Schools in Barry


1. Romilly Community Primary School
2. Colcot Primary School
3. Oakfield Primary School
4. Cadoxton Primary School
5. Palmerston Primary School
6. Jenner Park Primary School
7. Holton Community School
8. Gladstone Primary School
9. High Street Primary School
10. Barry Island Primary School

Primary Schools in Penarth

11. Cogan Primary School
12. Albert Road Primary School
13. Fairfield Primary School
14. Victoria Primary School
15. Evenlode Primary School

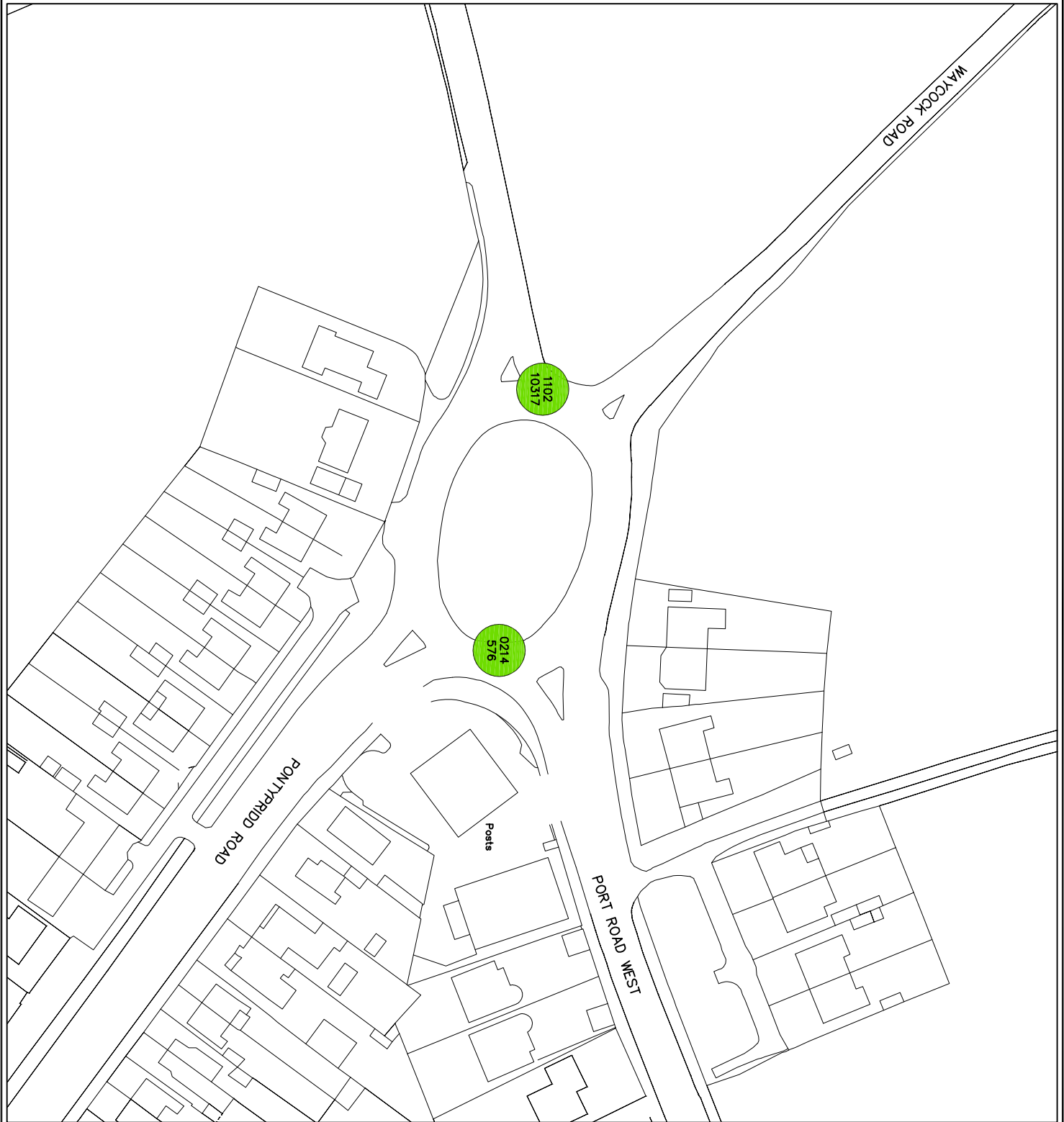
F. Proposed Porthkerry Road Access



GENERAL NOTES				<div></div> <div>38 Cathedral Road Cardiff CF11 9LL t 029 2038 4400 f 03333 444 501 mail@watermangroup.com www.watermangroup.com</div>	Project Porthkerry Road, Rhoose		Drawing Status Preliminary					
					Title Preliminary Design of Access Road		Designed by VW		Checked by		Project No 15342	
							Drawn by VW		Date 03.02.14			
							Scales @ A3 work to figured dimensions only		1:500		Computer File No C-15342-SA-95-SK01 A08 Revision References Removed.dwg	
					Publisher C		Zone SA		Category 95		Number SK01	
Rev				Date		Description		By		Client Taylor Wimpey		
Amendments												

G. Accident Data

SEVERITY SLIGHT	District Ref.No	The Vale of Glamorgan 0214576	J1 - Waycock Cross		Grid Reference Police Officer Attend:	309690 / 168560 Yes
Date Time Weather Road Surface Street Lighting	05/02/2012 Day Sunday 17:45 Fine without high winds Dry Dark: street lights present and lit		Road A4226 Location Port Road West, Barry Description D1 Has Driven into the Back of V2 and Failed to Stop. of Accident			
SITE DETAILS Speed Limit 40 MPH Carriageway Single carriageway Junction Detail Roundabout Junction Control Give way or uncontrolled 2nd Road Number U Pedestrian Facilities None within 50 metres _____ No physical crossing facility within 50 m			SPECIAL SITE CONDITIONS None		CONTRIBUTORY FACTORS 405 Failed to look properly (Driver/Rider - Error) 509 Distraction in vehicle (Driver/Rider - Impairment) 308 Following too close (Driver/Rider - Injudicious)	
					PARTICIPANT PROBABILITY Vehicle 001 A Vehicle 001 A Vehicle 001 B	
VEHICLES INVOLVED 2				CASUALTIES INVOLVED 2		
Veh.No. 1 Vehicle type Car Make Model Manoeuvre Going ahead other Veh. direction from East to West Towing? No tow or articulation Skidded No skidding, jack-knifing or overturning Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Approaching junction or waiting Veh left carriageway? Did not leave carriageway Hit object in c'way? None Hit object off c'way? None First point of impact Front Veh registration no. Other veh.hit (ref.no) 2 Hit and run Not hit and run Drivers age 22 yrs Sex Male Breath test Driver not contacted Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other				Cas No 1 Cas Class Passenger Veh ref No 1 Severity SLIGHT Age 21 yrs Sex Female Post code Car Passenger? Front seat passenger PSV Passenger? Not a passenger Seat Belt Unknown Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured		
Veh.No. 2 Vehicle type Car Make Model Manoeuvre Going ahead other Veh. direction from East to West Towing? No tow or articulation Skidded No skidding, jack-knifing or overturning Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Approaching junction or waiting Veh left carriageway? Did not leave carriageway Hit object in c'way? None Hit object off c'way? None First point of impact Back Veh registration no. Other veh.hit (ref.no) 1 Hit and run Not hit and run Drivers age 52 yrs Sex Male Breath test Not requested Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other				Cas No 2 Cas Class Driver or Rider Veh ref No 1 Severity SLIGHT Age 22 yrs Sex Male Post code Car Passenger? Not a passenger PSV Passenger? Not a passenger Seat Belt Unknown Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured		
				Other Details		
Full Details				10-December-2013		
				Accident Ref.No 0214576		



© Crown Copyright. All rights reserved The Vale of Glamorgan Council.
Licence No. 100023424, 2009.

© Hawtfrith y Goron. Cefdlw pob hawl Cyngor Bro Morgannwg.
Rhif Twwydded. 100023424, 2009.

VALE of GLAMORGAN

ENVIRONMENTAL AND ECONOMIC
REGENERATION

Director:
Rob Quirk
BA (Hons), Dip.P., M.R.P.I.
Head of Visible Services
Miles Punter



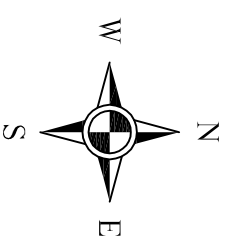
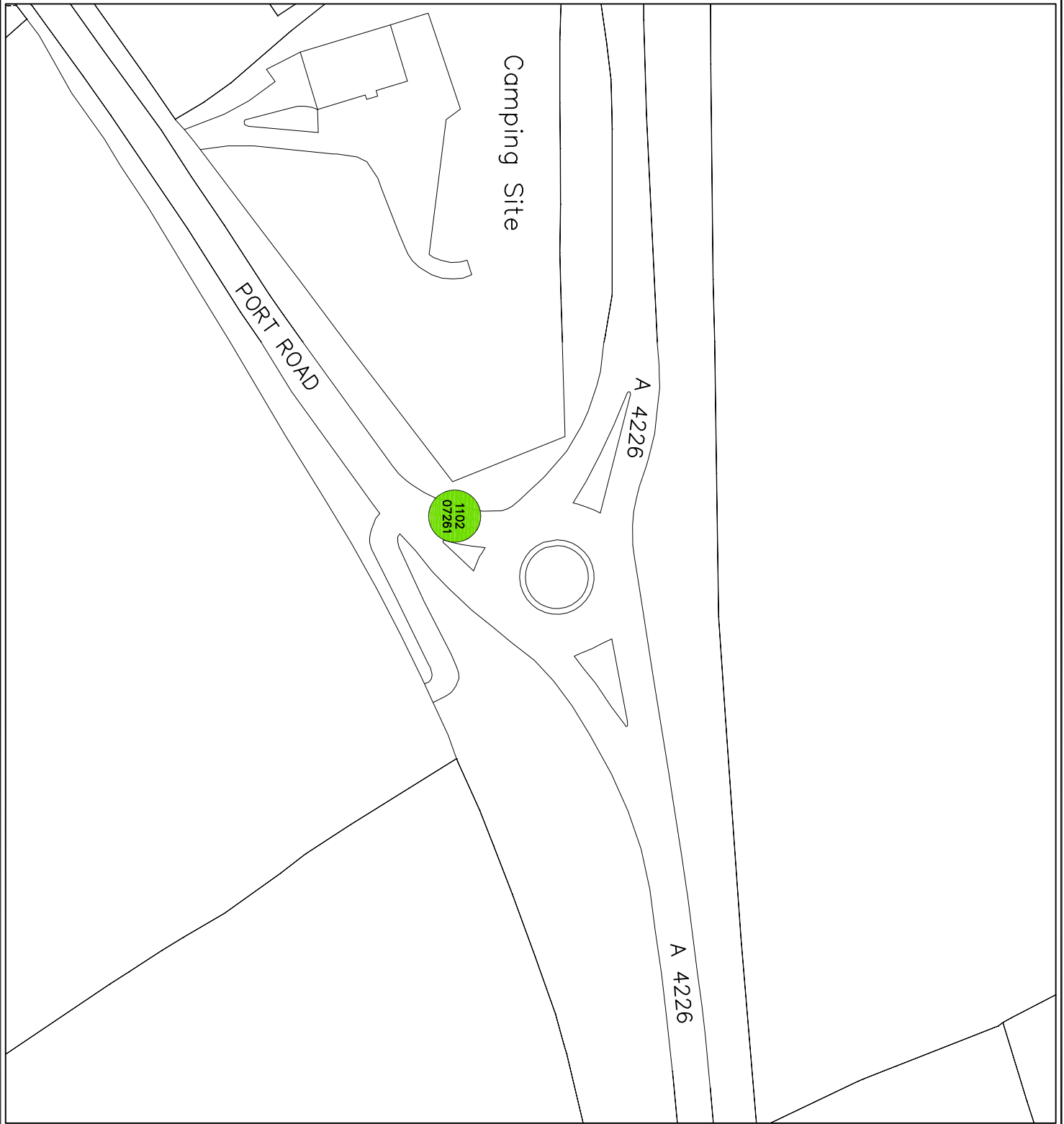
BRO MORGANNWG



**ENGINEERING DESIGN
AND PROCUREMENT**

Client	
Waterman Transport & Development Ltd	
Injury Type	
▲ Fatal	▲ Fatal (pedestrian)
■ Serious	■ Serious (pedestrian)
● Slight	● Slight (pedestrian)

Drawing Title					
J1-Waycock Cross Road Traffic Collisions (01/01/11 to 30/03/13)					
Drawn	M. Sturgess	Scale	Drawing No.		
Date	30/08/13	1:1250	T/13/159/MS		
Checked		Pts	Rev		
Date		Window			



© Crown Copyright. All rights reserved The Vale of Glamorgan Council, Licence No. 100023424, 2009.

© Hawfrainn y Goron. Cedwir pob hawl Cyngor Bro Morgannwg, Rhif Trwydded. 100023424, 2009.

[illegible]

Vale of GLAMORGAN

**ENVIRONMENTAL AND ECONOMIC
REGENERATION**

Director:
Rob Quirk
 BA (Hons), DipTP, MRTP.I
 Head of Visible Services
 Miles Punter

BRO MORGANNWG



**ENGINEERING DESIGN
AND PROCUREMENT**

Client
Waterman Transport & Development Ltd

Injury Type

- Fatal
- Serious
- Slight
- Fatal (pedestrian)
- Serious (pedestrian)
- Slight (pedestrian)

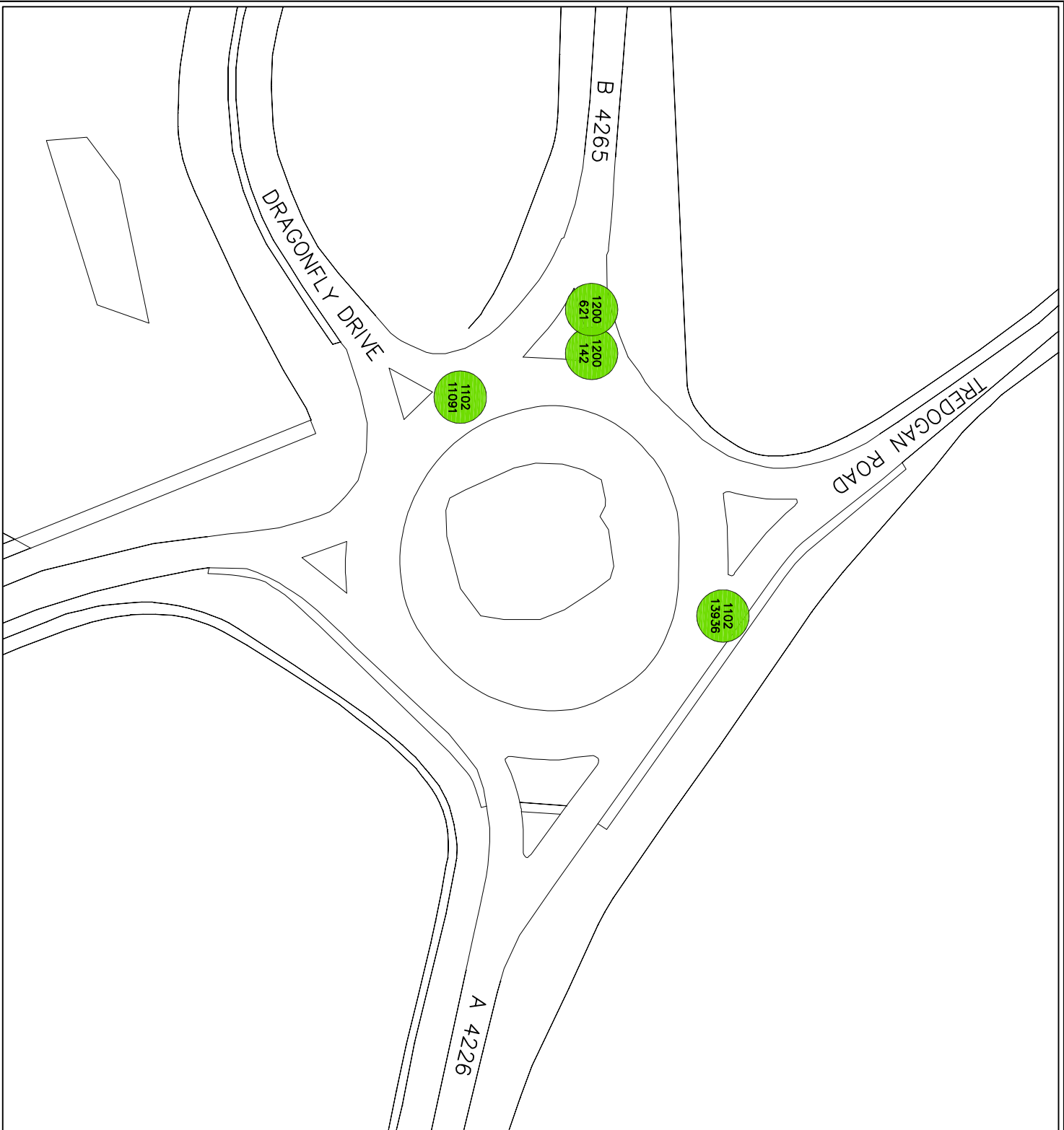
Drawing Title J3-Wales Airport Hotel Rbt
Road Traffic Collisions
(01/01/11 to 30/03/13)

Drawn	M. Simpson	Scale	1:1250	Drawing No. T/13/160/MS
Date	10/12/13			
Checked		File		
Date		Window		
Rev				

SEVERITY SLIGHT	District Ref.No	The Vale of Glamorgan 1200142	J4 - BAMC		Grid Reference Police Officer Attend:	306590 / 168310 Yes
Date Time Weather Road Surface Street Lighting	12/05/2012 Day Saturday 19:45 Fine without high winds Dry Daylight		Road A4226	Location B4265, Rhoose by Pass Description the Driver of V1 Had Become Ill ,V1 left Carriageway and Collided with Tree of Accident		
SITE DETAILS Speed Limit 50 MPH Carriageway Roundabout Junction Detail Roundabout Junction Control Give way or uncontrolled 2nd Road Number B4265 Pedestrian Facilities None within 50 metres _____ No physical crossing facility within 50 m			SPECIAL SITE CONDITIONS None	CONTRIBUTORY FACTORS 505 Illness or disability, mental or physical (Driver/Rider - In Vehicle 001		
VEHICLES INVOLVED 1				CASUALTIES INVOLVED 3		
Veh.No. 1 Vehicle type Car Make Model Manoeuvre Going ahead other Veh. direction from East to West Towing? No tow or articulation Skidded No skidding, jack-knifing or overturning Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Entering roundabout Veh left carriageway? Left carriageway straight ahead at junction Hit object in c'way? None Hit object off c'way? Tree First point of impact Front Veh registration no. Other veh.hit (ref.no) 0 Hit and run Not hit and run Drivers age 78 yrs Sex Male Breath test Negative Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other				Cas No 1 Cas Class Driver or Rider Veh ref No 1 Severity SLIGHT Age 78 yrs Sex Male Post code Car Passenger? Not a passenger PSV Passenger? Not a passenger Seat Belt Unknown Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured		
				Cas No 2 Cas Class Passenger Veh ref No 1 Severity SLIGHT Age 71 yrs Sex Male Post code Car Passenger? Rear seat passenger PSV Passenger? Not a passenger Seat Belt Unknown Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured		
				Cas No 3 Cas Class Passenger Veh ref No 1 Severity SLIGHT Age 71 yrs Sex Female Post code Car Passenger? Rear seat passenger PSV Passenger? Not a passenger Seat Belt Unknown Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured		
Full Details						

