CAPITA
GLAMORGAN CONSULTANCY

Proposed Enviroparks Recycling Plant Development, Hirwaun

ARCADY Junction Capacity Assessments

Introduction

Capita Glamorgan Consultancy (CGC) were employed in October 2008 by Dr. Amanda Owen, representing Environmental Visage Ltd, to undertake ARCADY junctions assessments at the following three locations:

Junction A - Fifth Avenue/Main Avenue/Spine Road Roundabout, Hirwaun Estate.

Junction B - A4061 Rhigos Road/Access to Hirwaun Estate Roundabout.

Junction C - A465 Heads of the Valleys Road/A4059 Rhigos Road/Pontpren Roundabout.

Traffic surveys were undertaken by Capita Glamorgan Consultancy on Tuesday 30th September 2008 for both Junctions A and B and on the 1st October 2008 for Junction C. The surveys periods were 07:15 to 09:15 and 16:00 to 18:00 in order to record the peak hour for each junction. Plans showing the location of the traffic surveys and the peak period and peak hour turning movements are included in **Appendix 1** of this report.

The assessments in this report do not include any reviewing of the traffic data as supplied by the client.

Modelling

The client required assessments to include the Base Year 2008 and to include the additional development traffic for the Opening Year 2010 and Design year 2025. The client has provided the development traffic flows to CGC separately and the client has also provided diagrams showing the Opening and Design Year flows at the three junctions to be assessed. These are contained in **Appendix 2**.

The three roundabouts have been modelled using TRL Ltd. ARCADY software, which is the industry standard software package for modelling traffic flows at roundabouts. The geometry measurements to create the model are included in **Appendix 3**.

Modelling Results

Junction A - Fifth Avenue / Main Avenue / Spine Road Roundabout, Hirwaun Estate.

The ARCADY results provide the Ratio to Flow Capacity (RFC), which indicates how a junction is operating. An RFC no more than 0.85 is conventionally taken to indicate that there is sufficient spare capacity, an RFC above 0.85 indicates that capacity problems may occur and an RFC approaching or above 1.0 indicates that capacity is likely to be exceeded and remedial action is likely to be required. The queues that occur are indicative of any capacity problems.

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The results of the Base, Opening and Design Year ARCADY assessments for Junction A are contained in **Appendix 4** and summarised in **Tables 1, 2 and 3**.

Junction A - Main Avenue / Fifth Avenue Roundabout

Table 1. Base Year 2008

		A.M.		P.M.	
Mvt.	Approach Arm description	RFC	Queue	RFC	Queue
A	Fifth Avenue (Site)	0.16	0	0.066	1
B	Spine Road	0.011	0	0.025	0
C	Link to Rhigos Rbt.	0.103	1	0.028	0
D	Main Avenue	0.018	0	0.035	0

Table 2. Opening Year 2010 With Development

		A.M.		P.M.	
Mvt.	Approach Arm description	RFC	Queue	RFC	Queue
A	Fifth Avenue (Site)	0.021	0	0.153	1
B	Spine Road	0.012	0	0.034	0
C	Link to Rhigos Rbt.	0.153	1	0.051	1
D	Main Avenue	0.023	0	0.047	0

Table 3. Design Year 2025 With Development

		A.M.		P.M.	
Mvt.	Approach Arm description	RFC	Queue	RFC	Queue
A	Fifth Avenue (Site)	0.022	0	0.167	1
B	Spine Road	0.014	0	0.039	0
C	Link to Rhigos Rbt.	0.167	1	0.055	1
D	Main Avenue	0.025	0	0.049	1

The results show that there is significant spare capacity in the Design Year 2025 with the development in place with a maximum RFC of 0.167 and maximum queues of 1 vehicle.

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Junction B -A4061 Rhigos Road / Access to Hirwaun Estate Roundabout.

The results of the Base, Opening and Design Year ARCADY assessments for Junction B are contained in **Appendix 5** and summarised in **Tables 4, 5 and 6,** overleaf.

Junction B - A4061 Rhigos Road/Access to Hirwaun Estate Roundabout.

Table 4. Base Year 2008

		A.M.		P.M.	
Mvt.	Approach Arm description	RFC	Queue	RFC	Queue
A	Link Road to Ind. Estate	0.015	0	0.097	1
B	A4061 Rhigos Road (A465)	0.340	1	0.313	1
C	A4061 Rhigos Road (Treherbert)	0.187	1	0.114	1
D	Rhigos Road (Rhigos)	0.116	1	0.135	1

Table 5. Opening Year 2010 With Development

		A.M.		P.M.	
Mvt.	Approach Arm description	RFC	Queue	RFC	Queue
A	Link Road to Ind. Estate	0.02	0	0.164	1
B	A4061 Rhigos Road (A465)	0.439	1	0.399	1
C	A4061 Rhigos Road (Treherbert)	0.230	1	0.138	1
D	Rhigos Road (Rhigos)	0.146	1	0.166	1

Table 6. Design Year 2025 With Development

		A.M.		P.M.	
Mvt.	Approach Arm description	RFC	Queue	RFC	Queue
A	Link Road to Ind. Estate	0.022	0	0.181	1
B	A4061 Rhigos Road (A465)	0.486	1	0.443	1
C	A4061 Rhigos Road (Treherbert)	0.261	1	0.156	1
D	Rhigos Road (Rhigos)	0.168	1	0.188	1

The results show that there is significant spare capacity in the Design Year 2025 with the development in place with a maximum RFC of 0.486 and maximum queues of 1 vehicle.

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Junction C - A465 Heads of the Valleys Road / A4059 Rhigos Road / Pontpren Roundabout.

The results of the Base, Opening and Design Year ARCADY assessments for Junction C are contained in **Appendix 6** and summarised in **Tables 7, 8 and 9,** overleaf.

Junction C - A465 Heads of the Valleys Road/A4059 Rhigos Road/Pontpren Roundabout

Table 7. Base Year 2008

		A.M.		P.M.	
Mvt.	Approach Arm description	RFC	Queue	RFC	Queue
A	A4059 Pontpren (Penderyn)	0.225	1	0.167	1
B	A465 Heads of the Valleys (Hirwaun)	0.461	1	0.454	1
C	A4061 Rhigos Road	0.266	1	0.351	1
D	A465 Heads of the Valleys (Glynneath)	0.494	1	0.444	1

Table 8. Opening Year 2010 With Development

		A.M.		P.M.	
Mvt.	Approach Arm description	RFC	Queue	RFC	Queue
A	A4059 Pontpren (Penderyn)	0.288	1	0.215	1
B	A465 Heads of the Valleys (Hirwaun)	0.566	2	0.549	2
C	A4061 Rhigos Road	0.333	1	0.475	1
D	A465 Heads of the Valleys (Glynneath)	0.592	2	0.546	2

Table 9. Design Year 2025 With Development

		A.M.		P.M.	
Mvt.	Approach Arm description	RFC	Queue	RFC	Queue
A	A4059 Pontpren (Penderyn)	0.347	1	0.256	1
B	A465 Heads of the Valleys (Hirwaun)	0.640	2	0.619	2
C	A4061 Rhigos Road	0.392	1	0.556	2
D	A465 Heads of the Valleys (Glynneath)	0.672	2	0.628	2

The results show that there is significant spare capacity in the Design Year 2025 with the development in place with a maximum RFC of 0.672 and maximum queues of 2 vehicles.

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Summary

Three roundabouts have been modelled appropriately using TRL Ltd. ARCADY software. The client has provided the predicted traffic flows for the proposed Enviroparks Recycling Centre for an Opening Year 2010 and Design Year 2025.

Conclusions

As a result of the modelling process using the traffic flows provided the three junctions assessed demonstrate significant spare capacity in the Opening Year 2010 and Design Year 2025 with the development traffic in place.