Other Details

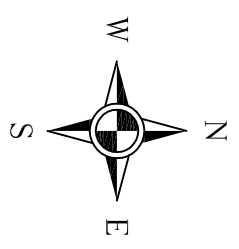
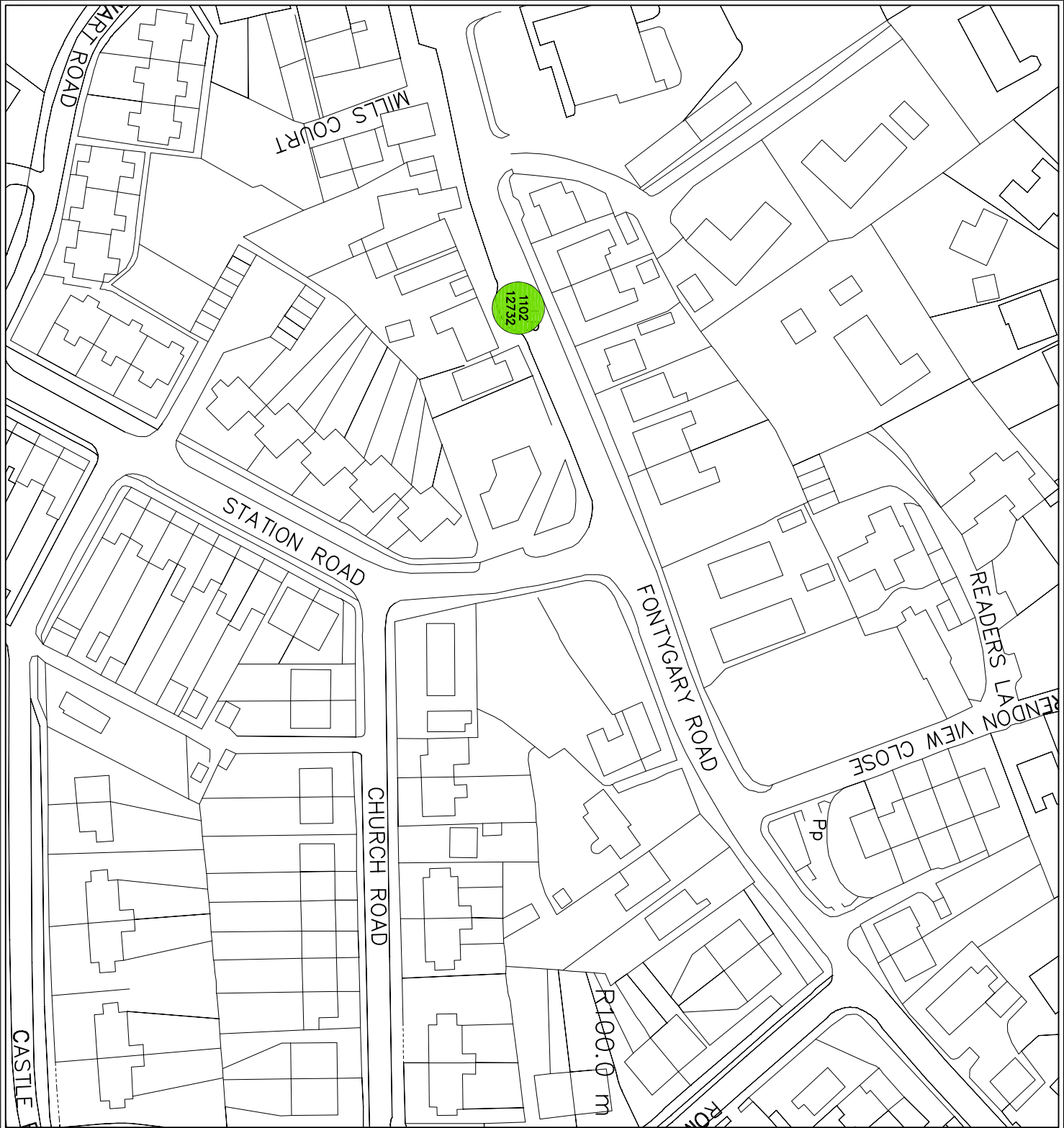
SEVERITY SLIGHT		District The Vale of Glamorgan Ref.No 1200621		J4 - BAMC		Grid Reference 306580 / 168310 Police Officer Attend: Yes	
Date 12/07/2012 Day Thursday Time 00:05 Weather Raining without high winds Road Surface Wet/Damp Street Lighting Dark: no street lighting		Road B4265 Location R/About on the B4265 for Cardiff Wales Airport Description Due to Weather Conditions the Driver Has Lost Control, Gone over the Roundabout and Vehicle Has Overturned of Accident					
SITE DETAILS		SPECIAL SITE CONDITIONS		CONTRIBUTORY FACTORS		PARTICIPANT PROBABILITY	
Speed Limit 50 MPH		None		707 Rain, sleet, snow or fog (Driver/Rider - Vision Affected)		Vehicle 001	
Carriageway Single carriageway				1 1		U000	
Junction Detail Roundabout				1 1		U000	
Junction Control Give way or uncontrolled		CARRIAGEWAY HAZARDS					
2nd Road Number U		None					
Pedestrian Facilities None within 50 metres _____ No physical crossing facility within 50 m							
VEHICLES INVOLVED 1				CASUALTIES INVOLVED 1			
Veh.No. 1 Vehicle type Car Make Model Manoeuvre Going ahead other Veh. direction from West to East Towing? No tow or articulation Skidded Skidded and overturned Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Entering roundabout Veh left carriageway? Left carriageway straight ahead at junction Hit object in c'way? None Hit object off c'way? Road sign/traffic signal First point of impact Front Veh registration no. Other veh.hit (ref.no) 0 Hit and run Not hit and run Drivers age 55 yrs Sex Male Breath test Negative Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other				Cas No 1 Cas Class Driver or Rider Veh ref No 1 Severity SLIGHT Age 55 yrs Sex Male Post code Car Passenger? Not a passenger PSV Passenger? Not a passenger Seat Belt Unknown Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured <u>Other Details</u>			
Full Details				10-December-2013		Accident Ref.No 1200621	

[illegible]

**ENGINEERING DESIGN
AND PROCUREMENT**

Injury Type	
 Fatal	 Fatal (pedestrian)
 Serious	 Serious (pedestrian)
 Slight	 Slight (pedestrian)

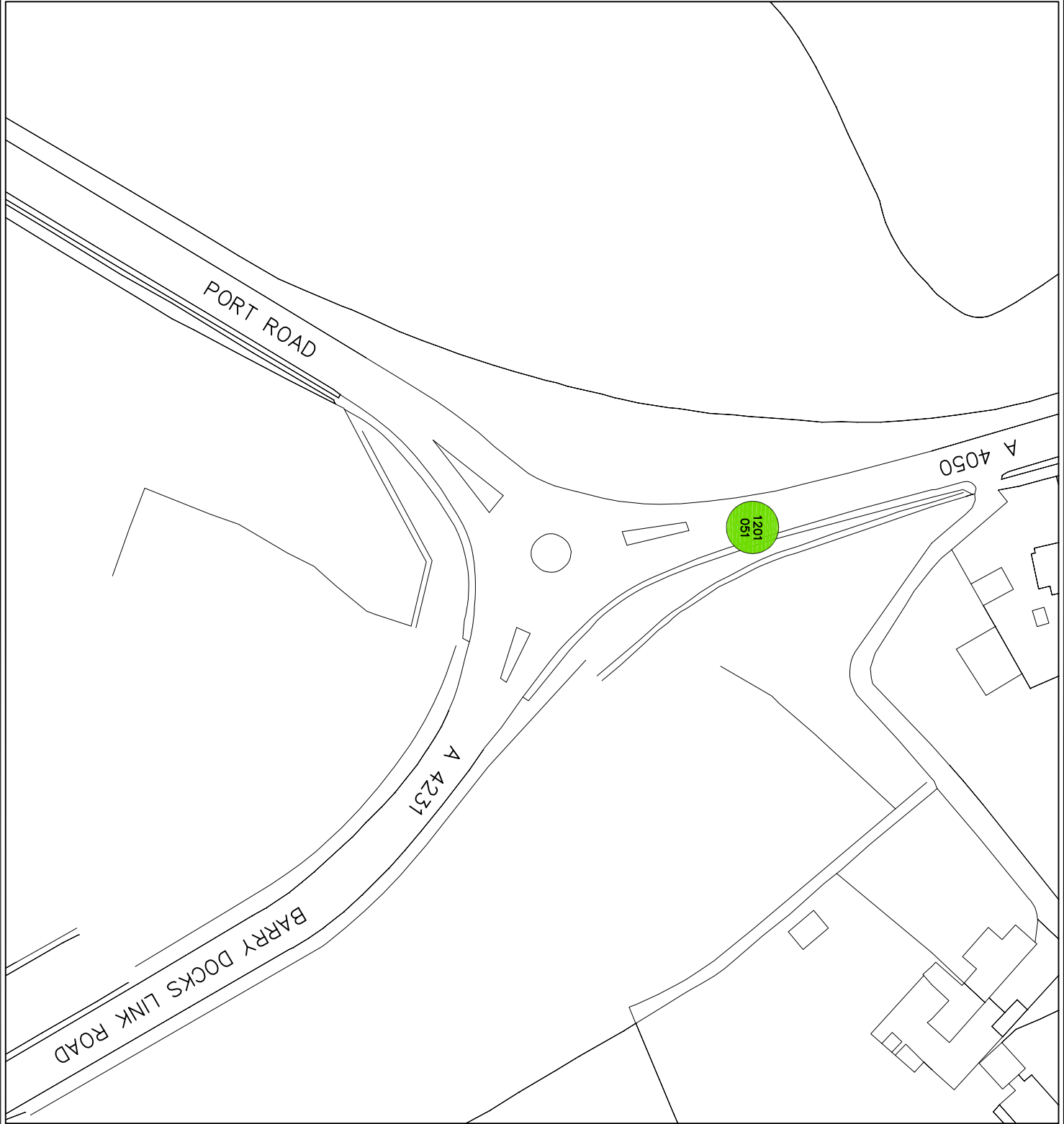
Drawn M Simpson		Scale		Drawing No. T/13/161/MS			
Date	10/12/13	1:1250					
Checked		File					
Date		Window					
Rev							



© Crown Copyright. All rights reserved The Vale of Glamorgan Council.
Licence No. 100023424. 2009.
© Hawffraint y Goron. Cedwir pob hawl Cynghor Bro Morgannwg.
Rhif Trwydded. 100023424. 2009.

Revisions		Revisions	
Rev	Description of Amendment	Date by	Date

SEVERITY SLIGHT	District Ref.No	The Vale of Glamorgan 1201051	J6 - Barry Docks Link Road				Grid Reference 312580 / 170960	Police Officer Attend: Yes	
Date Time Weather Road Surface Street Lighting	02/10/2012 Day Tuesday 17:39 Raining without high winds Wet/Damp Daylight		Road A405C	Location A4050 - Port Road, Wenvoe					
			Description V1 & V2 Travelling in Same Direction. V2 Stopped Due to Traffic Ahead, V1 Unable to Stop on Time and Collided with Rear of V2 at of Accident Low Speed.						
SITE DETAILS			SPECIAL SITE CONDITIONS		CONTRIBUTORY FACTORS		PARTICIPANT PROBABILITY		
Speed Limit 50 MPH			None		308 Following too close (Driver/Rider - Injudicious)		Vehicle 001		
Carriageway Single carriageway					1 1		U000		
Junction Detail Not at or within 20 metres of junction									
Junction Control			CARRIAGEWAY HAZARDS						
2nd Road Number			None						
Pedestrian Facilities None within 50 metres									
No physical crossing facility within 50 m									
VEHICLES INVOLVED 2					CASUALTIES INVOLVED 2				
Veh.No. 1	Vehicle type Car		Make	Model		Cas No 2	Cas Class	Driver or Rider	Veh ref No 2
Manoeuvre	Waiting to go ahead but held up					Severity SLIGHT	Age 32 yrs	Sex Female	Post code
Veh. direction from	North to South		Towing?	No tow or articulation		Car Passenger?	Not a passenger		PSV Passenger? Not a passenger
Skidded	No skidding, jack-knifing or overturning					Seat Belt	Unknown		Cycle Helmet
Veh location at impact (restricted lane)	On main carriageway not in restricted lane					Ped Movement	Not applicable		
Junct. location of veh. at 1st impact	Not at or within 20m of junction					Ped Location	Not applicable		
Veh left carriageway?	Did not leave carriageway					Ped Direction to	Not applicable		
Hit object in c'way?	None					School Pupil	Other		
Hit object off c'way?	None					Roadworker injured			
First point of impact	Front					Cas No 3	Cas Class	Passenger	Veh ref No 2
Veh registration no.		Other veh.hit (ref.no) 2	Hit and run	Not hit and run		Severity SLIGHT	Age 3 yrs	Sex Female	Post code
Drivers age 18 yrs	Sex Male	Breath test Not requested	Driving Lic			Car Passenger?	Rear seat passenger		PSV Passenger? Not a passenger
Left Hand Drive	Unknown	Foreign veh. Not foreign registered vehicle				Seat Belt	Unknown		Cycle Helmet
Journey purpose	Other					Ped Movement	Not applicable		
Veh.No. 2	Vehicle type Car		Make	Model		Ped Location	Not applicable		
Manoeuvre	Waiting to go ahead but held up					Ped Direction to	Not applicable		
Veh. direction from	North to South		Towing?	No tow or articulation		School Pupil	Other		
Skidded	No skidding, jack-knifing or overturning					Roadworker injured			
Veh location at impact (restricted lane)	On main carriageway not in restricted lane					<u>Other Details</u>			
Junct. location of veh. at 1st impact	Not at or within 20m of junction								
Veh left carriageway?	Did not leave carriageway								
Hit object in c'way?	None								
Hit object off c'way?	None								
First point of impact	Back								
Veh registration no.		Other veh.hit (ref.no) 1	Hit and run	Not hit and run					
Drivers age 32 yrs	Sex Female	Breath test Driver not contacted	Driving Lic						
Left Hand Drive	Unknown	Foreign veh. Not foreign registered vehicle							
Journey purpose	Other								
Full Details					10-December-2013		Accident Ref.No 1201051		

[illegible]

Director:
Rob Quirk
BA(Hons), Dip.T.P, M.R.T.P.I.

Head of Visible Services
Miles Punter

Client
Waterman Transport & Development Ltd

Drawing Title
J6-Barry Docks Link Rbt

Drawn		M Simpson		Scale		1:1250		Drawing No.		T/13/163/MS	
Date		10/12/13		File				Rev			
Checked				Window							
Date											

SEVERITY SLIGHT	District The Vale of Glamorgan Ref.No 110208190	J7 - Colcot Cross		Grid Reference 310778 / 169619 Police Officer Attend: Yes	
Date 10/04/2011 Day Sunday Time 12:55 Weather Fine without high winds Road Surface Dry Street Lighting Daylight	Road A405C Location Port Road East, Barry Description V2 Attempted U Turn Due to Heavy Slow Moving Traffic when V1 Travelling at Excessive Speed and Collided with It. of Accident				
SITE DETAILS Speed Limit 30 MPH Carriageway Single carriageway Junction Detail Not at or within 20 metres of junction Junction Control 2nd Road Number Pedestrian Facilities None within 50 metres _____ No physical crossing facility within 50 m		SPECIAL SITE CONDITIONS Roadworks CARRIAGEWAY HAZARDS None	CONTRIBUTORY FACTORS 405 Failed to look properly (Driver/Rider - Error) 405 Failed to look properly (Driver/Rider - Error)		PARTICIPANT PROBABILITY Vehicle 001 A Vehicle 002 B
VEHICLES INVOLVED 2			CASUALTIES INVOLVED 2		
Veh.No. 1 Vehicle type M/cycle > 500cc Make Model Manoeuvre Overtaking moving veh on its offside Veh. direction from East to East Towing? No tow or articulation Skidded No skidding, jack-knifing or overturning Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Not at or within 20m of junction Veh left carriageway? Did not leave carriageway Hit object in c'way? None Hit object off c'way? None First point of impact Front Veh registration no. Other veh.hit (ref.no) 2 Hit and run Not hit and run Drivers age 56 yrs Sex Male Breath test Negative Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other			Cas No 1 Cas Class Driver or Rider Veh ref No 1 Severity SLIGHT Age 56 yrs Sex Male Post code Car Passenger? Not a passenger PSV Passenger? Not a passenger Seat Belt Not applicable Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured		
Veh.No. 2 Vehicle type Car Make Model Manoeuvre Turning right Veh. direction from East to South Towing? No tow or articulation Skidded No skidding, jack-knifing or overturning Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Not at or within 20m of junction Veh left carriageway? Did not leave carriageway Hit object in c'way? None Hit object off c'way? None First point of impact Back Veh registration no. Other veh.hit (ref.no) 1 Hit and run Not hit and run Drivers age 32 yrs Sex Male Breath test Negative Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other			Cas No 2 Cas Class Passenger Veh ref No 1 Severity SLIGHT Age 57 yrs Sex Female Post code Car Passenger? Rear seat passenger PSV Passenger? Not a passenger Seat Belt Not applicable Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured		
			<u>Other Details</u>		
Full Details 10-December-2013 Accident Ref.No 110208190					