Dean Mears

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Appendix 1

Traffic Surveys

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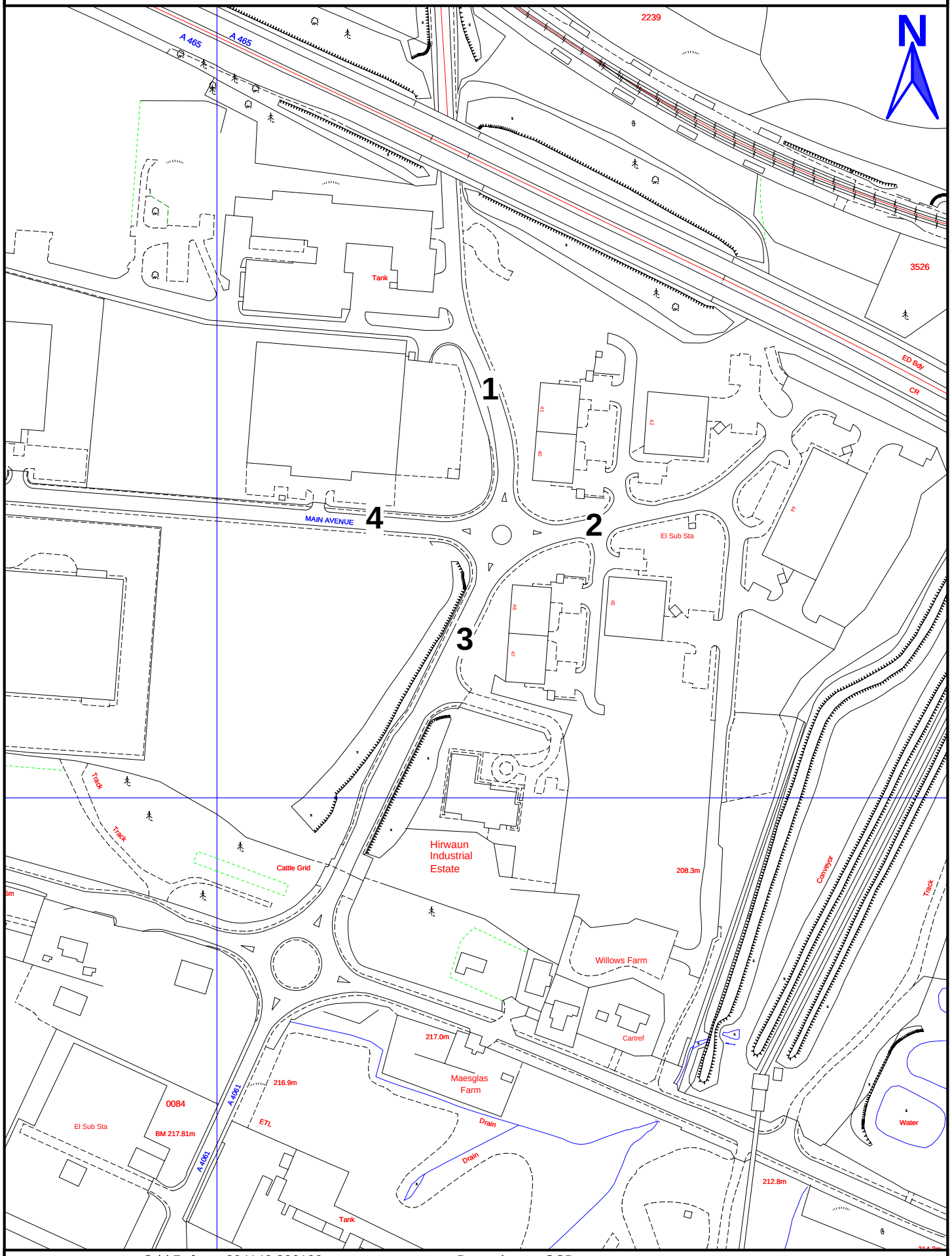

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IG.Germain, Director, Capita Glamorgan Consultancy
Moy Road Industrial Estate, Taff's Well, Cardiff CF15 7GE.

Enviroparks Study - Site A

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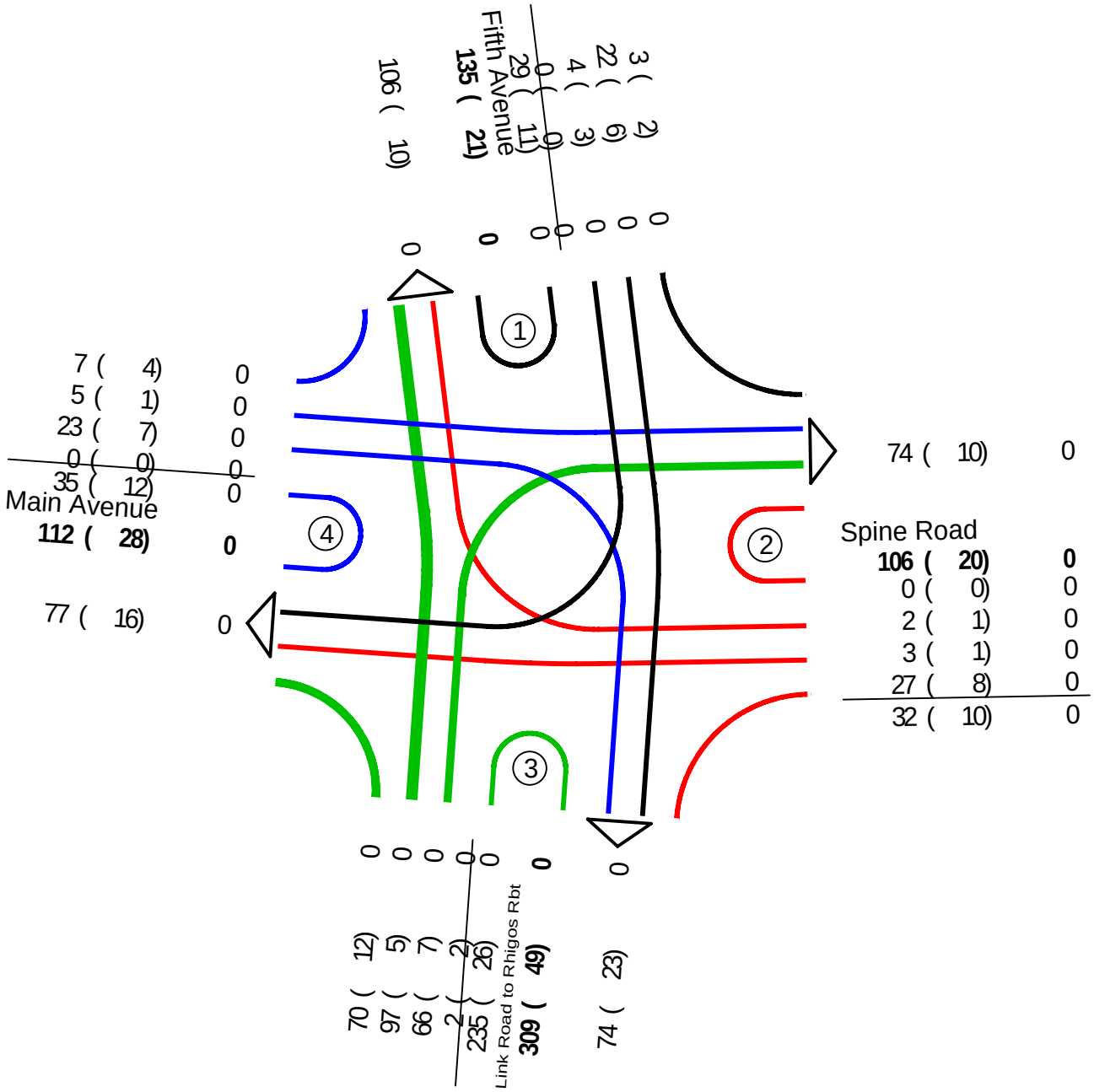
Main Avenue/Fifth Avenue Roundabout. Site A

site : CY0945
place : Hirwaun Estate
date : Tuesday, 30/09/2008
block : 07:15 - 09:15 hrs