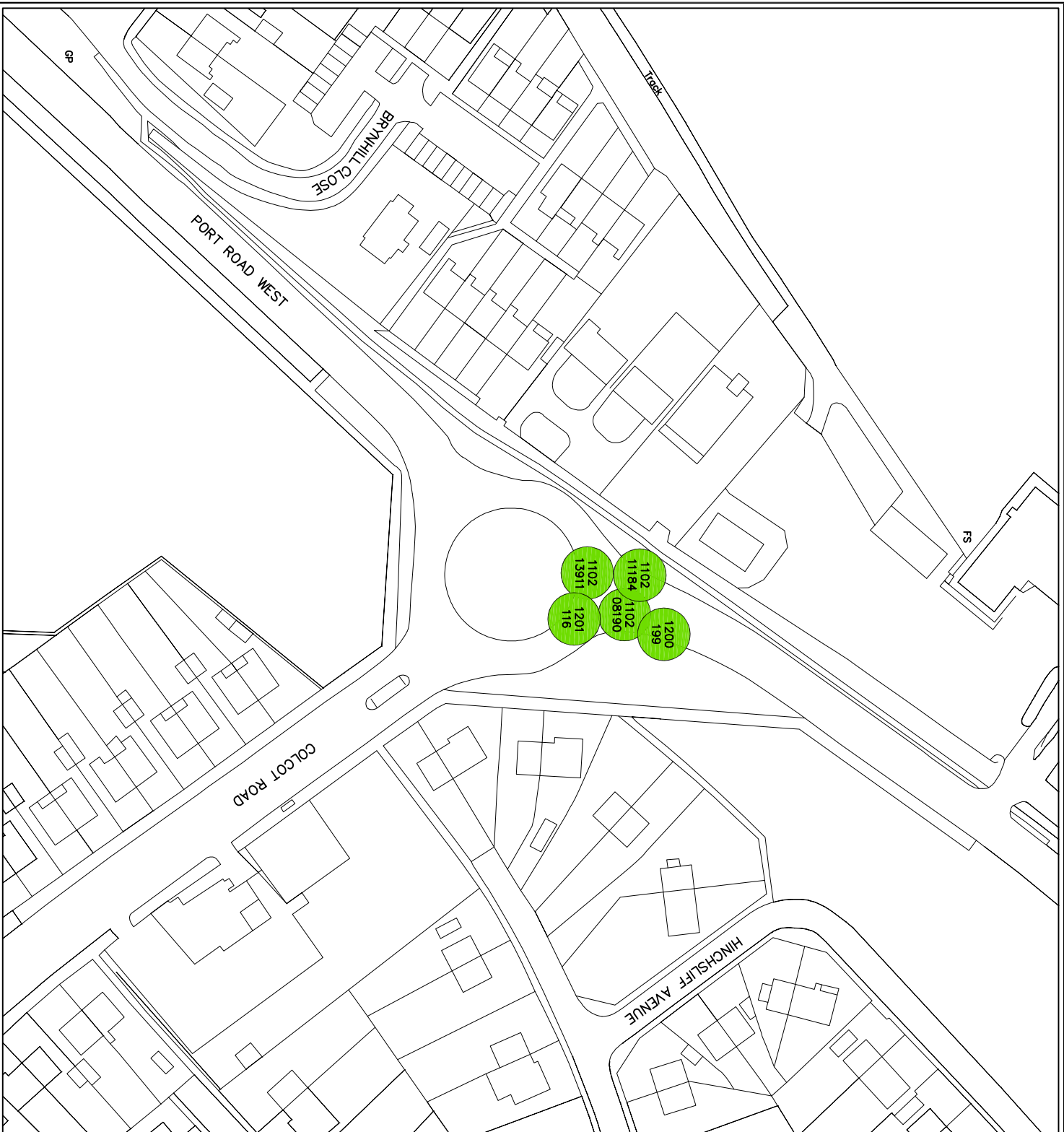
SEVERITY SLIGHT	District Ref.No	The Vale of Glamorgan 110211184	J7 - Colcot Cross				Grid Reference Police Officer Attend:	310770 / 169620 Yes
Date Time Weather Road Surface Street Lighting		30/08/2011 Day Tuesday 12:00 Fine without high winds Dry Daylight		Road A405C Location A4050 Port Road East, Barry Description V1 Has Collided with Rear of V2 in Heavy Traffic which Has in Turn Collided with Rear of V3 Causing Damage. of Accident				
SITE DETAILS				SPECIAL SITE CONDITIONS		CONTRIBUTORY FACTORS		PARTICIPANT PROBABILITY
Speed Limit 30 MPH Carriageway Single carriageway Junction Detail Not at or within 20 metres of junction Junction Control 2nd Road Number Pedestrian Facilities None within 50 metres No physical crossing facility within 50 m				None		406 Failed to judge other person's path/speed (Driver/Rider - 1 Vehicle 001 A		
VEHICLES INVOLVED 3				CASUALTIES INVOLVED 1				
Veh.No. 1 Vehicle type Car Make Model Manoeuvre Waiting to go ahead but held up Veh. direction from Northeast to Southwest Towing? No tow or articulation Skidded No skidding, jack-knifing or overturning Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Not at or within 20m of junction Veh left carriageway? Did not leave carriageway Hit object in c'way? None Hit object off c'way? None First point of impact Back Veh registration no. Other veh.hit (ref.no) 2 Hit and run Not hit and run Drivers age 26 yrs Sex Male Breath test Negative Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other				Cas No 1 Cas Class Driver or Rider Veh ref No 2 Severity SLIGHT Age 66 yrs Sex Male Post code Car Passenger? Not a passenger PSV Passenger? Not a passenger Seat Belt Unknown Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured				
Veh.No. 2 Vehicle type Car Make Model Manoeuvre Waiting to go ahead but held up Veh. direction from Northeast to Southwest Towing? No tow or articulation Skidded No skidding, jack-knifing or overturning Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Not at or within 20m of junction Veh left carriageway? Did not leave carriageway Hit object in c'way? None Hit object off c'way? None First point of impact Front Veh registration no. Other veh.hit (ref.no) 3 Hit and run Not hit and run Drivers age 66 yrs Sex Male Breath test Negative Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other				Other Details				
Full Details				10-December-2013		Accident Ref.No 110211184		

Veh.No.	3	Vehicle type	Car	Make		Model	
Manoeuvre	Waiting to go ahead but held up						
Veh. direction from	Northeast to Southwest		Towing?	No tow or articulation			
Skidded	No skidding, jack-knifing or overturning						
Veh location at impact (restricted lane)	On main carriageway not in restricted lane						
Junct. location of veh. at 1st impact	Not at or within 20m of junction						
Veh left carriageway?	Did not leave carriageway						
Hit object in c'way?	None						
Hit object off c'way?	None						
First point of impact	Front						
Veh registration no.		Other veh.hit (ref.no)	2	Hit and run	Not hit and run		
Drivers age	67 yrs	Sex	Male	Breath test	Negative	Driving Lic	
Left Hand Drive	Unknown						
Journey purpose	Other						
Foreign veh. Not foreign registered vehicle							


SEVERITY SLIGHT	District Ref.No	The Vale of Glamorgan 110213911	J7 - Colcot Cross						Grid Reference Police Officer Attend:	310770 / 169610 Yes
Date Time Weather Road Surface Street Lighting	28/12/2011 Day Wednesday 16:00 Fine without high winds Wet/Damp Daylight		Road	A405C	Location	A4050 Port Road East Roundabout, Wenvoe.				
			Description	V2 Stopped to Allow Vehicle in Front to Make right Turn into Driveway when Driver V1 Has Sneezed and Vehicle Has Collided with of Accident Rear of V2.						
SITE DETAILS			SPECIAL SITE CONDITIONS		CONTRIBUTORY FACTORS			PARTICIPANT PROBABILITY		
Speed Limit	50 MPH		None		308 Following too close (Driver/Rider - Injudicious)			Vehicle 001 B		
Carriageway	Roundabout									
Junction Detail	Roundabout									
Junction Control	Give way or uncontrolled		CARRIAGEWAY HAZARDS							
2nd Road Number	U		None							
Pedestrian Facilities	None within 50 metres _____ No physical crossing facility within 50 n									
VEHICLES INVOLVED 2					CASUALTIES INVOLVED 1					
Veh.No. 1	Vehicle type Car		Make	Model		Cas No 1	Cas Class	Driver or Rider	Veh ref No 2	
Manoeuvre	Slowing or stopping					Severity SLIGHT	Age 34 yrs	Sex Female	Post code	
Veh. direction from	West to East		Towing?	No tow or articulation		Car Passenger?	Not a passenger	PSV Passenger?	Not a passenger	
Skidded	No skidding, jack-knifing or overturning					Seat Belt	Unknown	Cycle Helmet		
Veh location at impact (restricted lane)	On main carriageway not in restricted lane					Ped Movement	Not applicable			
Junct. location of veh. at 1st impact	Leaving roundabout					Ped Location	Not applicable			
Veh left carriageway?	Did not leave carriageway					Ped Direction to	Not applicable			
Hit object in c'way?	None					School Pupil	Other			
Hit object off c'way?	None					Roadworker injured				
First point of impact	Front					<u>Other Details</u>				
Veh registration no.			Other veh.hit (ref.no) 2	Hit and run Not hit and run						
Drivers age 31 yrs	Sex Female	Breath test Negative		Driving Lic						
Left Hand Drive	Unknown	Foreign veh. Not foreign registered vehicle								
Journey purpose	Other									
Veh.No. 2	Vehicle type Car		Make	Model						
Manoeuvre	Slowing or stopping									
Veh. direction from	East to West		Towing?	No tow or articulation						
Skidded	No skidding, jack-knifing or overturning									
Veh location at impact (restricted lane)	On main carriageway not in restricted lane									
Junct. location of veh. at 1st impact	Leaving roundabout									
Veh left carriageway?	Did not leave carriageway									
Hit object in c'way?	None									
Hit object off c'way?	None									
First point of impact	Back									
Veh registration no.			Other veh.hit (ref.no) 1	Hit and run Not hit and run						
Drivers age 34 yrs	Sex Female	Breath test Negative		Driving Lic						
Left Hand Drive	Unknown	Foreign veh. Not foreign registered vehicle								
Journey purpose	Other									
Full Details					10-December-2013		Accident Ref.No 110213911			

SEVERITY SLIGHT	District Ref.No	The Vale of Glamorgan 1200199	J7 - Colcot Cross		Grid Reference 310780 / 169624	Police Officer Attend: Yes
Date Time Weather Road Surface Street Lighting	03/05/2012 Day Thursday 08:55 Raining without high winds Wet/Damp Daylight		Road A4226	Location Port Road West Junc with Calcot Road, Barry		
			Description V1 Has Collided with Rear of V2 Whilst at Roundabout of Accident			
SITE DETAILS Speed Limit 40 MPH Carriageway Single carriageway Junction Detail Roundabout Junction Control Give way or uncontrolled 2nd Road Number A4050 Pedestrian Facilities None within 50 metres _____ No physical crossing facility within 50 m			SPECIAL SITE CONDITIONS None		CONTRIBUTORY FACTORS 408 Sudden braking (Driver/Rider - Error) 1 1	
			CARRIAGEWAY HAZARDS None		PARTICIPANT PROBABILITY Vehicle 001 U000	
VEHICLES INVOLVED 2				CASUALTIES INVOLVED 1		
Veh.No. 1 Vehicle type Car Make Model Manoeuvre Slowing or stopping Veh. direction from East to West Towing? No tow or articulation Skidded No skidding, jack-knifing or overturning Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Entering roundabout Veh left carriageway? Did not leave carriageway Hit object in c'way? None Hit object off c'way? None First point of impact Front Veh registration no. Other veh.hit (ref.no) 2 Hit and run Not hit and run Drivers age 18 yrs Sex Male Breath test Negative Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other				Cas No 2 Cas Class Driver or Rider Veh ref No 2 Severity SLIGHT Age 64 yrs Sex Male Post code Car Passenger? Not a passenger PSV Passenger? Not a passenger Seat Belt Unknown Cycle Helmet Ped Movement Not applicable Ped Location Not applicable Ped Direction to Not applicable School Pupil Other Roadworker injured		
Veh.No. 2 Vehicle type Car Make Model Manoeuvre Waiting to go ahead but held up Veh. direction from East to West Towing? No tow or articulation Skidded No skidding, jack-knifing or overturning Veh location at impact (restricted lane) On main carriageway not in restricted lane Junct. location of veh. at 1st impact Entering roundabout Veh left carriageway? Did not leave carriageway Hit object in c'way? None Hit object off c'way? None First point of impact Back Veh registration no. Other veh.hit (ref.no) 1 Hit and run Not hit and run Drivers age 64 yrs Sex Male Breath test Negative Driving Lic Left Hand Drive Unknown Foreign veh. Not foreign registered vehicle Journey purpose Other				Other Details		
Full Details				10-December-2013		
				Accident Ref.No 1200199		

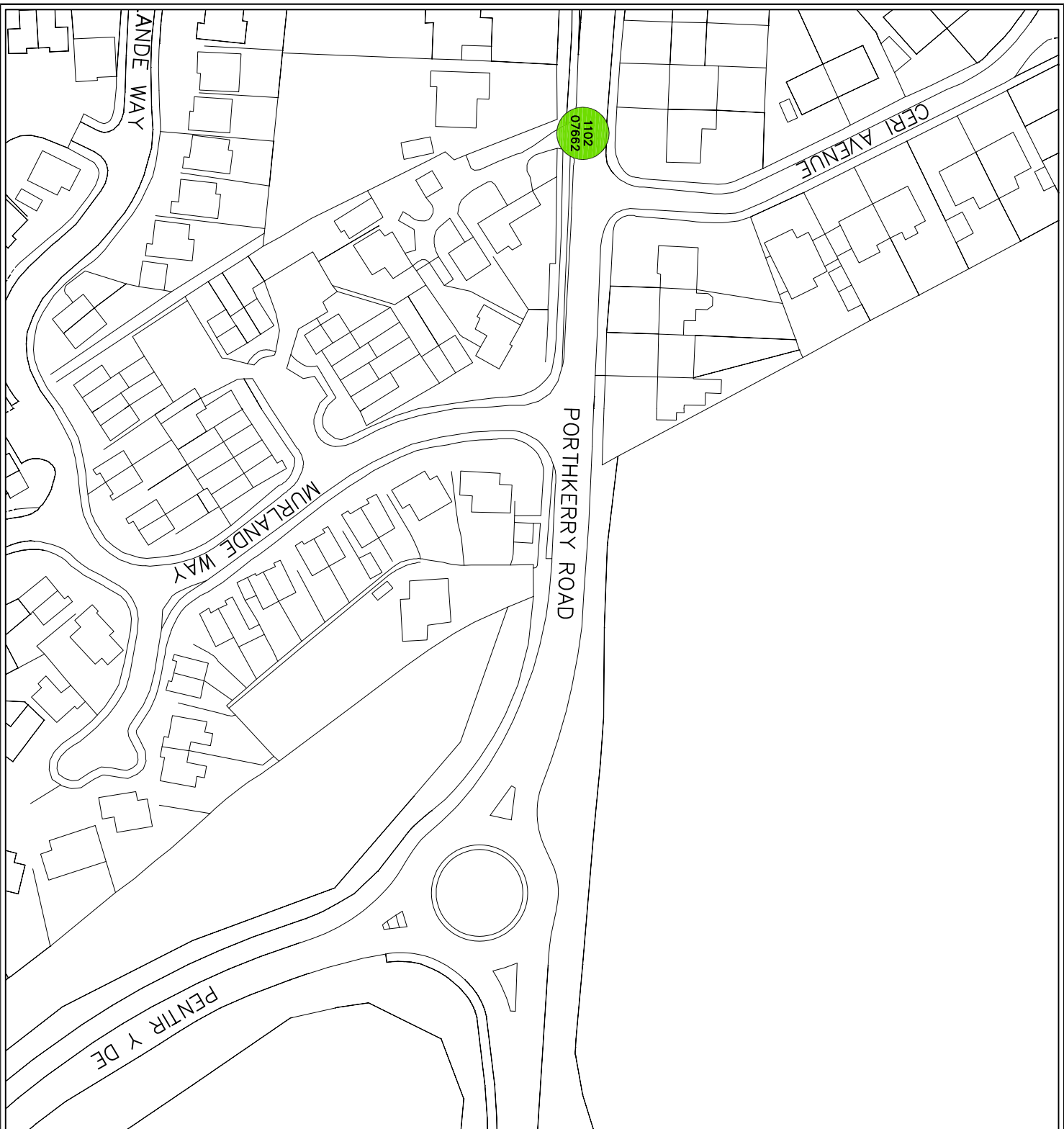
SEVERITY SLIGHT	District Ref.No	The Vale of Glamorgan 1201116	J7 - Colcot Cross		Grid Reference Police Officer Attend:	310770 / 169600 Yes	
Date Time Weather Road Surface Street Lighting	12/10/2012 Day Friday 13:49 Fine without high winds Dry Daylight		Road	A405C Location A4050 Port Road at Roundabout with A4226, Barry, South Glamorgan			
			Description of Accident	Unknown Vehicle Clipped a Cyclist with its Wing Mirror Causing the Rider to Fall Off.			
SITE DETAILS			SPECIAL SITE CONDITIONS	CONTRIBUTORY FACTORS		PARTICIPANT PROBABILITY	
Speed Limit 40 MPH			None	405 Failed to look properly (Driver/Rider - Error)		Vehicle 001	
Carriageway Roundabout				1 1		U000	
Junction Detail Roundabout			CARRIAGEWAY HAZARDS				
Junction Control Give way or uncontrolled							
2nd Road Number A4226							
Pedestrian Facilities None within 50 metres _____ No physical crossing facility within 50 m							
VEHICLES INVOLVED 2				CASUALTIES INVOLVED 1			
Veh.No. 1	Vehicle type Car		Make	Model	Cas No 1	Cas Class	Driver or Rider
Manoeuvre	Overtaking moving veh on its offside				Severity SLIGHT	Age 49 yrs	Sex Male
Veh. direction from	West to South		Towing?	No tow or articulation			
Skidded	No skidding, jack-knifing or overturning				Car Passenger?	Not a passenger	PSV Passenger? Not a passenger
Veh location at impact (restricted lane)	On main carriageway not in restricted lane				Seat Belt	Not applicable	Cycle Helmet
Junct. location of veh. at 1st impact	Entering roundabout				Ped Movement	Not applicable	
Veh left carriageway?	Did not leave carriageway				Ped Location	Not applicable	
Hit object in c'way?	None				Ped Direction to	Not applicable	
Hit object off c'way?	None				School Pupil	Other	
First point of impact	Nearside				Roadworker injured		
Veh registration no.		Other veh.hit (ref.no) 2	Hit and run	Hit and Run	<u>Other Details</u>		
Drivers age ? yrs	Sex Not know	Breath test Driver not contacted	Driving Lic				
Left Hand Drive	Unknown	Foreign veh. Not foreign registered vehicle					
Journey purpose	Other						
Veh.No. 2	Vehicle type Pedal Cycle		Make	Model			
Manoeuvre	Going ahead other						
Veh. direction from	West to South		Towing?	No tow or articulation			
Skidded	No skidding, jack-knifing or overturning						
Veh location at impact (restricted lane)	On main carriageway not in restricted lane						
Junct. location of veh. at 1st impact	Entering roundabout						
Veh left carriageway?	Did not leave carriageway						
Hit object in c'way?	None						
Hit object off c'way?	None						
First point of impact	Nearside						
Veh registration no.		Other veh.hit (ref.no) 1	Hit and run	Not hit and run			
Drivers age 49 yrs	Sex Male	Breath test Not Applicable	Driving Lic				
Left Hand Drive	Unknown	Foreign veh. Not foreign registered vehicle					
Journey purpose	Other						
Full Details				10-December-2013	Accident Ref.No 1201116		

[illegible]

BRO MORGANNWG

Client	
Waterman Transport & Development Ltd	
Injury Type	
 Fatal	 Fatal (pedestrian)
 Serious	 Serious (pedestrian)
 Slight	 Slight (pedestrian)
 Fatal	 Fatal (pedestrian)
 Serious	 Serious (pedestrian)
 Slight	 Slight (pedestrian)

Drawn	M. Simpson	Scale	1:1250				Drawing No. T/13/164/M/S
Date	10/12/13						
Checked		File					
Date		Window					
		Rev					



© Crown Copyright. All rights reserved The Vale of Glamorgan Council.
Licence No. 100023424, 2009.