1 Fifth Avenue
2 Spine Road
3 Link Road to Rhigos Rbt
4 Main Avenue

Grid ref. 294140 206130
Job no. G00002

N



Veh (HGV) Cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

Cyc=Cyc

0 250 500 Veh

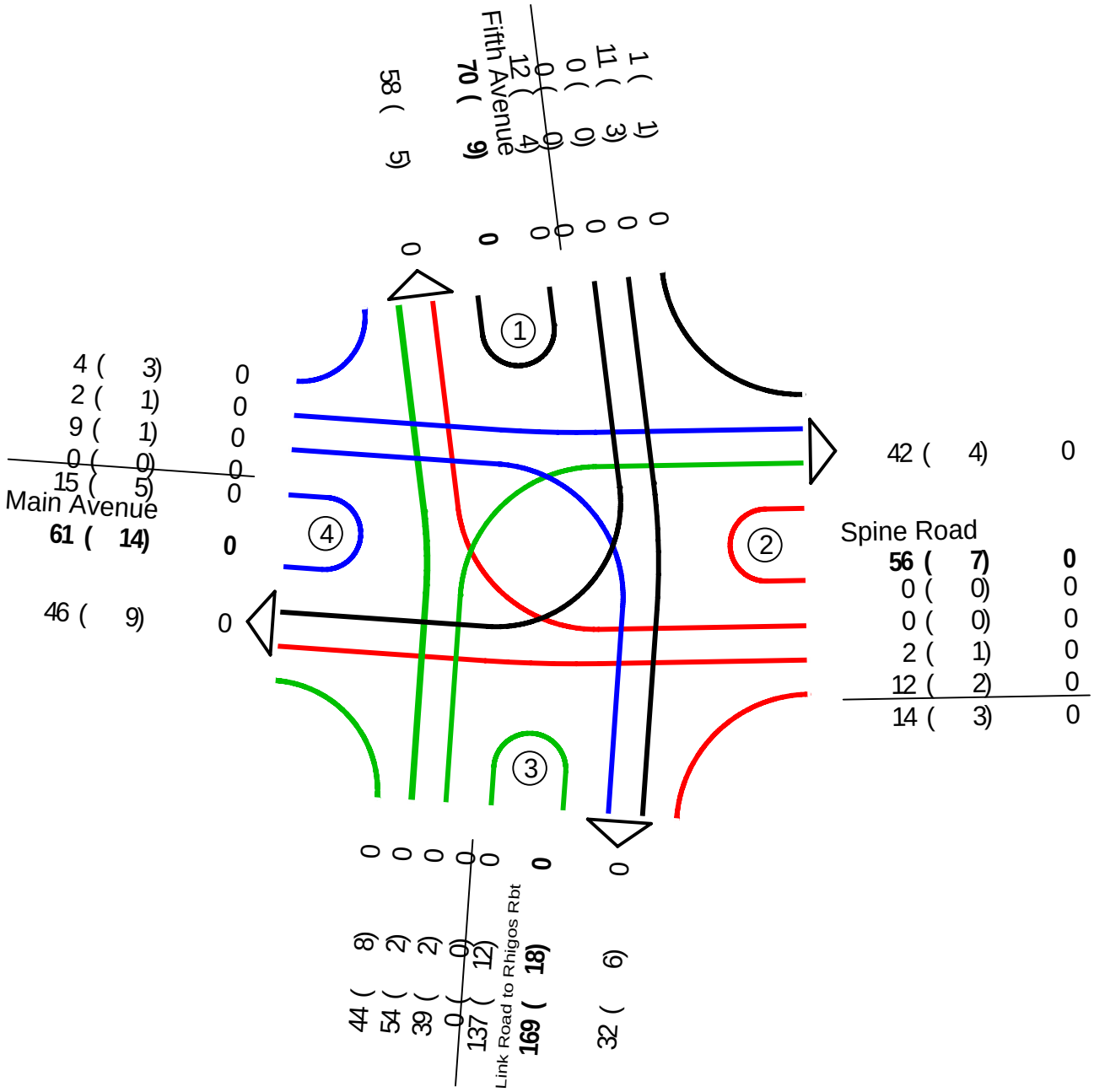
Main Avenue/Fifth Avenue Roundabout. Site A

site : CY0945
place : Hirwaun Estate
date : Tuesday, 30/09/2008
block : 07:15 - 09:15 hrs
peak-hour : 07:30 - 08:30 hrs

1 Fifth Avenue
2 Spine Road
3 Link Road to Rhigos Rbt
4 Main Avenue

Grid ref. 294140 206130
Job no. G00002

N



Veh (HGV) Cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

Cyc=Cyc

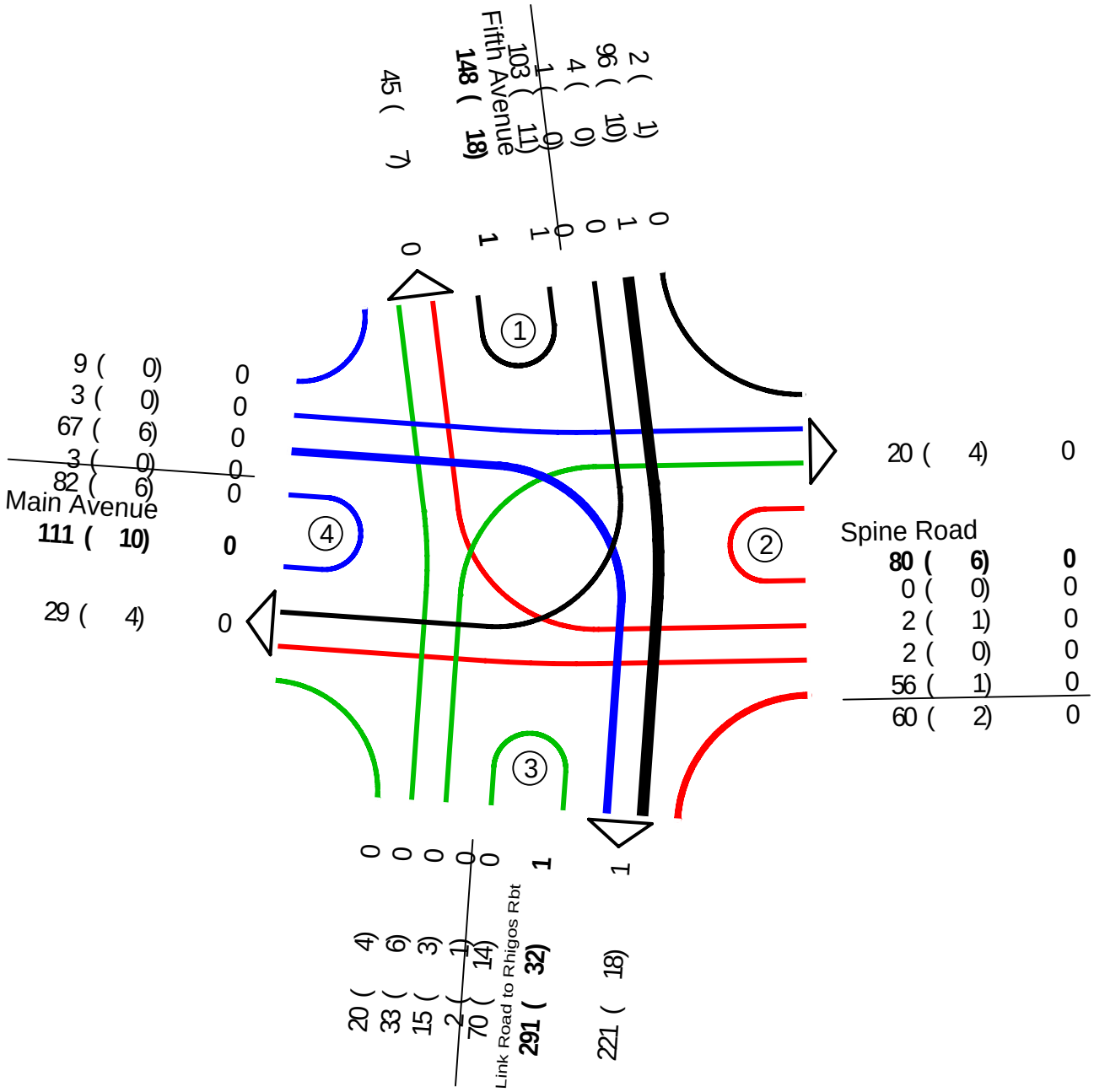
0 250 500 Veh

Main Avenue/Fifth Avenue Roundabout. Site A

site : CY0945
place : Hirwaun Estate
date : Tuesday, 30/09/2008
block : 16:00 - 18:00 hrs