© Hawflraith y Goron, Cedwr pob hawl Cyngor Bro Morgannwg,
Rhif Trwydded, 100023424, 2009.

VALE of GLAMORGAN

**ENVIRONMENTAL AND ECONOMIC
REGENERATION**

Director:
Bob Quick
Ba.(Hons), Dip.T., M.B.P.I.
Head of Variable Services
Miles Punter



BRO MORGANNWG

 **ENGINEERING DESIGN
AND PROCUREMENT**

Client	
Waterman Transport & Development Ltd	
Injury Type	
▲ Fatal	▲ Fatal (pedestrian)
■ Serious	■ Serious (pedestrian)
● Slight	● Slight (pedestrian)

Drawing Title					
J9-Rhoose Point Rbt Road Traffic Collisions (01/01/11 to 30/03/13)					
Drawn	M. Simpson	Scale	Drawing No.		
Date	10/08/13	1:1250	T/13/165/MS		
Checked		Pins			
Date		Timed	Rev		

H. Improvements Proposed at Barry Link Road Roundabout as part of the Barry Waterfront Proposals

A3

A

B

C

D

E

F

G

1

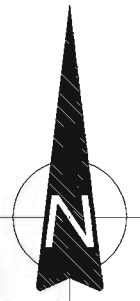
2

3

4

5

6



© Crown copyright (2008). All rights reserved.
Licence Number 100039628

01	25/03/10	PH	JK	JS
Merge length increased on Port Rd North				
00	17/07/09	RH	JK	JS

Issue	Date	By	Chkd	Appd
-------	------	----	------	------

ARUP

4 Pierhead St, Capital Waterside
Cardiff, CF10 4QP
Tel 44(0)029 20473727 Fax +44(0)029 20 472277
www.arup.com

Client

Barratt Homes,
Taylor Wimpey and
Persimmon Homes

Job Title

Waterfront Barry

Drawing Title

Potential Junction Improvements
Port Road / Barry Docks Link Road

Scale at A3
1:1000

Plot ID

Drawing Status

Job No 122374	Drawing No Figure 7.12	Issue 01
-------------------------	----------------------------------	--------------------

I. PICADY Analysis

TRL LIMITED

(C) COPYRIGHT 2010

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"K:\Projects\15342 - Porthkerry Rd, Rhoose, Taylor Wimpey\DESIGN\PICADY\Proposed Access Junction\
Assessment of Proposed Access.vpi"
(drive-on-the-left) at 16:31:43 on Wednesday, 30 April 2014

RUN INFORMATION

RUN TITLE : Assessment of Proposed Site Access Junction
LOCATION :
DATE : 03/09/12
CLIENT :
ENUMERATOR :
JOB NUMBER : 15342
STATUS :
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

MAJOR ROAD (ARM C) ----- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS Porthkerry Road East
ARM B IS Access
ARM C IS Porthkerry Road West

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I	(W) 7.43 M.	I
I	CENTRAL RESERVE WIDTH	I	(WCR) 0.00 M.	I
I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I	(WC-B) 2.20 M.	I
I	- VISIBILITY	I	(VC-B) 237.00 M.	I
I	- BLOCKS TRAFFIC (SPACES)	I	YES (0)	I
I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I	(VB-C) 19.0 M.	I
I	- VISIBILITY TO RIGHT	I	(VB-A) 40.0 M.	I
I	- LANE 1 WIDTH	I	(WB-C) -	I
I	- LANE 2 WIDTH	I	(WB-A) -	I
I	WIDTH AT 0 M FROM JUNCTION	I	10.00 M.	I
I	WIDTH AT 5 M FROM JUNCTION	I	4.00 M.	I
I	WIDTH AT 10 M FROM JUNCTION	I	3.40 M.	I
I	WIDTH AT 15 M FROM JUNCTION	I	3.40 M.	I
I	WIDTH AT 20 M FROM JUNCTION	I	3.40 M.	I
I	- LENGTH OF FLARED SECTION	I	DERIVED: 0 PCU	I

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	STREAM B-C	STREAM	A-C	STREAM	A-B	I
I	0.00	0.00	0.00	0.00		I

* Due to the presence of a flare, data is not available

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM B-A	STREAM	A-C	STREAM	A-B	STREAM	C-A	STREAM	C-B	I
I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	I

* Due to the presence of a flare, data is not available

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	STREAM C-B	STREAM	A-C	STREAM	A-B	I
I	711.21	0.26	0.26	0.26		I

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

I	ARM	I	FLOW	SCALE(%)	I
I	A	I	100		I
I	B	I	100		I
I	C	I	100		I

Demand set: AM Peak 2019 + LDP

TIME PERIOD BEGINS 07.15 AND ENDS 08.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN			I	RATE OF FLOW (VEH/MIN)			I					
			I	I	I		I	I	I						
											I	I	I		
														I	I
I	I	I	FLOW STARTS	TOP OF PEAK	FLOW STOPS	I	BEFORE	AT TOP	AFTER	I					
I	I	I	TO RISE	IS REACHED	FALLING	I	PEAK	OF PEAK	PEAK	I					
I	I	I	I	I	I	I	I	I	I	I					
I	ARM	A	I	15.00	I	45.00	I	75.00	I	4.07	I	6.11	I	4.07	I
I	ARM	B	I	15.00	I	45.00	I	75.00	I	4.24	I	6.36	I	4.24	I
I	ARM	C	I	15.00	I	45.00	I	75.00	I	4.96	I	7.44	I	4.96	I

Demand set: AM Peak 2019 + LDP

I I I I I	TIME	TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)							
		I FROM/TO	I ARM	A	I ARM	B	I ARM	C	I
I	07.15 - 08.45	I		I		I		I	
I		I ARM A	I	0.000	I	0.387	I	0.613	I
I			I	0.0	I	126.0	I	200.0	I
I			I	(0.0)	I	(0.0)	I	(6.4)	I
I			I		I		I		I
I		I ARM B	I	0.832	I	0.000	I	0.168	I
I			I	282.0	I	0.0	I	57.0	I
I			I	(0.0)	I	(0.0)	I	(0.0)	I
I			I		I		I		I
I		I ARM C	I	0.917	I	0.083	I	0.000	I
I			I	364.0	I	33.0	I	0.0	I
I			I	(4.6)	I	(0.0)	I	(0.0)	I
I			I		I		I		I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM Peak 2019 + LDP
AND FOR TIME PERIOD 1

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.15-07.30									
B-C	0.72	10.62	0.067		0.00	0.07	1.0		0.10
B-A	3.54	7.47	0.474		0.00	0.87	12.1		0.25
C-AB	0.61	13.56	0.045		0.00	0.06	1.0		0.08
C-A	4.38								
A-B	1.58								
A-C	2.51								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.30-07.45									
B-C	0.85	10.09	0.085		0.07	0.09	1.3		0.11
B-A	4.23	7.15	0.591		0.87	1.37	19.2		0.33
C-AB	0.78	13.90	0.056		0.06	0.09	1.3		0.08
C-A	5.17								
A-B	1.89								
A-C	3.00								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	1.05	9.34	0.112		0.09	0.12	1.8		0.12
B-A	5.17	6.72	0.770		1.37	2.90	37.6		0.57
C-AB	1.11	14.50	0.076		0.09	0.14	2.1		0.07
C-A	6.18								
A-B	2.31								
A-C	3.67								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	1.05	9.30	0.112		0.12	0.13	1.9		0.12
B-A	5.17	6.72	0.770		2.90	3.09	45.2		0.63
C-AB	1.11	14.50	0.076		0.14	0.14	2.1		0.07
C-A	6.18								
A-B	2.31								
A-C	3.67								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	0.85	10.03	0.085		0.13	0.09	1.4		0.11
B-A	4.23	7.15	0.591		3.09	1.52	25.1		0.37
C-AB	0.78	13.90	0.056		0.14	0.09	1.4		0.08
C-A	5.17								
A-B	1.89								
A-C	3.00								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	0.72	10.58	0.068		0.09	0.07	1.1		0.10
B-A	3.54	7.47	0.474		1.52	0.93	14.8		0.26
C-AB	0.61	13.56	0.045		0.09	0.07	1.0		0.08
C-A	4.37								
A-B	1.58								
A-C	2.51								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	0.1
07.45	0.1
08.00	0.1
08.15	0.1
08.30	0.1
08.45	0.1

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.9	*
07.45	1.4	*
08.00	2.9	***
08.15	3.1	***
08.30	1.5	**
08.45	0.9	*

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	0.1
07.45	0.1
08.00	0.1
08.15	0.1
08.30	0.1
08.45	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL	I	DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I		I	* DELAY *	I	* DELAY *	I
I		I		I		I		I		I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN/VEH)	I
I		I		I		I		I		I
I	B-C	I	78.5	I	52.3	I	8.7	I	0.11	I
I	B-A	I	388.2	I	258.8	I	153.9	I	0.40	I
I	C-AB	I	74.7	I	49.8	I	8.8	I	0.12	I
I	C-A	I	471.7	I	314.5	I		I		I
I	A-B	I	173.4	I	115.6	I		I		I
I	A-C	I	275.3	I	183.5	I		I		I
I	ALL	I	1461.8	I	974.5	I	171.4	I	0.12	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 RUN*****

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	STREAM B-C	STREAM	A-C	STREAM	A-B	I
I	0.00		0.00		0.00	I

* Due to the presence of a flare, data is not available

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM B-A	STREAM	A-C	STREAM	A-B	STREAM	C-A	STREAM	C-B	I
I	0.00		0.00		0.00		0.00		0.00	I

* Due to the presence of a flare, data is not available

I	Intercept For	Slope For	Opposing	Slope For	Opposing	I
I	STREAM C-B	STREAM	A-C	STREAM	A-B	I
I	711.21		0.26		0.26	I

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

I	ARM	I	FLOW	I	SCALE(%)	I
I	A	I	100	I		I
I	B	I	100	I		I
I	C	I	100	I		I

Demand set: PM Peak 2019 + LDP

TIME PERIOD BEGINS 17.00 AND ENDS 18.30

LENGTH OF TIME PERIOD - 90 MIN.
 LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

		NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)		
I	ARM	I FLOW STARTS	I TOP OF PEAK	I FLOW STOPS	I BEFORE	I AT TOP	I AFTER
I		I TO RISE	I IS REACHED	I FALLING	I PEAK	I OF PEAK	I PEAK
I		I	I	I	I	I	I
I	ARM A	I 15.00	I 45.00	I 75.00	I 8.20	I 12.30	I 8.20
I	ARM B	I 15.00	I 45.00	I 75.00	I 1.60	I 2.40	I 1.60
I	ARM C	I 15.00	I 45.00	I 75.00	I 3.59	I 5.38	I 3.59

Demand set: PM Peak 2019 + LDP

		TURNING PROPORTIONS									
		TURNING COUNTS									
		(PERCENTAGE OF H.V.S)									
TIME		FROM/TO	I	ARM	A	I	ARM	B	I	ARM	C
I	17.00 - 18.30	I	I	I	I	I	I	I	I	I	I
I		I	ARM	A	I	0.000	I	0.248	I	0.752	I
I		I			I	0.0	I	163.0	I	493.0	I
I		I			I	(0.0)	I	(0.0)	I	(1.0)	I
I		I			I	I	I	I	I	I	I
I		I	ARM	B	I	0.844	I	0.000	I	0.156	I
I		I			I	108.0	I	0.0	I	20.0	I
I		I			I	(0.0)	I	(0.0)	I	(0.0)	I
I		I			I	I	I	I	I	I	I
I		I	ARM	C	I	0.895	I	0.105	I	0.000	I
I		I			I	257.0	I	30.0	I	0.0	I
I		I			I	(3.1)	I	(0.0)	I	(0.0)	I
I		I			I	I	I	I	I	I	I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM Peak 2019 + LDP
AND FOR TIME PERIOD 2

[illegible]

	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
I	17.15-17.30									
I	B-C	0.30	9.92	0.030		0.02	0.03	0.5		0.10
I	B-A	1.62	6.37	0.254		0.24	0.33	4.8		0.21
I	C-AB	0.65	11.88	0.055		0.06	0.09	1.3		0.09
I	C-A	3.65								
I	A-B	2.44								
I	A-C	7.39								

[illegible]

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.37	9.18	0.040		0.04	0.04	0.6		0.11
B-A	1.98	5.76	0.344		0.51	0.52	7.7		0.26
C-AB	0.90	12.01	0.075		0.13	0.14	2.0		0.09
C-A	4.36								
A-B	2.99								
A-C	9.05								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.30	9.91	0.030		0.04	0.03	0.5		0.10
B-A	1.62	6.37	0.254		0.52	0.35	5.4		0.21
C-AB	0.65	11.88	0.055		0.14	0.09	1.3		0.09
C-A	3.65								
A-B	2.44								
A-C	7.39								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.15-18.30									
B-C	0.25	10.43	0.024		0.03	0.02	0.4		0.10
B-A	1.36	6.81	0.199		0.35	0.25	3.9		0.18
C-AB	0.51	11.84	0.043		0.09	0.06	0.9		0.09
C-A	3.09								
A-B	2.05								
A-C	6.19								

WARNING NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0
18.30	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.2	
17.30	0.3	
17.45	0.5	*
18.00	0.5	*
18.15	0.3	
18.30	0.3	

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1
18.30	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-C	27.5	18.4	2.9
B-A	148.7	99.1	0.22
C-AB	62.0	41.3	0.14
C-A	333.0	222.0	
A-B	224.4	149.6	
A-C	678.6	452.4	
ALL	1474.2	982.8	44.2

* 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 RUN*****

===== end of file =====

Printed at 16:32:07 on 30/04/2014]

TRL LIMITED

(C) COPYRIGHT 2010

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"K:\Projects\15342 - Porthkerry Rd, Rhoose, Taylor Wimpey\DESIGN\PICADY\Fonman Road B4265 Junction\
Fonmon Road B4265.vpi"
(drive-on-the-left) at 10:24:24 on Wednesday, 30 April 2014

RUN INFORMATION

RUN TITLE : Fonmon Road_B4265
LOCATION : Rhoose
DATE : 15/05/13
CLIENT :
ENUMERATOR : CFKA [CF-40]
JOB NUMBER :
STATUS :
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

MAJOR ROAD (ARM C) ----- MAJOR ROAD (ARM A)
I
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS B4265 (E)
ARM B IS Fonmon Road
ARM C IS B4265 (W)

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I	(W) 7.30 M.	I
I	CENTRAL RESERVE WIDTH	I	(WCR) 0.00 M.	I
I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I	(WC-B) 2.20 M.	I
I	- VISIBILITY	I	(VC-B)200.00 M.	I
I	- BLOCKS TRAFFIC (SPACES)	I	NO (0)	I
I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I	(VB-C) 200.0 M.	I
I	- VISIBILITY TO RIGHT	I	(VB-A) 200.0 M.	I
I	- LANE 1 WIDTH	I	(WB-C) 2.40 M.	I
I	- LANE 2 WIDTH	I	(WB-A) 0.00 M.	I

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

I	Intercept For	Slope For Opposing	Slope For Opposing	I
I	STREAM B-C	STREAM A-C	STREAM A-B	I
I	704.80	0.26	0.10	I

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM B-A	STREAM A-C	STREAM A-B	STREAM C-A	STREAM C-B	I
I	610.96	0.27	0.10	0.17	0.38	I

I	Intercept For	Slope For Opposing	Slope For Opposing	I
I	STREAM C-B	STREAM A-C	STREAM A-B	I
I	689.79	0.25	0.25	I

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

Demand set: AM 2019 + LDP

TIME PERIOD BEGINS 07.15 AND ENDS 08.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS I TOP OF PEAK I FLOW STOPS	I	BEFORE I AT TOP I AFTER	I
I		I	TO RISE I IS REACHED I FALLING	I	PEAK I OF PEAK I PEAK	I
I		I	I	I	I	I
I	ARM A	I	15.00 I 45.00 I 75.00	I	4.19 I 6.28 I 4.19	I
I	ARM B	I	15.00 I 45.00 I 75.00	I	3.25 I 4.88 I 3.25	I
I	ARM C	I	15.00 I 45.00 I 75.00	I	6.18 I 9.26 I 6.18	I

Demand set: AM 2019 + LDP

TIME	TURNING PROPORTIONS									
	TURNING COUNTS									
	(PERCENTAGE OF H.V.S)									
	FROM/TO	I	ARM	A	I	ARM	B	I	ARM	C
07.15 - 08.45										
	ARM A	I		0.000	I		0.057	I		0.943
		I		0.0	I		19.0	I		316.0
		I	(	0.0)	I	(	10.0)	I	(	10.0)
		I			I			I		
	ARM B	I		0.081	I		0.000	I		0.919
		I		21.0	I		0.0	I		239.0
		I	(	10.0)	I	(	0.0)	I	(	10.0)
		I			I			I		
	ARM C	I		0.775	I		0.225	I		0.000
		I		383.0	I		111.0	I		0.0
		I	(	10.0)	I	(	10.0)	I	(	0.0)
		I			I			I		

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2019 + LDP
AND FOR TIME PERIOD 1

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.15-07.30									
B-AC	3.26	9.33	0.350		0.00	0.53	7.5		0.16
C-A	4.81								
C-B	1.39	9.39	0.148		0.00	0.17	2.5		0.12
A-B	0.24								
A-C	3.97								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.30-07.45									
B-AC	3.90	9.08	0.429		0.53	0.74	10.6		0.19
C-A	5.74								
C-B	1.66	9.19	0.181		0.17	0.22	3.2		0.13
A-B	0.28								
A-C	4.73								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	4.77	8.73	0.547		0.74	1.16	16.5		0.25
C-A	7.03								
C-B	2.04	8.90	0.229		0.22	0.29	4.3		0.15
A-B	0.35								
A-C	5.80								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	4.77	8.73	0.547		1.16	1.18	17.7		0.25
C-A	7.03								
C-B	2.04	8.90	0.229		0.29	0.29	4.4		0.15
A-B	0.35								
A-C	5.80								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.15-08.30										I
I	B-AC	3.90	9.08	0.429		1.18	0.77	12.1		0.19	I
I	C-A	5.74									I
I	C-B	1.66	9.19	0.181		0.29	0.22	3.4		0.13	I
I	A-B	0.28									I
I	A-C	4.73									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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.30-08.45										I
I	B-AC	3.26	9.33	0.350		0.77	0.55	8.5		0.17	I
I	C-A	4.81									I
I	C-B	1.39	9.39	0.148		0.22	0.18	2.7		0.13	I
I	A-B	0.24									I
I	A-C	3.97									I

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.5	*
07.45	0.7	*
08.00	1.2	*
08.15	1.2	*
08.30	0.8	*
08.45	0.5	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.2	
07.45	0.2	
08.00	0.3	
08.15	0.3	
08.30	0.2	
08.45	0.2	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL	I	DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN/VEH)	I
I		I		I		I		I		I
I	B-AC	I	357.9	I	238.6	I	72.9	I	0.20	I
I	C-A	I	527.2	I	351.4	I		I		I
I	C-B	I	152.8	I	101.9	I	20.5	I	0.13	I
I	A-B	I	26.2	I	17.4	I		I		I
I	A-C	I	435.0	I	290.0	I		I		I
I	ALL	I	1498.9	I	999.3	I	93.4	I	0.06	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 RUN*****

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

I	Intercept	For	Slope	For	Opposing	Slope	For	Opposing	I
I	STREAM	B-C	STREAM	A-C	STREAM	A-B	STREAM	A-B	I
I		704.80		0.26		0.10			I

I	Intercept	For	Slope	For	Opposing	Slope	For	Opposing	Slope	For	Opposing	I
I	STREAM	B-A	STREAM	A-C	STREAM	A-B	STREAM	C-A	STREAM	C-B	STREAM	I
I		610.96		0.27		0.10		0.17		0.38		I

I	Intercept	For	Slope	For	Opposing	Slope	For	Opposing	I
I	STREAM	C-B	STREAM	A-C	STREAM	A-B	STREAM	A-B	I
I		689.79		0.25		0.25			I

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

I	ARM	I	FLOW	SCALE(%)	I
I	A	I	100		I
I	B	I	100		I
I	C	I	100		I

Demand set: PM 2019 + LDP

TIME PERIOD BEGINS 17.00 AND ENDS 18.30

LENGTH OF TIME PERIOD - 90 MIN.
 LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS	I	TOP OF PEAK	I
I		I	TO RISE	I	IS REACHED	I
I		I		I	FALLING	I
I		I		I	BEFORE	I
I		I		I	AT TOP	I
I		I		I	AFTER	I
I		I		I	PEAK	I
I		I		I	OF PEAK	I
I		I		I	PEAK	I
I	ARM	A	15.00	I	45.00	I
I	ARM	B	15.00	I	45.00	I
I	ARM	C	15.00	I	45.00	I

Demand set: PM 2019 + LDP

TIME	TURNING PROPORTIONS									
	TURNING COUNTS									
	(PERCENTAGE OF H.V.S)									
	FROM/TO	I	ARM	A	I	ARM	B	I	ARM	C
17.00 - 18.30										
	ARM A	0.000		0.046		0.954				
		0.0		18.0		375.0				
		(0.0)		(10.0)		(10.0)				
	ARM B	0.113		0.000		0.887				
		16.0		0.0		125.0				
		(10.0)		(0.0)		(10.0)				
	ARM C	0.633		0.367		0.000				
		387.0		224.0		0.0				
		(10.0)		(10.0)		(0.0)				

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
DEFAULT PROPORTIONS OF HEAVY VEHICLES ARE USED

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2019 + LDP
AND FOR TIME PERIOD 2

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.77	8.89	0.199		0.00	0.25	3.5		0.14
C-A	4.86								
C-B	2.81	9.21	0.305		0.00	0.43	6.2		0.15
A-B	0.23								
A-C	4.71								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	2.11	8.55	0.247		0.25	0.32	4.7		0.16
C-A	5.80								
C-B	3.36	8.97	0.374		0.43	0.59	8.5		0.18
A-B	0.27								
A-C	5.62								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	2.59	8.04	0.322		0.32	0.47	6.7		0.18
C-A	7.10								
C-B	4.11	8.63	0.476		0.59	0.89	12.6		0.22
A-B	0.33								
A-C	6.88								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	2.59	8.04	0.322		0.47	0.47	7.0		0.18
C-A	7.10								
C-B	4.11	8.63	0.476		0.89	0.90	13.4		0.22
A-B	0.33								
A-C	6.88								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	2.11	8.54	0.247		0.47	0.33	5.2		0.16
C-A	5.80								
C-B	3.36	8.97	0.374		0.90	0.61	9.5		0.18
A-B	0.27								
A-C	5.62								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.15-18.30									
B-AC	1.77	8.89	0.199		0.33	0.25	3.9		0.14
C-A	4.86								
C-B	2.81	9.21	0.305		0.61	0.45	6.9		0.16
A-B	0.23								
A-C	4.71								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.2
17.30	0.3
17.45	0.5
18.00	0.5
18.15	0.3
18.30	0.3

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.4	
17.30	0.6	*
17.45	0.9	*
18.00	0.9	*
18.15	0.6	*
18.30	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING *	* INCLUSIVE QUEUEING *
		* DELAY *	* DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-AC	194.1	31.1	0.16
C-A	532.7		
C-B	308.3	57.2	0.19
A-B	24.8		
A-C	516.2		
ALL	1576.0	88.2	0.06

* 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 RUN*****

===== end of file =====

TRL LIMITED

(C) COPYRIGHT 2010

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"K:\Projects\15342 - Porthkerry Rd, Rhoose, Taylor Wimpey\DESIGN\PICADY\Station Road Junction\
Station Road Junction.vpi"
(drive-on-the-left) at 10:54:18 on Wednesday, 30 April 2014

RUN INFORMATION

RUN TITLE : Station Road Junction
LOCATION : Rhoose
DATE : 15/05/13
CLIENT :
ENUMERATOR : CFKA [CF-40]
JOB NUMBER :
STATUS :
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

MAJOR ROAD (ARM C) ----- MAJOR ROAD (ARM A)
I
I
I
I
I
I
MINOR ROAD (ARM B)

ARM A IS Rhoose Road
ARM B IS Station Road
ARM C IS Fontygary Road

STREAM LABELLING CONVENTION

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.

GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I	(W) 7.30 M.	I
I	CENTRAL RESERVE WIDTH	I	(WCR) 0.00 M.	I
I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I	(WC-B) 2.20 M.	I
I	- VISIBILITY	I	(VC-B) 90.00 M.	I
I	- BLOCKS TRAFFIC (SPACES)	I	NO (0)	I
I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I	(VB-C) 40.0 M.	I
I	- VISIBILITY TO RIGHT	I	(VB-A) 17.0 M.	I
I	- LANE 1 WIDTH	I	(WB-C) 3.00 M.	I
I	- LANE 2 WIDTH	I	(WB-A) 0.00 M.	I

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

I	Intercept For	Slope For Opposing	Slope For Opposing	I
I	STREAM B-C	STREAM A-C	STREAM A-B	I
I	634.64	0.23	0.09	I

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
I	STREAM B-A	STREAM A-C	STREAM A-B	STREAM C-A	STREAM C-B	I
I	498.87	0.22	0.09	0.14	0.31	I

I	Intercept For	Slope For Opposing	Slope For Opposing	I
I	STREAM C-B	STREAM A-C	STREAM A-B	I
I	626.08	0.23	0.23	I

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

Demand set: AM 2019 + LDP

TIME PERIOD BEGINS 07.15 AND ENDS 08.45

LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS I TOP OF PEAK I FLOW STOPS	I	BEFORE I AT TOP I AFTER	I
I		I	TO RISE I IS REACHED I FALLING	I	PEAK I OF PEAK I PEAK	I
I		I	I	I	I	I
I	ARM A	I	15.00 I 45.00 I 75.00	I	3.59 I 5.38 I 3.59	I
I	ARM B	I	15.00 I 45.00 I 75.00	I	0.90 I 1.35 I 0.90	I
I	ARM C	I	15.00 I 45.00 I 75.00	I	3.00 I 4.50 I 3.00	I

Demand set: AM 2019 + LDP

I	I	TURNING PROPORTIONS								I			
		TURNING COUNTS											
		(PERCENTAGE OF H.V.S)											
TIME		I	FROM/TO	I	ARM	A	I	ARM	B	I	ARM	C	I
07.15 - 08.45		I		I		I		I		I		I	
		I	ARM	A	I	0.000	I	0.188	I	0.812	I		
		I			I	0.0	I	54.0	I	233.0	I		
		I			I	(0.0)	I	(0.0)	I	(1.0)	I		
		I			I		I		I		I		
		I	ARM	B	I	0.542	I	0.000	I	0.458	I		
		I			I	39.0	I	0.0	I	33.0	I		
		I			I	(0.0)	I	(0.0)	I	(0.0)	I		
		I			I		I		I		I		
		I	ARM	C	I	0.817	I	0.183	I	0.000	I		
		I			I	196.0	I	44.0	I	0.0	I		
		I			I	(1.0)	I	(0.0)	I	(0.0)	I		
		I			I		I		I		I		

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET AM 2019 + LDP
AND FOR TIME PERIOD 1

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.15-07.30									
B-AC	0.90	8.14	0.111		0.00	0.12	1.8		0.14
C-A	2.46								
C-B	0.55	9.60	0.057		0.00	0.06	0.9		0.11
A-B	0.68								
A-C	2.92								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.30-07.45									
B-AC	1.08	7.93	0.136		0.12	0.16	2.3		0.15
C-A	2.94								
C-B	0.66	9.44	0.070		0.06	0.07	1.1		0.11
A-B	0.81								
A-C	3.49								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	1.32	7.63	0.173		0.16	0.21	3.0		0.16
C-A	3.60								
C-B	0.81	9.22	0.088		0.07	0.10	1.4		0.12
A-B	0.99								
A-C	4.28								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	1.32	7.63	0.173		0.21	0.21	3.1		0.16
C-A	3.60								
C-B	0.81	9.22	0.088		0.10	0.10	1.4		0.12
A-B	0.99								
A-C	4.28								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.15-08.30										I
I	B-AC	1.08	7.93	0.136		0.21	0.16	2.5		0.15	I
I	C-A	2.94									I
I	C-B	0.66	9.44	0.070		0.10	0.08	1.2		0.11	I
I	A-B	0.81									I
I	A-C	3.49									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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.30-08.45										I
I	B-AC	0.90	8.14	0.111		0.16	0.13	1.9		0.14	I
I	C-A	2.46									I
I	C-B	0.55	9.60	0.057		0.08	0.06	0.9		0.11	I
I	A-B	0.68									I
I	A-C	2.92									I

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	0.1
07.45	0.2
08.00	0.2
08.15	0.2
08.30	0.2
08.45	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	0.1
07.45	0.1
08.00	0.1
08.15	0.1
08.30	0.1
08.45	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL	I	DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN/VEH)	I
I		I		I		I		I		I
I	B-AC	I	99.1	I	66.1	I	14.6	I	0.15	I
I	C-A	I	269.8	I	179.9	I		I		I
I	C-B	I	60.6	I	40.4	I	6.9	I	0.11	I
I	A-B	I	74.3	I	49.6	I		I		I
I	A-C	I	320.7	I	213.8	I		I		I
I	ALL	I	824.5	I	549.7	I	21.5	I	0.03	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 RUN*****

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

I	Intercept	For	Slope	For	Opposing	Slope	For	Opposing	I
I	STREAM	B-C	STREAM	A-C	STREAM	A-B	STREAM	A-B	I
I	634.64		0.23		0.09				I

I	Intercept	For	Slope	For	Opposing	Slope	For	Opposing	Slope	For	Opposing	I
I	STREAM	B-A	STREAM	A-C	STREAM	A-B	STREAM	C-A	STREAM	C-B	STREAM	I
I	498.87		0.22		0.09		0.14		0.31			I

I	Intercept	For	Slope	For	Opposing	Slope	For	Opposing	I
I	STREAM	C-B	STREAM	A-C	STREAM	A-B	STREAM	A-B	I
I	626.08		0.23		0.23				I

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

I	ARM	I	FLOW	SCALE(%)	I
I	A	I	100		I
I	B	I	100		I
I	C	I	100		I

Demand set: PM 2019 + LDP

TIME PERIOD BEGINS 17.00 AND ENDS 18.30

LENGTH OF TIME PERIOD - 90 MIN.
 LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS	I	TOP OF PEAK	I
I		I	TO RISE	I	IS REACHED	I
I		I		I	FALLING	I
I		I		I		I
I	ARM	A	15.00	I	45.00	I
I	ARM	B	15.00	I	45.00	I
I	ARM	C	15.00	I	45.00	I

Demand set: PM 2019 + LDP

I I I I I	I I I I I	TURNING PROPORTIONS								I I I I I			
		TURNING COUNTS											
		(PERCENTAGE OF H.V.S)											
TIME		I	FROM/TO	I	ARM	A	I	ARM	B	I	ARM	C	I
17.00 - 18.30		I		I		I		I		I		I	
I	I	I	ARM	A	I	0.000	I	0.190	I	0.810	I		I
I	I	I			I	0.0	I	58.0	I	248.0	I		I
I	I	I			I	(0.0)	I	(0.0)	I	(0.0)	I		I
I	I	I			I		I		I		I		I
I	I	I	ARM	B	I	0.566	I	0.000	I	0.434	I		I
I	I	I			I	30.0	I	0.0	I	23.0	I		I
I	I	I			I	(0.0)	I	(0.0)	I	(0.0)	I		I
I	I	I			I		I		I		I		I
I	I	I	ARM	C	I	0.780	I	0.220	I	0.000	I		I
I	I	I			I	231.0	I	65.0	I	0.0	I		I
I	I	I			I	(0.0)	I	(0.0)	I	(0.0)	I		I
I	I	I			I		I		I		I		I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET PM 2019 + LDP
AND FOR TIME PERIOD 2

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	0.67	7.94	0.084		0.00	0.09	1.3		0.14
C-A	2.90								
C-B	0.82	9.56	0.085		0.00	0.09	1.3		0.11
A-B	0.73								
A-C	3.11								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	0.79	7.69	0.103		0.09	0.11	1.7		0.14
C-A	3.46								
C-B	0.97	9.39	0.104		0.09	0.11	1.7		0.12
A-B	0.87								
A-C	3.72								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	0.97	7.35	0.132		0.11	0.15	2.2		0.16
C-A	4.24								
C-B	1.19	9.15	0.130		0.11	0.15	2.2		0.13
A-B	1.06								
A-C	4.55								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.97	7.35	0.132		0.15	0.15	2.3		0.16
C-A	4.24								
C-B	1.19	9.15	0.130		0.15	0.15	2.2		0.13
A-B	1.06								
A-C	4.55								

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	18.00-18.15										I
I	B-AC	0.79	7.69	0.103		0.15	0.12	1.8		0.15	I
I	C-A	3.46									I
I	C-B	0.97	9.39	0.104		0.15	0.12	1.8		0.12	I
I	A-B	0.87									I
I	A-C	3.72									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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	18.15-18.30										I
I	B-AC	0.67	7.93	0.084		0.12	0.09	1.4		0.14	I
I	C-A	2.90									I
I	C-B	0.82	9.56	0.085		0.12	0.09	1.4		0.11	I
I	A-B	0.73									I
I	A-C	3.11									I

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.1
17.30	0.1
17.45	0.2
18.00	0.2
18.15	0.1
18.30	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1
18.30	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I	I	I	I	I	* DELAY *	I	* DELAY *	I
I	I	I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I	B-AC	I	73.0	I 48.6	I 10.7	I 0.15	I 10.7	I 0.15
I	C-A	I	318.0	I 212.0	I	I	I	I
I	C-B	I	89.5	I 59.6	I 10.7	I 0.12	I 10.7	I 0.12
I	A-B	I	79.8	I 53.2	I	I	I	I
I	A-C	I	341.4	I 227.6	I	I	I	I
I	ALL	I	901.6	I 601.0	I 21.3	I 0.02	I 21.3	I 0.02

* 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 RUN*****

===== end of file =====

J. ARCADY Analysis

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

(c) Copyright TRL Limited, 2010

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"k:\Projects\15342 - Porthkerry Rd, Rhooose, Taylor Wimpey\DESIGN\ARCADY\Waycock Cross\
Waycock Cross Existing Layout 2019 ex LDP ex Barry AM.vai"
(drive-on-the-left) at 09:32:32 on Wednesday, 30 April 2014

FILE PROPERTIES

RUN TITLE: Waycock Cross Existing Layout - Forecast Year without LDP AM ex Barry Waterfront
LOCATION:
DATE: 23/05/13
CLIENT:
ENUMERATOR: CFKA [CF-40]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Port Road West (E)
ARM B - Pontypridd Road
ARM C - Port Road West (W)
ARM D - Waycock Road

GEOMETRIC DATA

T5																			
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	5.00	I	6.60	I	38.00	I	20.00	I	51.00	I	27.0	I	0.656	I	32.708	I
I	ARM	B	I	5.60	I	7.20	I	4.50	I	23.00	I	51.00	I	27.0	I	0.657	I	32.598	I
I	ARM	C	I	4.00	I	6.50	I	10.00	I	13.50	I	60.00	I	26.0	I	0.540	I	26.951	I
I	ARM	D	I	3.60	I	5.00	I	21.60	I	11.00	I	54.00	I	28.0	I	0.524	I	23.241	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

```

-----
I ARM I FLOW SCALE(%) I
-----
I A I 100 I
I B I 100 I
I C I 100 I
I D I 100 I
-----

```

TIME PERIOD BEGINS(07.15)AND ENDS(08.45)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2019 ex LDP AM ex Barry

T15

```

-----
I NUMBER OF MINUTES FROM START WHEN I RATE OF FLOW (VEH/MIN) I
I ARM I FLOW STARTS I TOP OF PEAK I FLOW STOPS I BEFORE I AT TOP I AFTER I
I I I I I I I I I I
I I TO RISE I IS REACHED I FALLING I PEAK I OF PEAK I PEAK I
-----
I ARM A I 15.00 I 45.00 I 75.00 I 9.45 I 14.17 I 9.45 I
I ARM B I 15.00 I 45.00 I 75.00 I 8.81 I 13.22 I 8.81 I
I ARM C I 15.00 I 45.00 I 75.00 I 14.70 I 22.05 I 14.70 I
I ARM D I 15.00 I 45.00 I 75.00 I 5.49 I 8.23 I 5.49 I
-----

```

DEMAND SET TITLE: 2019 ex LDP AM ex Barry

T33

```

-----
I TURNING PROPORTIONS I
I TURNING COUNTS I
I (PERCENTAGE OF H.V.S) I
I
I TIME I FROM/T I ARM A I ARM B I ARM C I ARM D I
-----
I 07.15 - 08.45 I I I I I I
I ARM A I 0.000 I 0.292 I 0.577 I 0.131 I
I I 0.0 I 221.0 I 436.0 I 99.0 I
I I ( 0.0)I ( 10.0)I ( 0.0)I ( 7.0)I
I I I I I I
I ARM B I 0.410 I 0.000 I 0.335 I 0.255 I
I I 289.0 I 0.0 I 236.0 I 180.0 I
I I ( 0.0)I ( 0.0)I ( 2.0)I ( 0.0)I
I I I I I I
I ARM C I 0.429 I 0.439 I 0.000 I 0.133 I
I I 504.0 I 516.0 I 0.0 I 156.0 I
I I ( 4.0)I ( 1.0)I ( 0.0)I ( 0.0)I
I I I I I I
I ARM D I 0.298 I 0.465 I 0.237 I 0.000 I
I I 131.0 I 204.0 I 104.0 I 0.0 I
I I ( 1.0)I ( 1.0)I ( 0.0)I ( 0.0)I
I I I I I I
-----