1 Fifth Avenue
2 Spine Road
3 Link Road to Rhigos Rbt
4 Main Avenue

Grid ref. 294140 206130
Job no. G00002



Veh (HGV) Cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

Cyc=Cyc

0 250 500 Veh

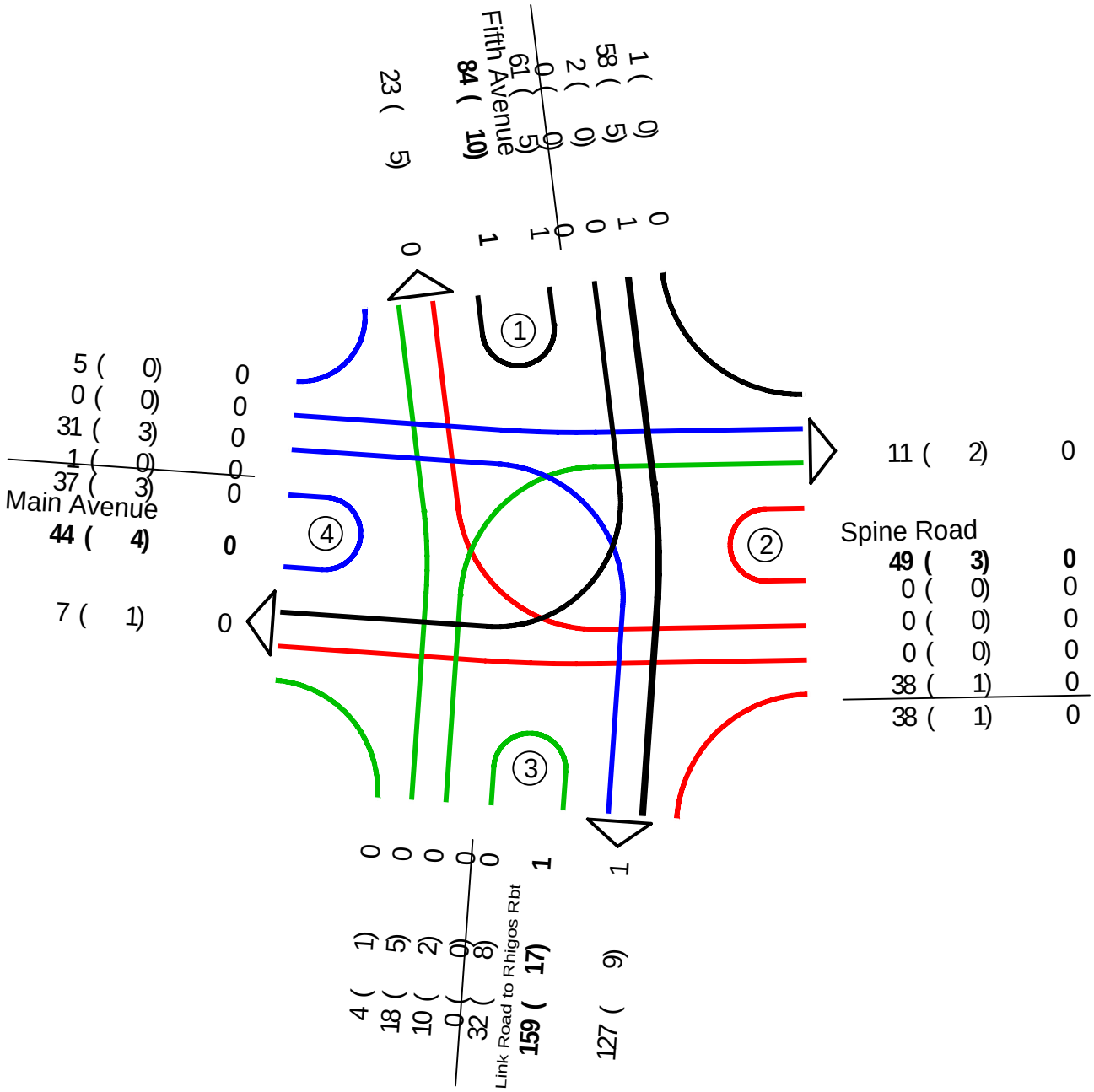
Main Avenue/Fifth Avenue Roundabout. Site A

site : CY0945
place : Hirwaun Estate
date : Tuesday, 30/09/2008
block : 16:00 - 18:00 hrs
peak-hour : 16:15 - 17:15 hrs

1 Fifth Avenue
2 Spine Road
3 Link Road to Rhigos Rbt
4 Main Avenue

Grid ref. 294140 206130
Job no. G00002

N



Veh (HGV) Cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

Cyc=Cyc

0 250 500 Veh

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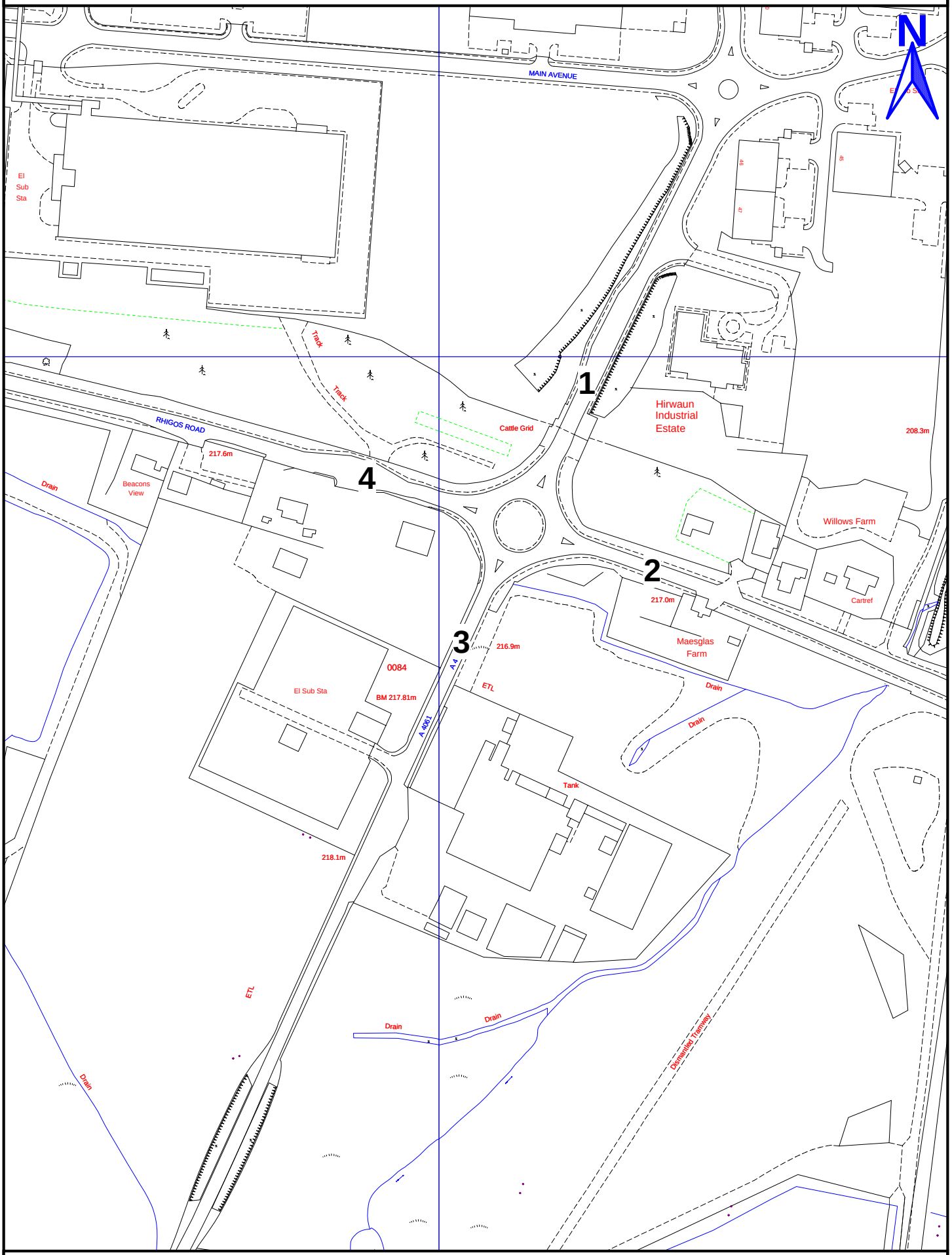

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Moy Road Industrial Estate, Taff's Well, Cardiff CF15 7GE.

Enviroparks Study - Site B

Reproduced from the 1994 Ordnance Survey Crown Copyright RCTCBC LA090171

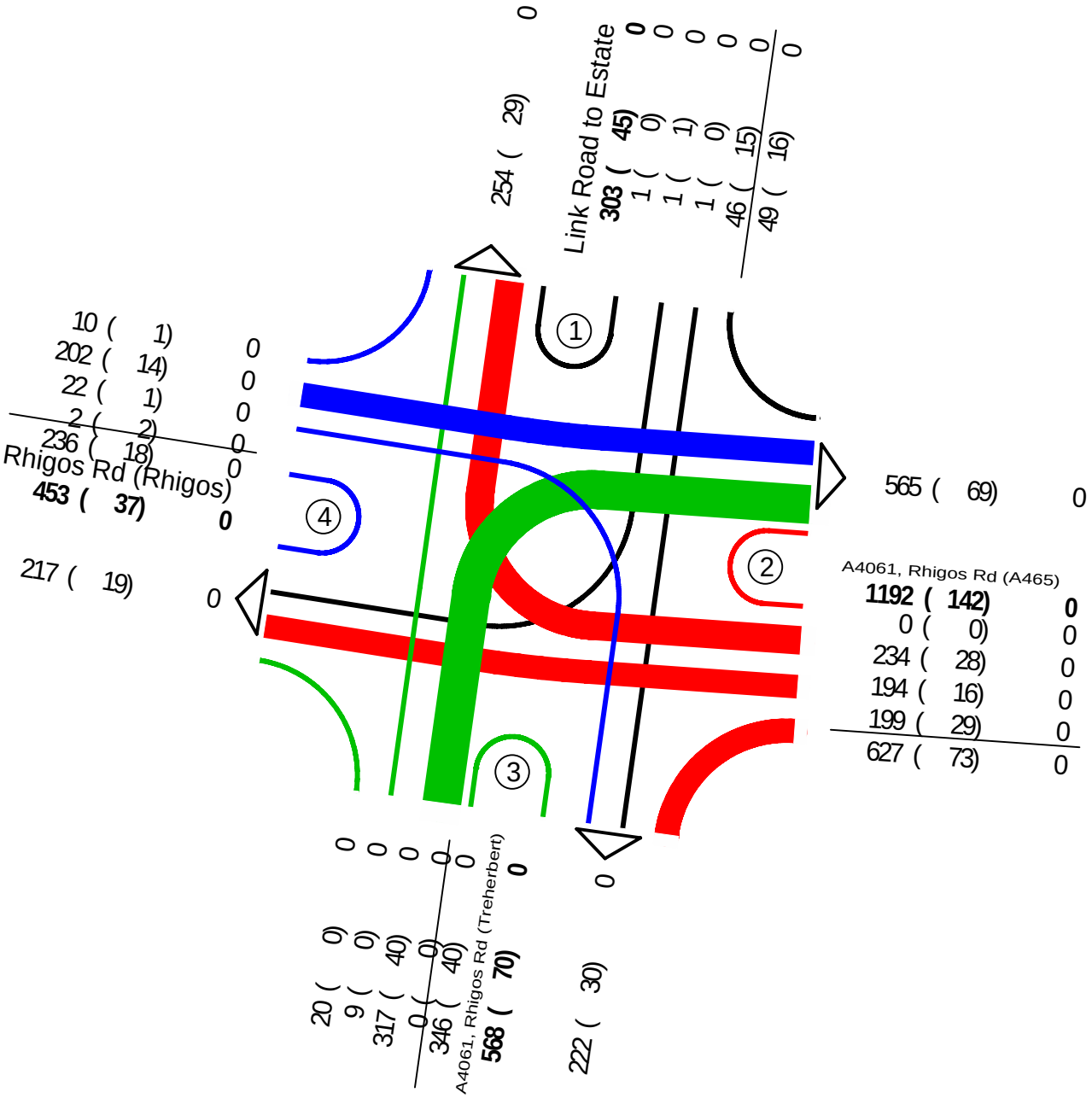
A4061, Rhigos Rd / Link Road to Estate. Site B

site : CY0944
place : Hirwaun Estate
date : Tuesday, 30/09/2008
block : 07:15 - 09:15 hrs

N

1 Link Road to Estate
2 A4061, Rhigos Rd (A465)
3 A4061, Rhigos Rd (Treherbert)
4 Rhigos Rd (Rhigos)

Grid ref. 294040 205910
Job no. G00002



Veh (HGV) Cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

Cyc=Cyc

0 250 500 Veh

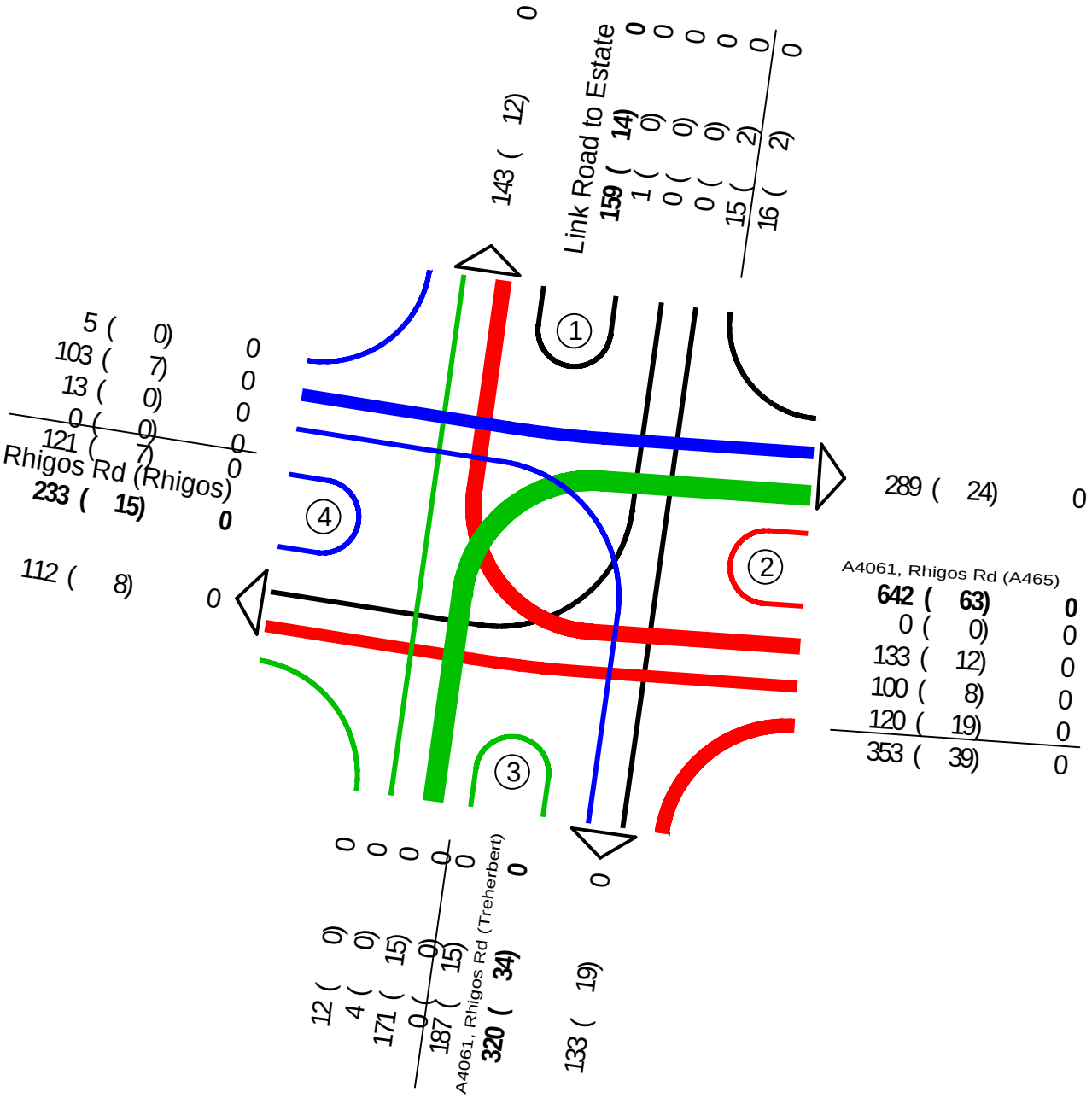
A4061, Rhigos Rd / Link Road to Estate. Site B

site	: CY0944
place	: Hirwaun Estate
date	: Tuesday, 30/09/2008
block	: 07:15 - 09:15 hrs
peak-hour	: 07:30 - 08:30 hrs