```

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

```

-----
I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I
I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH.MIN/ (VEH.MIN/ PER ARRIVING I
I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I
-----
I 07.15-07.30 I
I ARM A 9.49 24.96 0.380 - - - 0.0 0.6 8.9 - 0.064 I
I ARM B 8.85 27.12 0.326 - - - 0.0 0.5 7.1 - 0.055 I
I ARM C 14.76 22.58 0.653 - - - 0.0 1.8 25.9 - 0.124 I
I ARM D 5.51 14.42 0.382 - - - 0.0 0.6 8.8 - 0.111 I
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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.30-07.45									
ARM A	11.33	23.68	0.478	-	0.6	0.9	13.3	-	0.081
ARM B	10.56	26.08	0.405	-	0.5	0.7	9.9	-	0.064
ARM C	17.62	21.83	0.807	-	1.8	3.9	52.6	-	0.223
ARM D	6.58	12.73	0.517	-	0.6	1.0	15.0	-	0.161

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
ARM A	13.87	22.30	0.622	-	0.9	1.6	23.1	-	0.117
ARM B	12.94	24.69	0.524	-	0.7	1.1	15.8	-	0.085
ARM C	21.58	20.82	1.037	-	3.9	24.8	236.3	-	0.909
ARM D	8.06	10.97	0.734	-	1.0	2.6	34.3	-	0.320

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	13.87	22.14	0.627	-	1.6	1.7	24.6	-	0.121
ARM B	12.94	24.65	0.525	-	1.1	1.1	16.4	-	0.085
ARM C	21.58	20.81	1.037	-	24.8	39.5	484.4	-	1.720
ARM D	8.06	10.78	0.748	-	2.6	2.8	40.7	-	0.363

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	11.33	22.94	0.494	-	1.7	1.0	15.3	-	0.087
ARM B	10.56	26.03	0.406	-	1.1	0.7	10.6	-	0.065
ARM C	17.62	21.82	0.808	-	39.5	4.8	239.0	-	0.830
ARM D	6.58	11.59	0.568	-	2.8	1.4	21.8	-	0.207

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	9.49	24.83	0.382	-	1.0	0.6	9.6	-	0.065
ARM B	8.85	27.07	0.327	-	0.7	0.5	7.5	-	0.055
ARM C	14.76	22.56	0.654	-	4.8	1.9	31.4	-	0.134
ARM D	5.51	14.26	0.386	-	1.4	0.6	10.0	-	0.116

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	0.6 *
07.45	0.9 *
08.00	1.6 **
08.15	1.7 **
08.30	1.0 *
08.45	0.6 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.5	
07.45	0.7	*
08.00	1.1	*
08.15	1.1	*
08.30	0.7	*
08.45	0.5	

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	1.8	**
07.45	3.9	****
08.00	24.8	*****
08.15	39.5	*****
08.30	4.8	*****
08.45	1.9	**

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.6	*
07.45	1.0	*
08.00	2.6	***
08.15	2.8	***
08.30	1.4	*
08.45	0.6	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

										T75
ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I		I	
	I		I	* DELAY *	I	* DELAY *	I		I	
	I		I		I		I		I	
	I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)	I
A	I	1040.6	I	693.7	I	94.8	I	0.09	I	94.8
B	I	970.4	I	646.9	I	67.3	I	0.07	I	67.3
C	I	1618.7	I	1079.1	I	1069.6	I	0.66	I	1069.7
D	I	604.3	I	402.8	I	130.5	I	0.22	I	130.5
ALL	I	4233.9	I	2822.6	I	1362.2	I	0.32	I	1362.3

* 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

===== end of file =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

(c) Copyright TRL Limited, 2010

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"k:\Projects\15342 - Porthkerry Rd, Rhoose, Taylor Wimpey\DESIGN\ARCADY\Waycock Cross\
Waycock Cross Existing Layout 2019 ex LDP ex Barry PM.vai"
(drive-on-the-left) at 09:37:52 on Wednesday, 30 April 2014

FILE PROPERTIES

RUN TITLE: Waycock Cross Existing Layout -Forecast Year without LDP PM ex Barry Waterfront
LOCATION:
DATE: 23/05/13
CLIENT:
ENUMERATOR: CFKA [CF-40]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Port Road West (E)
ARM B - Pontypridd Road
ARM C - Port Road West (W)
ARM D - Waycock Road

GEOMETRIC DATA

T5																			
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	5.00	I	6.60	I	38.00	I	20.00	I	51.00	I	27.0	I	0.656	I	32.708	I
I	ARM	B	I	5.60	I	7.20	I	4.50	I	23.00	I	51.00	I	27.0	I	0.657	I	32.598	I
I	ARM	C	I	4.00	I	6.50	I	10.00	I	13.50	I	60.00	I	26.0	I	0.540	I	26.951	I
I	ARM	D	I	3.60	I	5.00	I	21.60	I	11.00	I	54.00	I	28.0	I	0.524	I	23.241	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T70											
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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.00-17.15										I
I	ARM A	12.38	27.44	0.451	- -	0.0	0.8	11.9	-	0.066	I
I	ARM B	9.27	25.80	0.359	- -	0.0	0.6	8.2	-	0.060	I
I	ARM C	10.60	23.68	0.448	- -	0.0	0.8	11.7	-	0.076	I
I	ARM D	5.91	16.79	0.352	- -	0.0	0.5	7.8	-	0.091	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	14.79	26.47	0.559	-	0.8	1.2	18.2	-	0.085
ARM B	11.07	24.46	0.453	-	0.6	0.8	12.0	-	0.075
ARM C	12.66	23.14	0.547	-	0.8	1.2	17.3	-	0.095
ARM D	7.06	15.56	0.453	-	0.5	0.8	11.9	-	0.117

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	18.11	25.18	0.719	-	1.2	2.5	34.9	-	0.138
ARM B	13.56	22.66	0.598	-	0.8	1.5	21.1	-	0.109
ARM C	15.51	22.42	0.692	-	1.2	2.2	30.8	-	0.142
ARM D	8.64	13.90	0.622	-	0.8	1.6	22.4	-	0.187

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	18.11	25.15	0.720	-	2.5	2.5	37.7	-	0.142
ARM B	13.56	22.62	0.600	-	1.5	1.5	22.1	-	0.111
ARM C	15.51	22.40	0.692	-	2.2	2.2	33.0	-	0.145
ARM D	8.64	13.87	0.623	-	1.6	1.6	24.2	-	0.191

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
ARM A	14.79	26.42	0.560	-	2.5	1.3	20.1	-	0.087
ARM B	11.07	24.40	0.454	-	1.5	0.8	13.0	-	0.076
ARM C	12.66	23.12	0.548	-	2.2	1.2	19.2	-	0.097
ARM D	7.06	15.51	0.455	-	1.6	0.8	13.2	-	0.120

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.15-18.30									
ARM A	12.38	27.40	0.452	-	1.3	0.8	12.8	-	0.067
ARM B	9.27	25.75	0.360	-	0.8	0.6	8.7	-	0.061
ARM C	10.60	23.66	0.448	-	1.2	0.8	12.6	-	0.077
ARM D	5.91	16.75	0.353	-	0.8	0.6	8.5	-	0.093

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.8 *
17.30	1.2 *
17.45	2.5 **
18.00	2.5 ***
18.15	1.3 *
18.30	0.8 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.6	*
17.30	0.8	*
17.45	1.5	*
18.00	1.5	*
18.15	0.8	*
18.30	0.6	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.8	*
17.30	1.2	*
17.45	2.2	**
18.00	2.2	**
18.15	1.2	*
18.30	0.8	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.5	*
17.30	0.8	*
17.45	1.6	**
18.00	1.6	**
18.15	0.8	*
18.30	0.6	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75												
I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I		I		
I		I		I	* DELAY *	I	* DELAY *	I		I		
I		I		I		I		I		I		
I		I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)	I	
I	A	I	1358.5	I	905.7	I	135.5	I	0.10	I	0.10	I
I	B	I	1017.2	I	678.1	I	85.0	I	0.08	I	0.08	I
I	C	I	1163.1	I	775.4	I	124.5	I	0.11	I	0.11	I
I	D	I	648.3	I	432.2	I	88.0	I	0.14	I	0.14	I
I	ALL	I	4187.1	I	2791.4	I	433.1	I	0.10	I	0.10	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

===== end of file =====

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

(c) Copyright TRL Limited, 2010

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"k:\Projects\15342 - Porthkerry Rd, Rhoose, Taylor Wimpey\DESIGN\ARCADY\Waycock Cross\
Waycock Cross Bellway 700 Imp 2019 + LDP ex Barry AM.vai"
(drive-on-the-left) at 09:42:18 on Wednesday, 30 April 2014

FILE PROPERTIES

RUN TITLE: Waycock Cross 700 Imp - Forecast Year with LDP AM ex Barry Waterfront
LOCATION:
DATE: 23/05/13
CLIENT:
ENUMERATOR: CFKA [CF-40]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Port Road West (E)
ARM B - Pontypridd Road
ARM C - Port Road West (W)
ARM D - Waycock Road

GEOMETRIC DATA

T5																			
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	5.00	I	7.30	I	38.00	I	20.00	I	51.00	I	27.0	I	0.686	I	35.345	I
I	ARM	B	I	5.60	I	7.20	I	4.50	I	23.00	I	51.00	I	27.0	I	0.657	I	32.598	I
I	ARM	C	I	4.50	I	8.50	I	24.00	I	12.00	I	60.00	I	26.0	I	0.624	I	35.227	I
I	ARM	D	I	3.60	I	7.00	I	15.00	I	20.00	I	54.00	I	28.0	I	0.591	I	28.327	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- T13

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I
I	D	I	100	I

TIME PERIOD BEGINS(07.15)AND ENDS(08.45)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2019 with LDP exc Barry AM

----- T15

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER	I
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	10.36	I	15.54	I	10.36	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	9.06	I	13.59	I	9.06	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	20.48	I	30.71	I	20.48	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	5.70	I	8.55	I	5.70	I

DEMAND SET TITLE: 2019 with LDP exc Barry AM

----- T33

I	TIME	I	FROM/T	I	ARM A	I	ARM B	I	ARM C	I	ARM D	I
I	07.15 - 08.45	I	ARM A	I	0.000	I	0.267	I	0.614	I	0.119	I
I		I		I	0.0	I	221.0	I	509.0	I	99.0	I
I		I		I	(0.0)	I	(10.0)	I	(0.0)	I	(7.0)	I
I		I	ARM B	I	0.399	I	0.000	I	0.353	I	0.248	I
I		I		I	289.0	I	0.0	I	256.0	I	180.0	I
I		I		I	(0.0)	I	(0.0)	I	(2.0)	I	(0.0)	I
I		I	ARM C	I	0.495	I	0.366	I	0.000	I	0.139	I
I		I		I	810.0	I	600.0	I	0.0	I	228.0	I
I		I		I	(4.0)	I	(1.0)	I	(0.0)	I	(0.0)	I
I		I	ARM D	I	0.287	I	0.447	I	0.265	I	0.000	I
I		I		I	131.0	I	204.0	I	121.0	I	0.0	I
I		I		I	(1.0)	I	(1.0)	I	(0.0)	I	(0.0)	I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

----- T70

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	PEDESTRIAN FLOW (PEDS/MIN)	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	DELAY (VEH.MIN/ TIME SEGMENT)	I	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.15-07.30	I		I		I		I		I		I		I		I		I		I
I	ARM A	I	10.40	I	26.44	I	0.393	I	-	I	0.0	I	0.6	I	9.4	I	-	I	0.062	I
I	ARM B	I	9.10	I	26.37	I	0.345	I	-	I	0.0	I	0.5	I	7.7	I	-	I	0.058	I
I	ARM C	I	20.55	I	30.04	I	0.684	I	-	I	0.0	I	2.1	I	30.0	I	-	I	0.102	I
I	ARM D	I	5.72	I	15.40	I	0.371	I	-	I	0.0	I	0.6	I	8.4	I	-	I	0.102	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.30-07.45									
ARM A	12.42	24.95	0.498	-	0.6	1.0	14.3	-	0.080
ARM B	10.86	25.19	0.431	-	0.5	0.8	11.0	-	0.070
ARM C	24.54	29.18	0.841	-	2.1	4.9	65.6	-	0.200
ARM D	6.83	12.94	0.528	-	0.6	1.1	15.6	-	0.162

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
ARM A	15.21	23.49	0.648	-	1.0	1.8	25.7	-	0.119
ARM B	13.30	23.62	0.563	-	0.8	1.3	18.4	-	0.096
ARM C	30.06	28.01	1.073	-	4.9	42.4	375.6	-	1.021
ARM D	8.37	10.71	0.782	-	1.1	3.2	41.7	-	0.384

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	15.21	23.34	0.652	-	1.8	1.8	27.4	-	0.123
ARM B	13.30	23.57	0.565	-	1.3	1.3	19.2	-	0.098
ARM C	30.06	27.99	1.074	-	42.4	74.6	879.0	-	2.216
ARM D	8.37	10.52	0.795	-	3.2	3.6	51.6	-	0.449

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	12.42	23.80	0.522	-	1.8	1.1	17.2	-	0.089
ARM B	10.86	25.13	0.432	-	1.3	0.8	11.8	-	0.070
ARM C	24.54	29.15	0.842	-	74.6	11.3	644.3	-	1.572
ARM D	6.83	10.64	0.642	-	3.6	1.9	30.6	-	0.278

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	10.40	26.20	0.397	-	1.1	0.7	10.2	-	0.064
ARM B	9.10	26.32	0.346	-	0.8	0.5	8.1	-	0.058
ARM C	20.55	30.01	0.685	-	11.3	2.2	40.6	-	0.121
ARM D	5.72	15.01	0.381	-	1.9	0.6	9.9	-	0.110

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	0.6 *
07.45	1.0 *
08.00	1.8 **
08.15	1.8 **
08.30	1.1 *
08.45	0.7 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.5	*
07.45	0.8	*
08.00	1.3	*
08.15	1.3	*
08.30	0.8	*
08.45	0.5	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	2.1	**
07.45	4.9	*****
08.00	42.4	*****
08.15	74.6	*****
08.30	11.3	*****
08.45	2.2	**

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.6	*
07.45	1.1	*
08.00	3.2	***
08.15	3.6	****
08.30	1.9	**
08.45	0.6	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75									
ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I		I
	I		I	* DELAY *	I	* DELAY *	I		I
	I		I		I		I		I
	I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	I	(MIN)	(MIN/VEH)
A	I	1141.1	I	760.7	I	104.2	I	0.09	I
B	I	997.9	I	665.3	I	76.3	I	0.08	I
C	I	2254.6	I	1503.1	I	2035.2	I	0.90	I
D	I	627.7	I	418.4	I	157.8	I	0.25	I
ALL	I	5021.2	I	3347.5	I	2373.4	I	0.47	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

===== end of file =====

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

(c) Copyright TRL Limited, 2010

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited	Tel: +44 (0) 1344 770758
Crowthorne House	Fax: +44 (0) 1344 770356
Nine Mile Ride	Email: software@trl.co.uk
Wokingham, Berks.	Web: www.trlsoftware.co.uk
RG40 3GA,UK	

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"k:\Projects\15342 - Porthkerry Rd, Rhoose, Taylor Wimpey\DESIGN\ARCADY\Waycock Cross\
Waycock Cross Bellway 700 Imp 2019 + LDP ex Barry PM.vai"
(drive-on-the-left) at 09:46:41 on Wednesday, 30 April 2014

FILE PROPERTIES *****

RUN TITLE: Waycock Cross 700 Imp - Forecast Year with LDP PM ex Barry Waterfront
LOCATION:
DATE: 23/05/13
CLIENT:
ENUMERATOR: CFKA [CF-40]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Port Road West (E)
ARM B - Pontypridd Road
ARM C - Port Road West (W)
ARM D - Waycock Road

GEOMETRIC DATA

																	T5		
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	5.00	I	7.30	I	38.00	I	20.00	I	51.00	I	27.0	I	0.686	I	35.345	I
I	ARM	B	I	5.60	I	7.20	I	4.50	I	23.00	I	51.00	I	27.0	I	0.657	I	32.598	I
I	ARM	C	I	4.50	I	8.50	I	24.00	I	12.00	I	60.00	I	26.0	I	0.624	I	35.227	I
I	ARM	D	I	3.60	I	7.00	I	15.00	I	20.00	I	54.00	I	28.0	I	0.591	I	28.327	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- T13

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I
I	D	I	100	I

TIME PERIOD BEGINS(17.00)AND ENDS(18.30)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2019 with LDP ex Barry PM

----- T15

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER	I
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	14.94	I	22.41	I	14.94	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	9.96	I	14.94	I	9.96	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	13.10	I	19.65	I	13.10	I
I	ARM D	I	15.00	I	45.00	I	75.00	I	6.51	I	9.77	I	6.51	I

DEMAND SET TITLE: 2019 with LDP ex Barry PM

----- T33

I	TIME	I	FROM/T	I	ARM A	I	ARM B	I	ARM C	I	ARM D	I
I	17.00 - 18.30	I		I		I		I		I		I
I		I	ARM A	I	0.000	I	0.223	I	0.679	I	0.098	I
I		I		I	0.0	I	267.0	I	811.0	I	117.0	I
I		I		I	(0.0)	I	(4.0)	I	(0.0)	I	(1.0)	I
I		I		I		I		I		I		I
I		I	ARM B	I	0.222	I	0.000	I	0.632	I	0.146	I
I		I		I	177.0	I	0.0	I	504.0	I	116.0	I
I		I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I		I		I		I		I		I
I		I	ARM C	I	0.612	I	0.282	I	0.000	I	0.106	I
I		I		I	641.0	I	296.0	I	0.0	I	111.0	I
I		I		I	(3.0)	I	(1.0)	I	(0.0)	I	(0.0)	I
I		I		I		I		I		I		I
I		I	ARM D	I	0.257	I	0.445	I	0.298	I	0.000	I
I		I		I	134.0	I	232.0	I	155.0	I	0.0	I
I		I		I	(0.0)	I	(1.0)	I	(2.0)	I	(0.0)	I
I		I		I		I		I		I		I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

----- T70

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	PEDESTRIAN FLOW (PEDS/MIN)	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	DELAY (VEH.MIN/ TIME SEGMENT)	I	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.00-17.15	I		I		I		I		I		I		I		I		I		I
I	ARM A	I	14.99	I	29.13	I	0.515	I	-	I	0.0	I	1.1	I	15.2	I	-	I	0.070	I
I	ARM B	I	10.00	I	23.68	I	0.422	I	-	I	0.0	I	0.7	I	10.5	I	-	I	0.073	I
I	ARM C	I	13.15	I	31.36	I	0.419	I	-	I	0.0	I	0.7	I	10.5	I	-	I	0.055	I
I	ARM D	I	6.54	I	19.72	I	0.331	I	-	I	0.0	I	0.5	I	7.2	I	-	I	0.075	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
ARM A	17.90	27.97	0.640	- -	-	1.1	1.7	25.2	0.098
ARM B	11.94	21.92	0.545	- -	-	0.7	1.2	17.1	0.100
ARM C	15.70	30.74	0.511	- -	-	0.7	1.0	15.2	0.066
ARM D	7.81	18.09	0.432	- -	-	0.5	0.8	10.9	0.097

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
ARM A	21.93	26.41	0.830	- -	-	1.7	4.5	60.6	0.206
ARM B	14.63	19.60	0.746	- -	-	1.2	2.8	38.5	0.193
ARM C	19.23	29.92	0.643	- -	-	1.0	1.8	25.5	0.093
ARM D	9.56	15.87	0.602	- -	-	0.8	1.5	21.0	0.156

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
ARM A	21.93	26.38	0.831	- -	-	4.5	4.7	69.6	0.222
ARM B	14.63	19.50	0.750	- -	-	2.8	2.9	43.0	0.204
ARM C	19.23	29.89	0.643	- -	-	1.8	1.8	26.7	0.094
ARM D	9.56	15.84	0.604	- -	-	1.5	1.5	22.4	0.159

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
ARM A	17.90	27.93	0.641	- -	-	4.7	1.8	29.2	0.104
ARM B	11.94	21.79	0.548	- -	-	2.9	1.2	19.4	0.104
ARM C	15.70	30.70	0.512	- -	-	1.8	1.1	16.3	0.067
ARM D	7.81	18.03	0.433	- -	-	1.5	0.8	12.0	0.099

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.15-18.30									
ARM A	14.99	29.09	0.515	- -	-	1.8	1.1	16.6	0.071
ARM B	10.00	23.61	0.424	- -	-	1.2	0.7	11.4	0.074
ARM C	13.15	31.33	0.420	- -	-	1.1	0.7	11.1	0.055
ARM D	6.54	19.68	0.332	- -	-	0.8	0.5	7.7	0.076

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	1.1 *
17.30	1.7 **
17.45	4.5 *****
18.00	4.7 *****
18.15	1.8 **
18.30	1.1 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.7	*
17.30	1.2	*
17.45	2.8	***
18.00	2.9	***
18.15	1.2	*
18.30	0.7	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.7	*
17.30	1.0	*
17.45	1.8	**
18.00	1.8	**
18.15	1.1	*
18.30	0.7	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.5	
17.30	0.8	*
17.45	1.5	*
18.00	1.5	**
18.15	0.8	*
18.30	0.5	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75									
ARM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *						
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)			
A	1644.8	1096.6	216.3	0.13	216.4	0.13			
B	1097.0	731.3	140.0	0.13	140.1	0.13			
C	1442.5	961.7	105.3	0.07	105.3	0.07			
D	717.1	478.1	81.2	0.11	81.2	0.11			
ALL	4901.5	3267.6	542.9	0.11	542.9	0.11			

* 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

===== end of file =====

Printed at 09:47:04 on 30/04/2014]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

(c) Copyright TRL Limited, 2010

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"k:\Projects\15342 - Porthkerry Rd, Rhooose, Taylor Wimpey\DESIGN\ARCADY\Waycock Cross\
Waycock Cross Bellway 700 Imp + Additional Imp 2019 + LDP ex Barry AM.vai"
(drive-on-the-left) at 12:21:19 on Thursday, 1 May 2014

FILE PROPERTIES

RUN TITLE: Waycock Cross 700+Additional Imp - Forecast Year with LDP AM ex Barry Waterfront
LOCATION:
DATE: 23/05/13
CLIENT:
ENUMERATOR: CFKA [CF-40]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Port Road West (E)
ARM B - Pontypridd Road
ARM C - Port Road West (W)
ARM D - Waycock Road

GEOMETRIC DATA

T5																			
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	5.00	I	7.30	I	37.00	I	20.00	I	51.00	I	27.0	I	0.686	I	35.302	I
I	ARM	B	I	5.60	I	7.20	I	4.50	I	23.00	I	51.00	I	27.0	I	0.657	I	32.598	I
I	ARM	C	I	4.50	I	8.50	I	49.00	I	12.00	I	60.00	I	26.0	I	0.653	I	38.016	I
I	ARM	D	I	3.60	I	7.00	I	15.00	I	20.00	I	54.00	I	28.0	I	0.591	I	28.327	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND SET TITLE: 2019 with LDP exc Barry AM

DEMAND SET TITLE: 2019 with LDP exc Barry AM

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

												T70	
I	TIME	DEMAND	CAPACITY	DEMAND/	PEDESTRIAN	START	END	DELAY	GEOMETRIC	DELAY	AVERAGE	DELAY	I
I		(VEH/MIN)	(VEH/MIN)	CAPACITY	FLOW	QUEUE	QUEUE	(VEH.MIN/	(VEH.MIN/		PER	ARRIVING	I
I				(RFC)	(PEDS/MIN)	(VEHS)	(VEHS)	TIME SEGMENT)	TIME SEGMENT)		VEHICLE	(MIN)	I
-													-
I	07.15-07.30												I
I	ARM A	10.40	26.40	0.394	- -	-	0.0	0.6	9.4	-	0.062		I
I	ARM B	9.10	26.37	0.345	- -	-	0.0	0.5	7.7	-	0.058		I
I	ARM C	20.55	32.56	0.631	- -	-	0.0	1.7	24.2	-	0.082		I
I	ARM D	5.72	15.39	0.372	- -	-	0.0	0.6	8.5	-	0.103		I
I													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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.30-07.45										I
I	ARM A	12.42	24.89	0.499	- -	-	0.6	1.0	14.4	0.080	I
I	ARM B	10.86	25.19	0.431	- -	-	0.5	0.8	11.0	0.070	I
I	ARM C	24.54	31.66	0.775	- -	-	1.7	3.3	46.3	0.136	I
I	ARM D	6.83	12.90	0.530	- -	-	0.6	1.1	15.7	0.163	I
I											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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.45-08.00										I
I	ARM A	15.21	23.12	0.658	- -	-	1.0	1.9	26.8	0.125	I
I	ARM B	13.30	23.63	0.563	- -	-	0.8	1.3	18.4	0.096	I
I	ARM C	30.06	30.43	0.988	- -	-	3.3	18.4	193.7	0.523	I
I	ARM D	8.37	9.93	0.842	- -	-	1.1	4.4	53.8	0.509	I
I											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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.00-08.15										I
I	ARM A	15.21	22.91	0.664	- -	-	1.9	1.9	28.8	0.130	I
I	ARM B	13.30	23.57	0.564	- -	-	1.3	1.3	19.2	0.097	I
I	ARM C	30.06	30.42	0.988	- -	-	18.4	24.8	327.9	0.840	I
I	ARM D	8.37	9.63	0.869	- -	-	4.4	5.4	75.4	0.696	I
I											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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.15-08.30										I
I	ARM A	12.42	24.37	0.510	- -	-	1.9	1.1	16.3	0.085	I
I	ARM B	10.86	25.10	0.433	- -	-	1.3	0.8	11.9	0.071	I
I	ARM C	24.54	31.63	0.776	- -	-	24.8	3.6	95.5	0.219	I
I	ARM D	6.83	12.10	0.565	- -	-	5.4	1.3	23.6	0.211	I
I											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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.30-08.45										I
I	ARM A	10.40	26.30	0.396	- -	-	1.1	0.7	10.1	0.063	I
I	ARM B	9.10	26.32	0.346	- -	-	0.8	0.5	8.1	0.058	I
I	ARM C	20.55	32.54	0.632	- -	-	3.6	1.7	27.3	0.085	I
I	ARM D	5.72	15.25	0.375	- -	-	1.3	0.6	9.5	0.106	I
I											I

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	0.6 *
07.45	1.0 *
08.00	1.9 **
08.15	1.9 **
08.30	1.1 *
08.45	0.7 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.5	*
07.45	0.8	*
08.00	1.3	*
08.15	1.3	*
08.30	0.8	*
08.45	0.5	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	1.7	**
07.45	3.3	***
08.00	18.4	*****
08.15	24.8	*****
08.30	3.6	****
08.45	1.7	**

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.6	*
07.45	1.1	*
08.00	4.4	****
08.15	5.4	*****
08.30	1.3	*
08.45	0.6	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75									
ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I		I
	I		I	* DELAY *	I	* DELAY *	I		I
	I		I		I		I		I
	I	(VEH)	(VEH/H)	I (MIN)	(MIN/VEH)	I (MIN)	(MIN/VEH)	I	
A	I	1141.1	I 760.7	I 105.9	I 0.09	I 105.9	I 0.09	I	
B	I	997.9	I 665.3	I 76.2	I 0.08	I 76.3	I 0.08	I	
C	I	2254.6	I 1503.1	I 715.0	I 0.32	I 715.0	I 0.32	I	
D	I	627.7	I 418.4	I 186.4	I 0.30	I 186.4	I 0.30	I	
ALL	I	5021.2	I 3347.5	I 1083.4	I 0.22	I 1083.5	I 0.22	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

===== end of file =====

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

(c) Copyright TRL Limited, 2010

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"k:\Projects\15342 - Porthkerry Rd, Rhooose, Taylor Wimpey\DESIGN\ARCADY\Waycock Cross\
Waycock Cross Bellway 700 Imp + Additional Imp 2019 + LDP ex Barry PM.vai"
(drive-on-the-left) at 09:56:03 on Wednesday, 30 April 2014

FILE PROPERTIES *****

RUN TITLE: Waycock Cross 700+Additional Imp - Forecast Year with LDP PM ex Barry Waterfront
LOCATION:
DATE: 23/05/13
CLIENT:
ENUMERATOR: CFKA [CF-40]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Port Road West (E)
ARM B - Pontypridd Road
ARM C - Port Road West (W)
ARM D - Waycock Road

GEOMETRIC DATA

T5																			
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	5.00	I	7.30	I	38.00	I	20.00	I	51.00	I	27.0	I	0.686	I	35.345	I
I	ARM	B	I	5.60	I	7.20	I	4.50	I	23.00	I	51.00	I	27.0	I	0.657	I	32.598	I
I	ARM	C	I	4.50	I	8.50	I	49.00	I	12.00	I	60.00	I	26.0	I	0.653	I	38.016	I
I	ARM	D	I	3.60	I	7.00	I	15.00	I	20.00	I	54.00	I	28.0	I	0.591	I	28.327	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13			
IARM	I	FLOW SCALE(%)	I
I A	I	100	I
I B	I	100	I
I C	I	100	I
I D	I	100	I

TIME PERIOD BEGINS(17.00)AND ENDS(18.30)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2019 with LDP ex Barry PM

T15															
I		I	NUMBER OF MINUTES FROM START WHEN			I	RATE OF FLOW (VEH/MIN)			I					
I	ARM	I	FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	BEFORE	I	AT TOP	I	AFTER	I	
I		I		I		I		I		I		I		I	
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	I	
I	ARM	A	I	15.00	I	45.00	I	75.00	I	14.94	I	22.41	I	14.94	I
I	ARM	B	I	15.00	I	45.00	I	75.00	I	9.96	I	14.94	I	9.96	I
I	ARM	C	I	15.00	I	45.00	I	75.00	I	13.10	I	19.65	I	13.10	I
I	ARM	D	I	15.00	I	45.00	I	75.00	I	6.51	I	9.77	I	6.51	I

DEMAND SET TITLE: 2019 with LDP ex Barry PM

										T33		
I			I	TURNING PROPORTIONS						I		
I			I	TURNING COUNTS						I		
I			I	(PERCENTAGE OF H.V.S)						I		
I											I	
I	TIME	I	FROM/T	I	ARM A	I	ARM B	I	ARM C	I	ARM D	I
I	17.00 - 18.30	I		I		I		I		I		I
I		I	ARM A	I	0.000	I	0.223	I	0.679	I	0.098	I
I		I		I	0.0	I	267.0	I	811.0	I	117.0	I
I		I		I	(0.0)	I	(4.0)	I	(0.0)	I	(1.0)	I
I		I		I		I		I		I		I
I		I	ARM B	I	0.222	I	0.000	I	0.632	I	0.146	I
I		I		I	177.0	I	0.0	I	504.0	I	116.0	I
I		I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I		I		I		I		I		I		I
I		I	ARM C	I	0.612	I	0.282	I	0.000	I	0.106	I
I		I		I	641.0	I	296.0	I	0.0	I	111.0	I
I		I		I	(3.0)	I	(1.0)	I	(0.0)	I	(0.0)	I
I		I		I		I		I		I		I
I		I	ARM D	I	0.257	I	0.445	I	0.298	I	0.000	I
I		I		I	134.0	I	232.0	I	155.0	I	0.0	I
I		I		I	(0.0)	I	(1.0)	I	(2.0)	I	(0.0)	I
I		I		I		I		I		I		I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

[illegible]

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.15-17.30										I
I	ARM A	17.90	27.97	0.640	- -	-	1.1	1.7	25.2	0.098	I
I	ARM B	11.94	21.92	0.545	- -	-	0.7	1.2	17.1	0.100	I
I	ARM C	15.70	33.30	0.472	- -	-	0.6	0.9	13.0	0.057	I
I	ARM D	7.81	18.09	0.432	- -	-	0.5	0.8	10.9	0.097	I
I											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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.30-17.45										I
I	ARM A	21.93	26.41	0.830	- -	-	1.7	4.5	60.6	0.206	I
I	ARM B	14.63	19.60	0.746	- -	-	1.2	2.8	38.5	0.193	I
I	ARM C	19.23	32.44	0.593	- -	-	0.9	1.4	20.9	0.075	I
I	ARM D	9.56	15.87	0.603	- -	-	0.8	1.5	21.0	0.156	I
I											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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.45-18.00										I
I	ARM A	21.93	26.38	0.831	- -	-	4.5	4.7	69.6	0.222	I
I	ARM B	14.63	19.50	0.750	- -	-	2.8	2.9	43.0	0.204	I
I	ARM C	19.23	32.41	0.593	- -	-	1.4	1.4	21.7	0.076	I
I	ARM D	9.56	15.83	0.604	- -	-	1.5	1.5	22.4	0.159	I
I											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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	18.00-18.15										I
I	ARM A	17.90	27.93	0.641	- -	-	4.7	1.8	29.1	0.104	I
I	ARM B	11.94	21.79	0.548	- -	-	2.9	1.2	19.4	0.104	I
I	ARM C	15.70	33.25	0.472	- -	-	1.4	0.9	13.8	0.057	I
I	ARM D	7.81	18.04	0.433	- -	-	1.5	0.8	12.0	0.099	I
I											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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	18.15-18.30										I
I	ARM A	14.99	29.09	0.515	- -	-	1.8	1.1	16.6	0.071	I
I	ARM B	10.00	23.61	0.424	- -	-	1.2	0.7	11.4	0.074	I
I	ARM C	13.15	33.92	0.388	- -	-	0.9	0.6	9.7	0.048	I
I	ARM D	6.54	19.68	0.332	- -	-	0.8	0.5	7.7	0.076	I
I											I

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	1.1 *
17.30	1.7 **
17.45	4.5 *****
18.00	4.7 *****
18.15	1.8 **
18.30	1.1 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.7	*
17.30	1.2	*
17.45	2.8	***
18.00	2.9	***
18.15	1.2	*
18.30	0.7	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.6	*
17.30	0.9	*
17.45	1.4	*
18.00	1.4	*
18.15	0.9	*
18.30	0.6	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	0.5	
17.30	0.8	*
17.45	1.5	*
18.00	1.5	**
18.15	0.8	*
18.30	0.5	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75									
ARM	TOTAL DEMAND	* QUEUEING *	* INCLUSIVE QUEUEING *						
		DELAY *	DELAY *						
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)			
A	1644.8	1096.6	216.4	0.13	216.4	0.13			
B	1097.0	731.3	140.1	0.13	140.1	0.13			
C	1442.5	961.7	88.4	0.06	88.4	0.06			
D	717.1	478.1	81.2	0.11	81.2	0.11			
ALL	4901.5	3267.6	526.0	0.11	526.1	0.11			

* 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

===== end of file =====

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

(c) Copyright TRL Limited, 2010

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"k:\Projects\15342 - Porthkerry Rd, Rhoose, Taylor Wimpey\DESIGN\ARCADY\Wales Airport Hotel\
Wales Airport Hotel 2019 with LDP AM.vai"
(drive-on-the-left) at 10:30:47 on Wednesday, 30 April 2014

FILE PROPERTIES *****

RUN TITLE: Wales Airport Hotel - Forecast Year with LDP AM
LOCATION:
DATE: 15/05/13
CLIENT:
ENUMERATOR: CFKA [CF-40]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Port Road
ARM B - A4226 (W)
ARM C - A4226 (E)

GEOMETRIC DATA -----

T5																			
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	4.20	I	7.00	I	16.00	I	30.00	I	36.00	I	50.0	I	0.638	I	28.667	I
I	ARM	B	I	3.75	I	7.00	I	40.40	I	26.00	I	36.00	I	39.0	I	0.680	I	31.352	I
I	ARM	C	I	3.40	I	7.00	I	38.00	I	60.00	I	36.00	I	20.0	I	0.730	I	33.215	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM B Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA -----

Only sets included in the current run are shown

SCALING FACTORS

T13

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

TIME PERIOD BEGINS(07.15)AND ENDS(08.45)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: AM Forecast Year With LDP

T15

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER	I
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	14.35	I	21.53	I	14.35	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	6.54	I	9.81	I	6.54	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	11.24	I	16.86	I	11.24	I

DEMAND SET TITLE: AM Forecast Year With LDP

T33

I	TIME	I	FROM/T	I	ARM A	I	ARM B	I	ARM C	I
I	07.15 - 08.45	I	ARM A	I	0.000	I	0.010	I	0.990	I
I		I		I	0.0	I	11.0	I	1137.0	I
I		I		I	(0.0)	I	(10.0)	I	(1.0)	I
I		I	ARM B	I	0.011	I	0.000	I	0.989	I
I		I		I	6.0	I	0.0	I	517.0	I
I		I		I	(5.0)	I	(0.0)	I	(0.0)	I
I		I	ARM C	I	0.617	I	0.383	I	0.000	I
I		I		I	555.0	I	344.0	I	0.0	I
I		I		I	(2.0)	I	(6.0)	I	(0.0)	I