1 Link Road to Estate
2 A4061, Rhigos Rd (A465)
3 A4061, Rhigos Rd (Treherbert)
4 Rhigos Rd (Rhigos)

Grid ref. 294040 205910
Job no. G00002

N



Veh (HGV) Cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

Cyc=Cyc

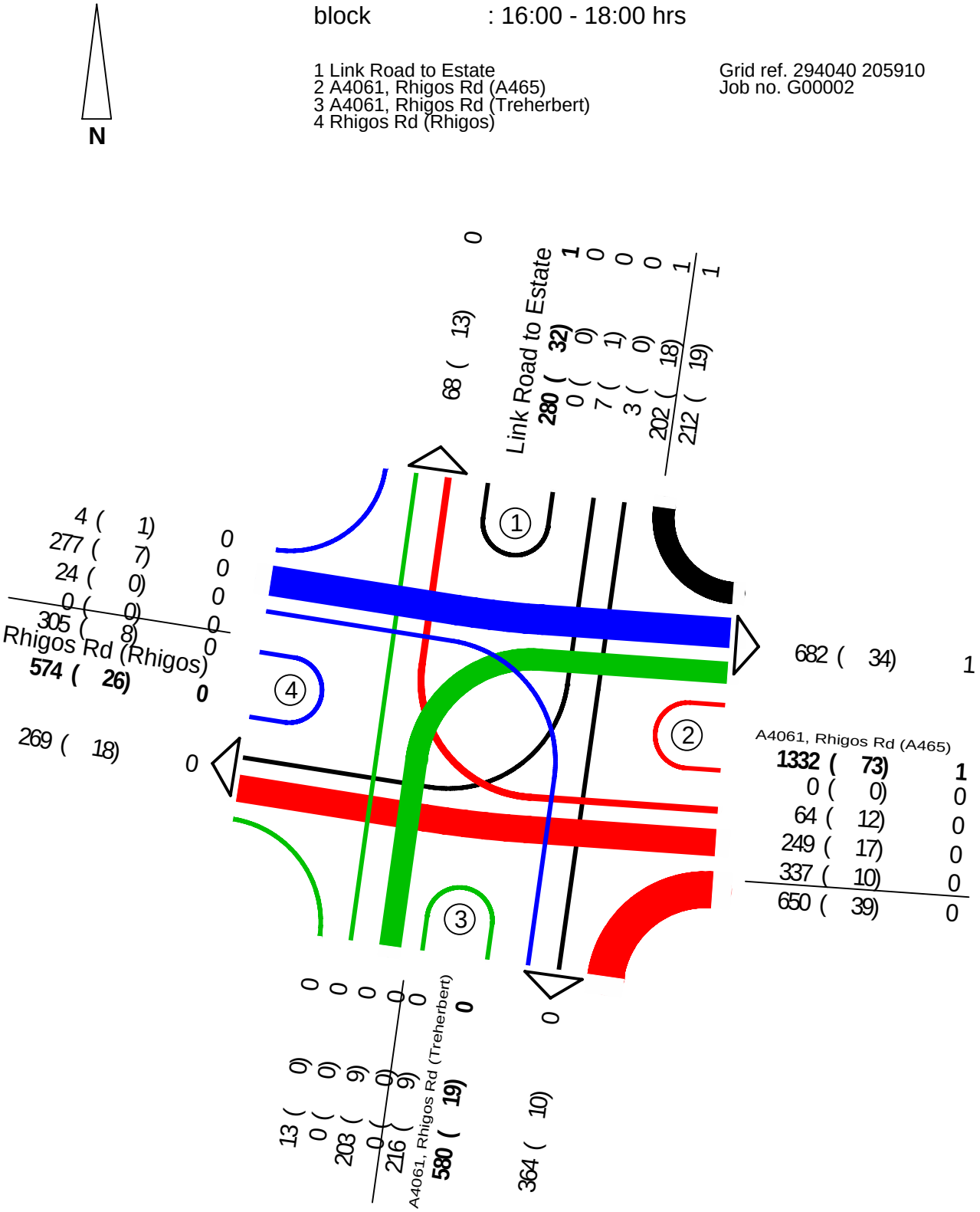
0 250 500 Veh

A4061, Rhigos Rd / Link Road to Estate. Site B

site : CY0944
place : Hirwaun Estate
date : Tuesday, 30/09/2008
block : 16:00 - 18:00 hrs

1 Link Road to Estate
2 A4061, Rhigos Rd (A465)
3 A4061, Rhigos Rd (Treherbert)
4 Rhigos Rd (Rhigos)

Grid ref. 294040 205910
Job no. G00002



Veh (HGV) Cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

Cyc=Cyc

0 250 500 Veh

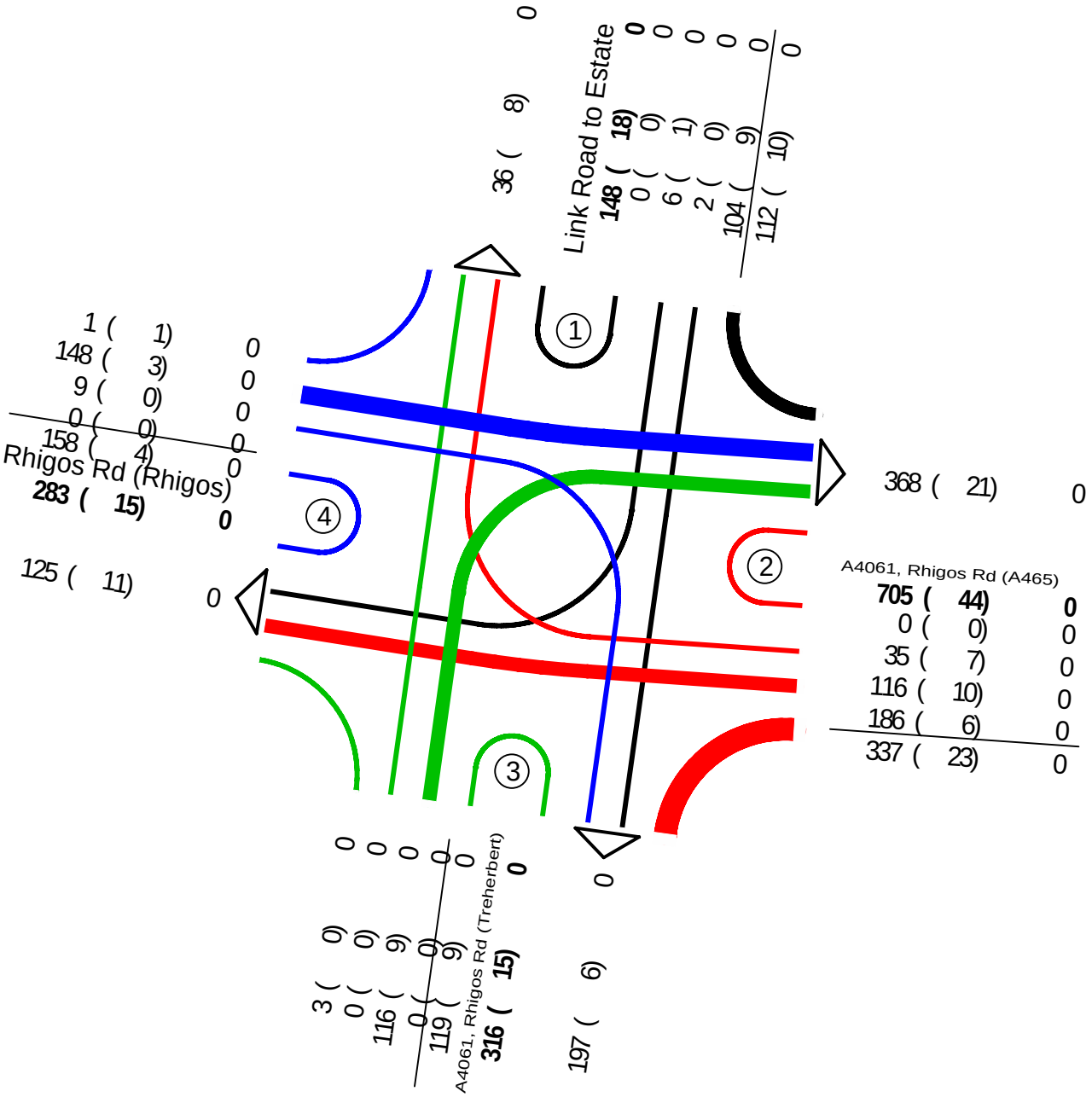
A4061, Rhigos Rd / Link Road to Estate. Site B

site	: CY0944
place	: Hirwaun Estate
date	: Tuesday, 30/09/2008
block	: 16:00 - 18:00 hrs
peak-hour	: 16:00 - 17:00 hrs

1 Link Road to Estate
2 A4061, Rhigos Rd (A465)
3 A4061, Rhigos Rd (Treherbert)
4 Rhigos Rd (Rhigos)

Grid ref. 294040 205910
Job no. G00002

N



Veh (HGV) Cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

Cyc=Cyc

0 250 500 Veh

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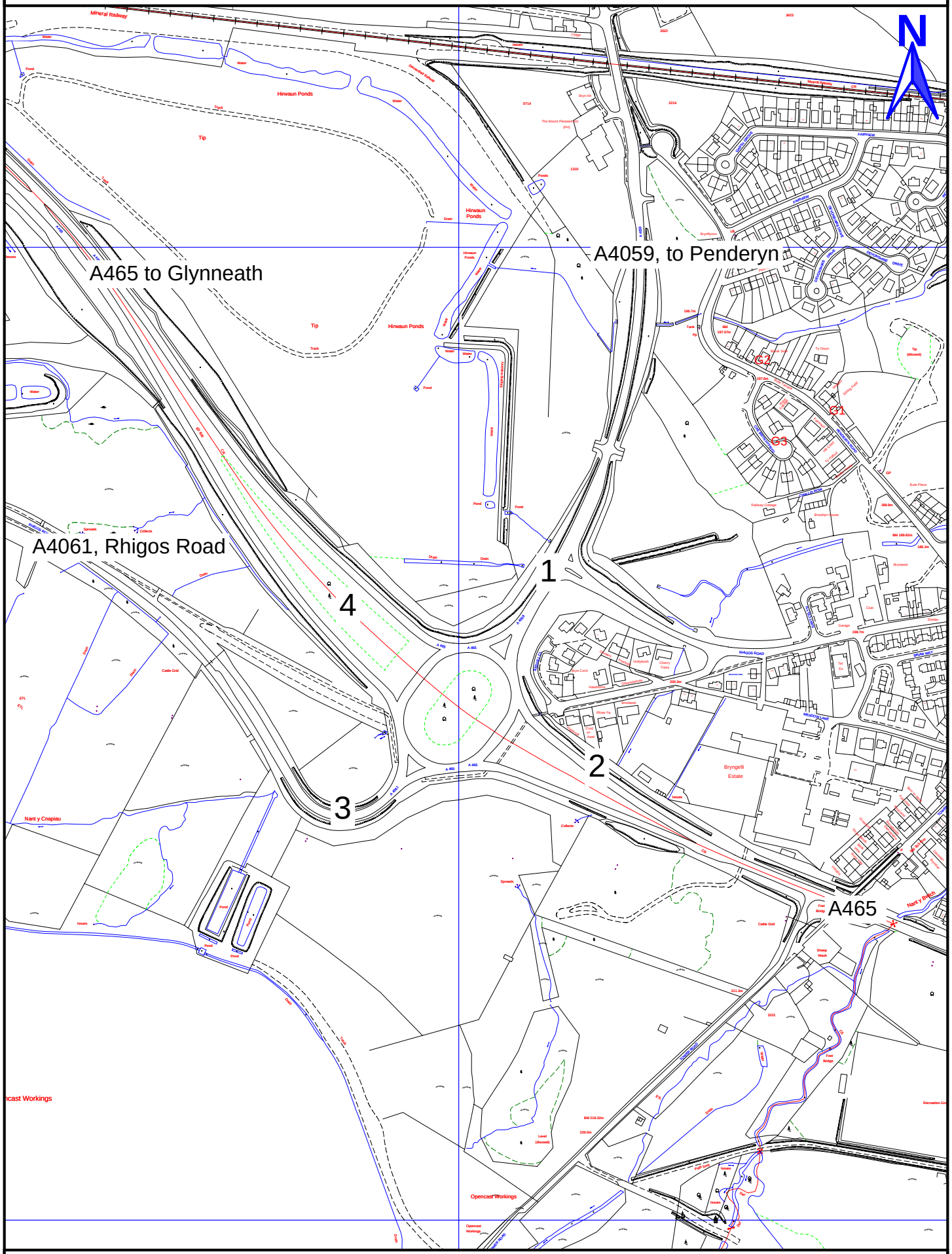

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Job No :	: G00002	Checked by : 07.15-09.15 and 16.00-18.0	Date : 01/10/2008

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Moy Road Industrial Estate, Taff's Well, Cardiff CF15 7GE.

Enviroparks Study - Site C

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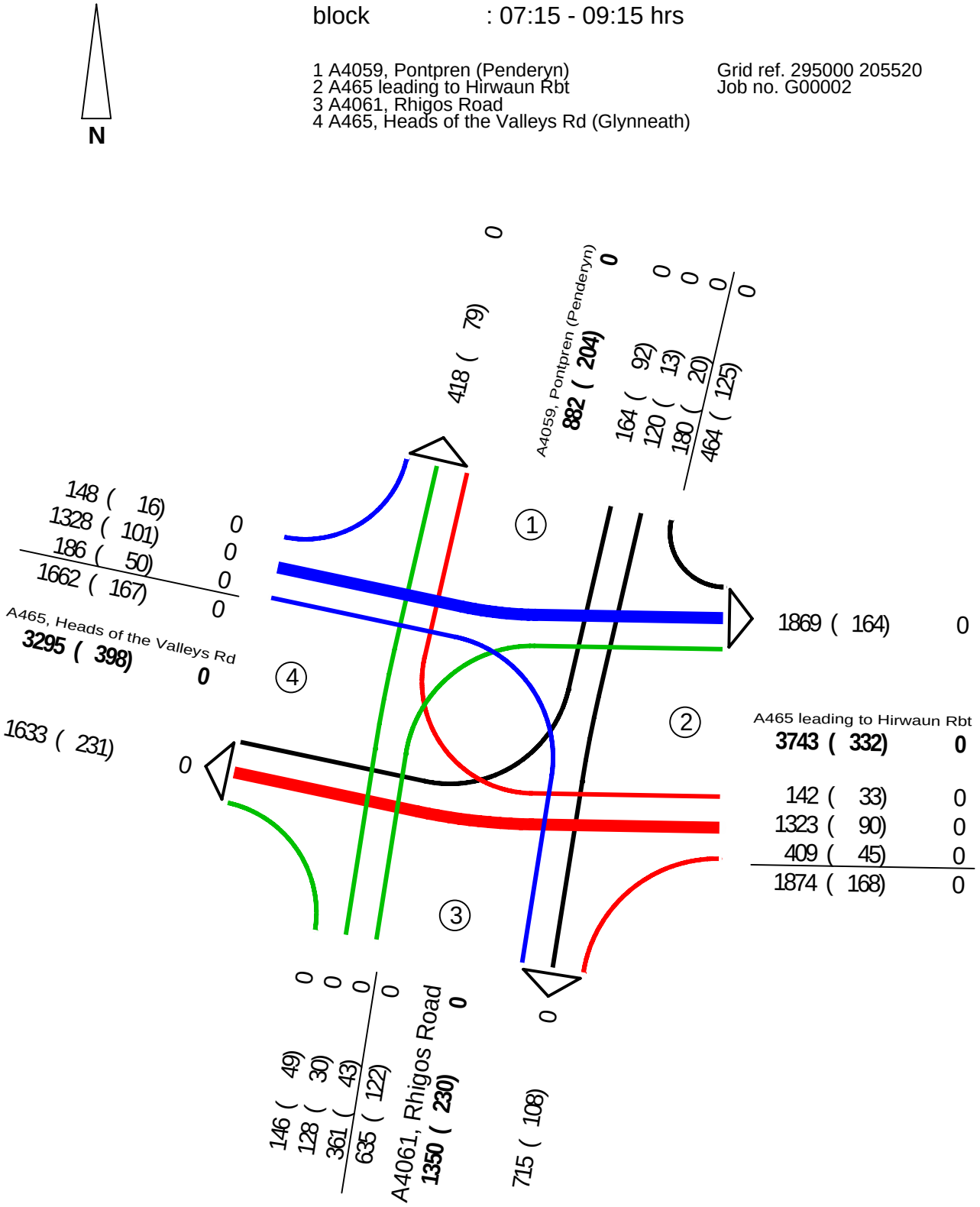
A465, Heads of the Valleys Rd/A4061, Rhigos Rd, Rbt. Site C

site : CY1041
place :
date : Wednesday, 01/10/2008
block : 07:15 - 09:15 hrs

1 A4059, Pontpren (Penderyn)
2 A465 leading to Hirwaun Rbt
3 A4061, Rhigos Road
4 A465, Heads of the Valleys Rd (Glynneath)

Grid ref. 295000 205520
Job no. G00002



Veh (HGV) cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

cyc=Cyc

0 3000 6000 Veh

A465, Heads of the Valleys Rd/A4061, Rhigos Rd, Rbt. Site C

site : CY1041
place :
date : Wednesday, 01/10/2008
block : 07:15 - 09:15 hrs
peak-hour : 07:30 - 08:30 hrs