I		I		I		I		I		I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	PEDESTRIAN FLOW (PEDS/MIN)	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	DELAY (VEH.MIN/ TIME SEGMENT)	I	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.15-07.30	I		I		I		I		I		I		I		I		I		I
I	ARM A	I	14.40	I	25.48	I	0.565	I	- -	I	0.0	I	1.3	I	18.4	I	-	I	0.089	I
I	ARM B	I	6.56	I	21.59	I	0.304	I	- -	I	0.0	I	0.4	I	6.3	I	-	I	0.066	I
I	ARM C	I	11.28	I	32.03	I	0.352	I	- -	I	0.0	I	0.5	I	7.9	I	-	I	0.048	I

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	PEDESTRIAN FLOW (PEDS/MIN)	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	DELAY (VEH.MIN/ TIME SEGMENT)	I	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.30-07.45	I		I		I		I		I		I		I		I		I		I
I	ARM A	I	17.20	I	24.91	I	0.690	I	- -	I	1.3	I	2.2	I	30.9	I	-	I	0.128	I
I	ARM B	I	7.84	I	19.67	I	0.398	I	- -	I	0.4	I	0.7	I	9.6	I	-	I	0.084	I
I	ARM C	I	13.47	I	32.02	I	0.421	I	- -	I	0.5	I	0.7	I	10.6	I	-	I	0.054	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
ARM A	21.07	24.14	0.873	- -	-	2.2	6.0	76.9	0.282
ARM B	9.60	17.18	0.559	- -	-	0.7	1.2	17.8	0.131
ARM C	16.50	32.00	0.516	- -	-	0.7	1.1	15.5	0.064

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	21.07	24.14	0.873	- -	-	6.0	6.4	93.0	0.317
ARM B	9.60	17.02	0.564	- -	-	1.2	1.3	19.0	0.135
ARM C	16.50	32.00	0.516	- -	-	1.1	1.1	15.9	0.065

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	17.20	24.91	0.691	- -	-	6.4	2.3	37.9	0.139
ARM B	7.84	19.45	0.403	- -	-	1.3	0.7	10.5	0.087
ARM C	13.47	32.02	0.421	- -	-	1.1	0.7	11.2	0.054

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	14.40	25.47	0.566	- -	-	2.3	1.3	20.6	0.092
ARM B	6.56	21.49	0.305	- -	-	0.7	0.4	6.8	0.067
ARM C	11.28	32.03	0.352	- -	-	0.7	0.5	8.3	0.048

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	1.3 *
07.45	2.2 **
08.00	6.0 *****
08.15	6.4 *****
08.30	2.3 **
08.45	1.3 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	0.4
07.45	0.7 *
08.00	1.2 *
08.15	1.3 *
08.30	0.7 *
08.45	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.30	0.5	*
07.45	0.7	*
08.00	1.1	*
08.15	1.1	*
08.30	0.7	*
08.45	0.5	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

										T75
I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I		I
I		I		I	* DELAY *	I	* DELAY *	I		I
I		I		I		I		I		I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN/VEH)	I
I		I		I		I		I		I
I	A	I	1580.1	I	1053.4	I	277.7	I	0.18	I
I	B	I	719.9	I	479.9	I	70.0	I	0.10	I
I	C	I	1237.4	I	824.9	I	69.4	I	0.06	I
I	ALL	I	3537.4	I	2358.3	I	417.1	I	0.12	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

===== end of file =====

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

(c) Copyright TRL Limited, 2010

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"k:\Projects\15342 - Porthkerry Rd, Rhoose, Taylor Wimpey\DESIGN\ARCADY\Wales Airport Hotel\
Wales Airport Hotel 2019 with LDP PM.vai"
(drive-on-the-left) at 10:34:13 on Wednesday, 30 April 2014

FILE PROPERTIES

RUN TITLE: Wales Airport Hotel - 2019 with LDP PM
LOCATION:
DATE: 15/05/13
CLIENT:
ENUMERATOR: CFKA [CF-40]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - Port Road
ARM B - A4226 (W)
ARM C - A4226 (E)

GEOMETRIC DATA

																			T5
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	4.20	I	7.00	I	16.00	I	30.00	I	36.00	I	50.0	I	0.638	I	28.667	I
I	ARM	B	I	3.75	I	7.00	I	40.40	I	26.00	I	36.00	I	39.0	I	0.680	I	31.352	I
I	ARM	C	I	3.40	I	7.00	I	38.00	I	60.00	I	36.00	I	20.0	I	0.730	I	33.215	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM B Effective flare length is outside normal range.
Treat capacities with increasing caution.

WARNING ARM C Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

----- T13

I	ARM	I	FLOW SCALE(%)	I
I	A	I	100	I
I	B	I	100	I
I	C	I	100	I

TIME PERIOD BEGINS(17.00)AND ENDS(18.30)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: PM 2019 with LDP

----- T15

I	ARM	I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	I	TOP OF PEAK	I	FLOW STOPS	I	RATE OF FLOW (VEH/MIN) BEFORE	I	AT TOP	I	AFTER	I
I		I	TO RISE	I	IS REACHED	I	FALLING	I	PEAK	I	OF PEAK	I	PEAK	I
I	ARM A	I	15.00	I	45.00	I	75.00	I	9.49	I	14.23	I	9.49	I
I	ARM B	I	15.00	I	45.00	I	75.00	I	6.44	I	9.66	I	6.44	I
I	ARM C	I	15.00	I	45.00	I	75.00	I	18.16	I	27.24	I	18.16	I

DEMAND SET TITLE: PM 2019 with LDP

----- T33

I	TIME	I	FROM/T	I	ARM A	I	ARM B	I	ARM C	I
I	17.00 - 18.30	I	ARM A	I	0.000	I	0.021	I	0.979	I
I		I		I	0.0	I	16.0	I	743.0	I
I		I		I	(0.0)	I	(0.0)	I	(2.0)	I
I		I	ARM B	I	0.023	I	0.000	I	0.977	I
I		I		I	12.0	I	0.0	I	503.0	I
I		I		I	(0.0)	I	(0.0)	I	(1.0)	I
I		I	ARM C	I	0.687	I	0.313	I	0.000	I
I		I		I	998.0	I	455.0	I	0.0	I
I		I		I	(1.0)	I	(2.0)	I	(0.0)	I
I		I		I		I		I		I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

----- T70

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	PEDESTRIAN FLOW (PEDS/MIN)	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	DELAY (VEH.MIN/ TIME SEGMENT)	I	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.00-17.15	I		I		I		I		I		I		I		I		I		I
I	ARM A	I	9.52	I	24.49	I	0.389	I	- -	I	0.0	I	0.6	I	9.2	I	-	I	0.066	I
I	ARM B	I	6.46	I	24.67	I	0.262	I	- -	I	0.0	I	0.4	I	5.2	I	-	I	0.055	I
I	ARM C	I	18.23	I	32.68	I	0.558	I	- -	I	0.0	I	1.2	I	18.1	I	-	I	0.068	I

I	TIME	I	DEMAND (VEH/MIN)	I	CAPACITY (VEH/MIN)	I	DEMAND/CAPACITY (RFC)	I	PEDESTRIAN FLOW (PEDS/MIN)	I	START QUEUE (VEHS)	I	END QUEUE (VEHS)	I	DELAY (VEH.MIN/ TIME SEGMENT)	I	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	I	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.15-17.30	I		I		I		I		I		I		I		I		I		I
I	ARM A	I	11.37	I	23.78	I	0.478	I	- -	I	0.6	I	0.9	I	13.3	I	-	I	0.080	I
I	ARM B	I	7.72	I	23.41	I	0.330	I	- -	I	0.4	I	0.5	I	7.2	I	-	I	0.064	I
I	ARM C	I	21.77	I	32.66	I	0.667	I	- -	I	1.2	I	2.0	I	28.3	I	-	I	0.091	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.30-17.45										I
I	ARM A	13.93	22.82	0.610	- -	0.9	1.5	22.1	-	0.111	I
I	ARM B	9.45	21.71	0.435	- -	0.5	0.8	11.2	-	0.081	I
I	ARM C	26.66	32.63	0.817	- -	2.0	4.2	58.0	-	0.160	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.45-18.00										I
I	ARM A	13.93	22.79	0.611	- -	1.5	1.6	23.2	-	0.113	I
I	ARM B	9.45	21.68	0.436	- -	0.8	0.8	11.5	-	0.082	I
I	ARM C	26.66	32.63	0.817	- -	4.2	4.3	64.5	-	0.167	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	18.00-18.15										I
I	ARM A	11.37	23.74	0.479	- -	1.6	0.9	14.4	-	0.081	I
I	ARM B	7.72	23.37	0.330	- -	0.8	0.5	7.6	-	0.064	I
I	ARM C	21.77	32.65	0.667	- -	4.3	2.0	32.2	-	0.095	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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	18.15-18.30										I
I	ARM A	9.52	24.46	0.389	- -	0.9	0.6	9.8	-	0.067	I
I	ARM B	6.46	24.63	0.262	- -	0.5	0.4	5.5	-	0.055	I
I	ARM C	18.23	32.68	0.558	- -	2.0	1.3	19.7	-	0.070	I

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.6 *
17.30	0.9 *
17.45	1.5 **
18.00	1.6 **
18.15	0.9 *
18.30	0.6 *

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.15	0.4
17.30	0.5
17.45	0.8 *
18.00	0.8 *
18.15	0.5
18.30	0.4

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.15	1.2	*
17.30	2.0	**
17.45	4.2	****
18.00	4.3	****
18.15	2.0	**
18.30	1.3	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

										T75
I	ARM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I		
I		I		I	* DELAY *	I	* DELAY *	I		
I		I		I		I		I		
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN/VEH)	I
I		I		I		I		I		
I	A	I	1044.7	I	696.5	I	92.0	I	0.09	I
I	B	I	708.9	I	472.6	I	48.1	I	0.07	I
I	C	I	1999.9	I	1333.3	I	220.8	I	0.11	I
I	ALL	I	3753.5	I	2502.3	I	360.9	I	0.10	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

===== end of file =====

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

(c) Copyright TRL Limited, 2010

Adapted from ARCADY/3 which is Crown Copyright
by permission of the controller of HMSO

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"k:\Projects\15342 - Porthkerry Rd, Rhoose, Taylor Wimpey\DESIGN\ARCADY\BAMC Roundabout\
BAMC Roundabout 2019 + LDP AM.vai"
(drive-on-the-left) at 10:41:14 on Wednesday, 30 April 2014

FILE PROPERTIES

RUN TITLE: BAMC Roundabout - Forecast Year with LDP AM
LOCATION:
DATE: 15/05/13
CLIENT:
ENUMERATOR: CFKA [CF-40]
JOB NUMBER:
STATUS:
DESCRIPTION:

INPUT DATA

ARM A - A4226
ARM B - To Airport
ARM C - Dragonfly Drive
ARM D - B4265
ARM E - Tredogan Road

GEOMETRIC DATA

T5																			
I	ARM	I	V (M)	I	E (M)	I	L (M)	I	R (M)	I	D (M)	I	PHI (DEG)	I	SLOPE	I	INTERCEPT (PCU/MIN)	I	
I	ARM	A	I	3.25	I	9.50	I	15.00	I	30.00	I	90.00	I	43.0	I	0.456	I	29.077	I
I	ARM	B	I	3.20	I	7.30	I	16.00	I	20.00	I	90.00	I	36.0	I	0.440	I	26.963	I
I	ARM	C	I	3.60	I	7.20	I	14.50	I	14.00	I	90.00	I	26.0	I	0.453	I	28.111	I
I	ARM	D	I	3.40	I	7.20	I	29.00	I	40.00	I	90.00	I	40.0	I	0.471	I	30.376	I
I	ARM	E	I	2.00	I	8.00	I	43.00	I	68.00	I	90.00	I	15.0	I	0.521	I	33.735	I

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM E Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

IARM	I	FLOW	SCALE(%)	I
I A	I		100	I
I B	I		100	I
I C	I		100	I
I D	I		100	I
I E	I		100	I

TIME PERIOD BEGINS(07.15)AND ENDS(08.45)

LENGTH OF TIME PERIOD - (90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: AM 2019 + LDP

TABLE 3-10. PEAK FLOW AND PEAK FLOW RATES										T15					
I	ARM	I	NUMBER OF MINUTES FROM START WHEN			RATE OF FLOW (VEH/MIN)			I						
			I	I	I	I	I	I							
										I	I	I			
													I	I	I
I		I	FLOW STARTS	TOP OF PEAK	FLOW STOPS	BEFORE	AT TOP	AFTER	I						
I		I	TO RISE	IS REACHED	FALLING	PEAK	OF PEAK	PEAK	I						
I	ARM	A	I	15.00	I	45.00	I	75.00	I	4.63	I	6.94	I	4.63	I
I	ARM	B	I	15.00	I	45.00	I	75.00	I	1.02	I	1.54	I	1.02	I
I	ARM	C	I	15.00	I	45.00	I	75.00	I	0.08	I	0.11	I	0.08	I
I	ARM	D	I	15.00	I	45.00	I	75.00	I	6.68	I	10.01	I	6.68	I
I	ARM	E	I	15.00	I	45.00	I	75.00	I	0.25	I	0.38	I	0.25	I

DEMAND SET TITLE: AM 2019 + LDP

											T33				
I											I				
I	TURNING PROPORTIONS										I				
I	TURNING COUNTS										I				
I	(PERCENTAGE OF H.V.S.)										I				
I	TIME	I	FROM/T	I	ARM A	I	ARM B	I	ARM C	I	ARM D	I	ARM E	I	
I	07.15 - 08.45	I		I		I		I		I		I		I	
I		ARM A	I	0.000	I	0.097	I	0.054	I	0.843	I	0.005	I		
I			I	0.0	I	36.0	I	20.0	I	312.0	I	2.0	I		
I			I	(0.0)	I <td>(0.0)</td> <th>I<td>(0.0)</td><th>I<td>(13.0)</td><th>I<td>(0.0)</td><th>I</th></th></th></th>	(0.0)	I <td>(0.0)</td> <th>I<td>(13.0)</td><th>I<td>(0.0)</td><th>I</th></th></th>	(0.0)	I <td>(13.0)</td> <th>I<td>(0.0)</td><th>I</th></th>	(13.0)	I <td>(0.0)</td> <th>I</th>	(0.0)	I		
I			I		I <td></td> <th>I<td></td><th>I<td></td><th>I<td></td><th>I</th></th></th></th>		I <td></td> <th>I<td></td><th>I<td></td><th>I</th></th></th>		I <td></td> <th>I<td></td><th>I</th></th>		I <td></td> <th>I</th>		I		
I			I	ARM B	I	0.659	I	0.000	I	0.049	I	0.293	I	0.000	I
I			I		I	54.0	I	0.0	I	4.0	I	24.0	I	0.0	I
I			I		I	(5.0)	I	(0.0)	I	(0.0)	I	(21.0)	I	(0.0)	I
I			I		I <td></td> <th>I<td></td><th>I<td></td><th>I<td></td><th>I<td></td><th>I</th></th></th></th></th>		I <td></td> <th>I<td></td><th>I<td></td><th>I<td></td><th>I</th></th></th></th>		I <td></td> <th>I<td></td><th>I<td></td><th>I</th></th></th>		I <td></td> <th>I<td></td><th>I</th></th>		I <td></td> <th>I</th>		I
I			I	ARM C	I	0.667	I	0.000	I	0.000	I	0.333	I	0.000	I
I			I		I	4.0	I	0.0	I	0.0	I	2.0	I	0.0	I
I			I		I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I			I		I <td></td> <th>I<td></td><th>I<td></td><th>I<td></td><th>I<td></td><th>I</th></th></th></th></th>		I <td></td> <th>I<td></td><th>I<td></td><th>I<td></td><th>I</th></th></th></th>		I <td></td> <th>I<td></td><th>I<td></td><th>I</th></th></th>		I <td></td> <th>I<td></td><th>I</th></th>		I <td></td> <th>I</th>		I
I			I	ARM D	I	0.895	I	0.077	I	0.026	I	0.000	I	0.002	I
I			I		I	478.0	I	41.0	I	14.0	I	0.0	I	1.0	I
I			I		I	(5.0)	I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I			I		I <td></td> <th>I<td></td><th>I<td></td><th>I<td></td><th>I<td></td><th>I</th></th></th></th></th>		I <td></td> <th>I<td></td><th>I<td></td><th>I<td></td><th>I</th></th></th></th>		I <td></td> <th>I<td></td><th>I<td></td><th>I</th></th></th>		I <td></td> <th>I<td></td><th>I</th></th>		I <td></td> <th>I</th>		I
I			I	ARM E	I	0.800	I	0.100	I	0.000	I	0.100	I	0.000	I
I			I		I	16.0	I	2.0	I	0.0	I	2.0	I	0.0	I
I			I		I	(7.0)	I	(0.0)	I	(0.0)	I	(0.0)	I	(0.0)	I
I			I		I		I <td></td> <th>I<td></td><th>I<td></td><th>I<td></td><th>I</th></th></th></th>		I <td></td> <th>I<td></td><th>I<td></td><th>I</th></th></th>		I <td></td> <th>I<td></td><th>I</th></th>		I <td></td> <th>I</th>		I

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

	T70
I TIME DEMAND CAPACITY DEMAND/ PEDESTRIAN START END DELAY GEOMETRIC DELAY AVERAGE DELAY I I (VEH/MIN) (VEH/MIN) CAPACITY FLOW QUEUE QUEUE (VEH./MIN/ (VEH./MIN/ PER ARRIVING I I (RFC) (PEDS/MIN) (VEHS) (VEHS) TIME SEGMENT) TIME SEGMENT) VEHICLE (MIN) I	
-	-
I 07.15-07.30	I
I ARM A 4.64 25.90 0.179 - - - 0.0 0.2 3.2 - 0.047 I	I
I ARM B 1.03 22.67 0.045 - - - 0.0 0.0 0.7 - 0.046 I	I
I ARM C 0.08 25.61 0.003 - - - 0.0 0.0 0.0 - 0.039 I	I
I ARM D 6.70 28.72 0.233 - - - 0.0 0.3 4.5 - 0.045 I	I
I ARM E 0.25 28.14 0.009 - - - 0.0 0.0 0.1 - 0.036 I	I
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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.30-07.45									
ARM A	5.54	25.84	0.215	-	0.2	0.3	4.0	-	0.049
ARM B	1.23	22.29	0.055	-	0.0	0.1	0.9	-	0.047
ARM C	0.09	25.11	0.004	-	0.0	0.0	0.1	-	0.040
ARM D	8.00	28.65	0.279	-	0.3	0.4	5.7	-	0.048
ARM E	0.30	27.39	0.011	-	0.0	0.0	0.2	-	0.037

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
ARM A	6.79	25.76	0.264	-	0.3	0.4	5.3	-	0.053
ARM B	1.50	21.76	0.069	-	0.1	0.1	1.1	-	0.049
ARM C	0.11	24.44	0.005	-	0.0	0.0	0.1	-	0.041
ARM D	9.80	28.56	0.343	-	0.4	0.5	7.7	-	0.053
ARM E	0.37	26.36	0.014	-	0.0	0.0	0.2	-	0.038

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
ARM A	6.79	25.76	0.264	-	0.4	0.4	5.4	-	0.053
ARM B	1.50	21.76	0.069	-	0.1	0.1	1.1	-	0.049
ARM C	0.11	24.44	0.005	-	0.0	0.0	0.1	-	0.041
ARM D	9.80	28.56	0.343	-	0.5	0.5	7.8	-	0.053
ARM E	0.37	26.36	0.014	-	0.0	0.0	0.2	-	0.038

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
ARM A	5.54	25.84	0.215	-	0.4	0.3	4.2	-	0.049
ARM B	1.23	22.28	0.055	-	0.1	0.1	0.9	-	0.048
ARM C	0.09	25.11	0.004	-	0.0	0.0	0.1	-	0.040
ARM D	8.00	28.65	0.279	-	0.5	0.4	5.9	-	0.048
ARM E	0.30	27.38	0.011	-	0.0	0.0	0.2	-	0.037

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)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
ARM A	4.64	25.90	0.179	-	0.3	0.2	3.3	-	0.047
ARM B	1.03	22.67	0.045	-	0.1	0.0	0.7	-	0.046
ARM C	0.08	25.60	0.003	-	0.0	0.0	0.0	-	0.039
ARM D	6.70	28.72	0.233	-	0.4	0.3	4.6	-	0.045
ARM E	0.25	28.12	0.009	-	0.0	0.0	0.1	-	0.036

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.30	0.2
07.45	0.3
08.00	0.4
08.15	0.4
08.30	0.3
08.45	0.2