1 A4059, Pontpren (Penderyn)
2 A465 leading to Hirwaun Rbt
3 A4061, Rhigos Road
4 A465, Heads of the Valleys Rd (Glynneath)

Grid ref. 295000 205520
Job no. G00002

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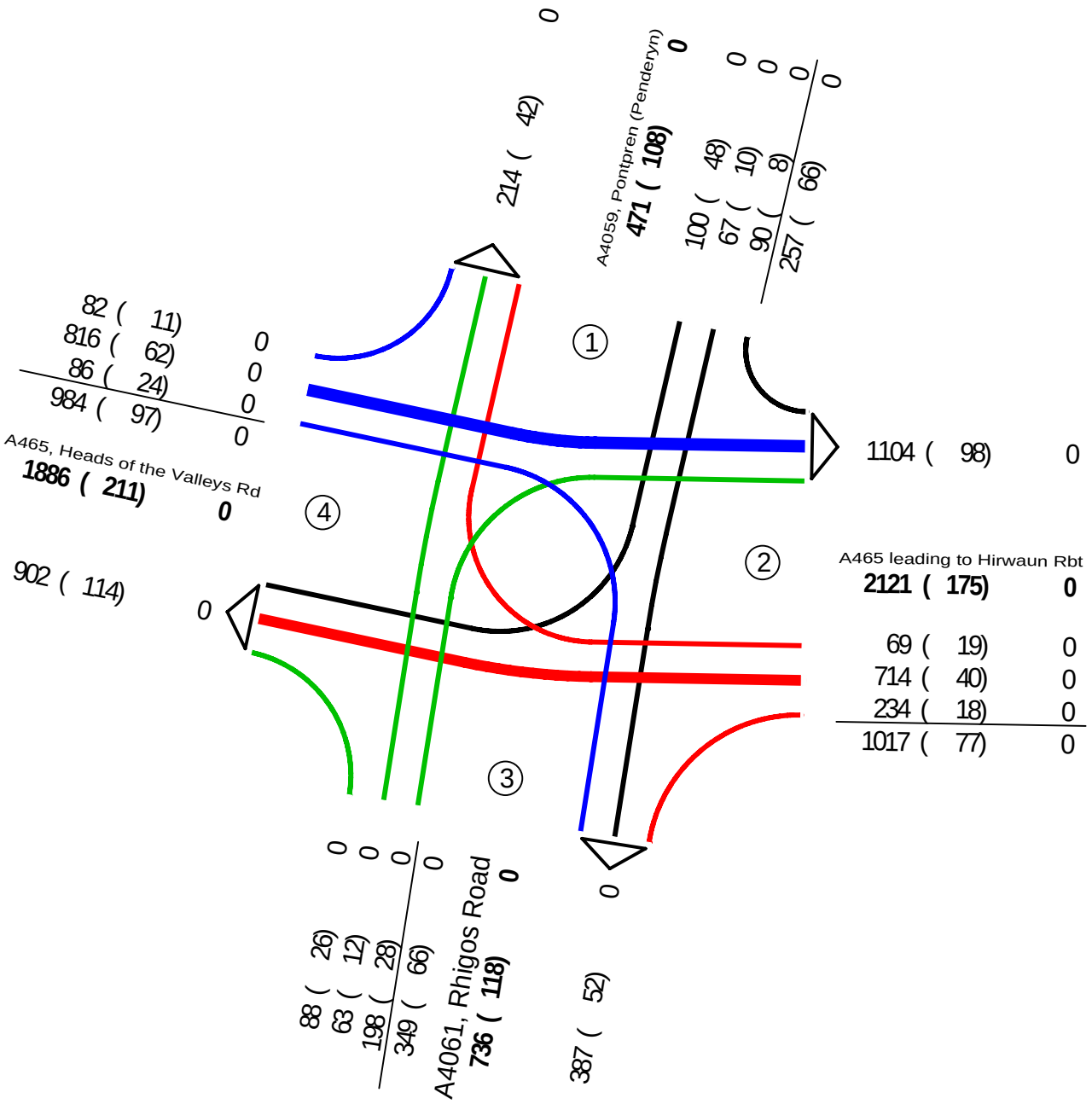


Veh (HGV) cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

cyc=Cyc

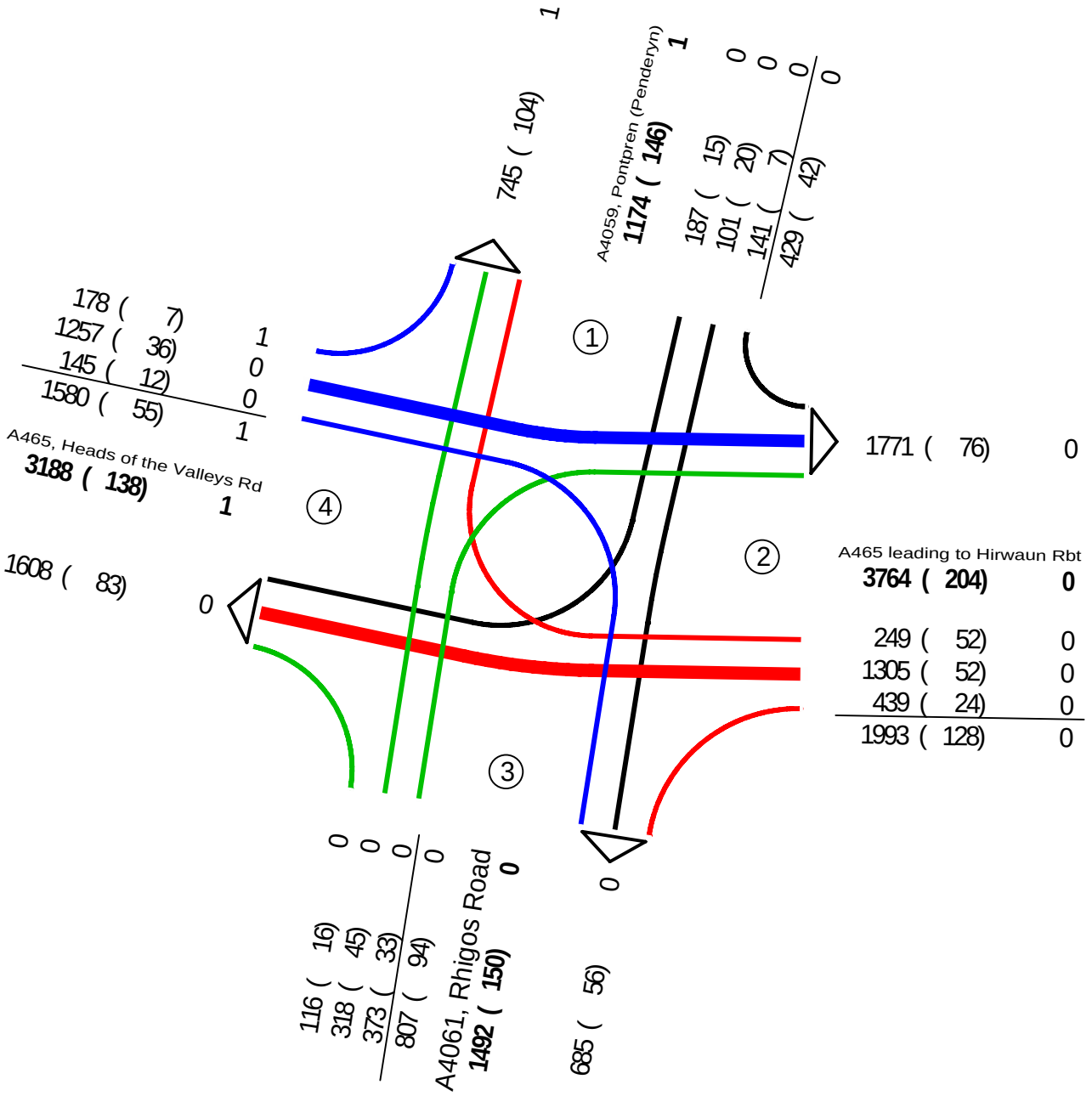
0 2000 4000 Veh

A465, Heads of the Valleys Rd/A4061, Rhigos Rd, Rbt. Site C

site : CY1041
place :
date : Wednesday, 01/10/2008
block : 16:00 - 18:00 hrs

1 A4059, Pontpren (Penderyn)
2 A465 leading to Hirwaun Rbt
3 A4061, Rhigos Road
4 A465, Heads of the Valleys Rd (Glynneath)

Grid ref. 295000 205520
Job no. G00002



Veh (HGV) cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

cyc=Cyc

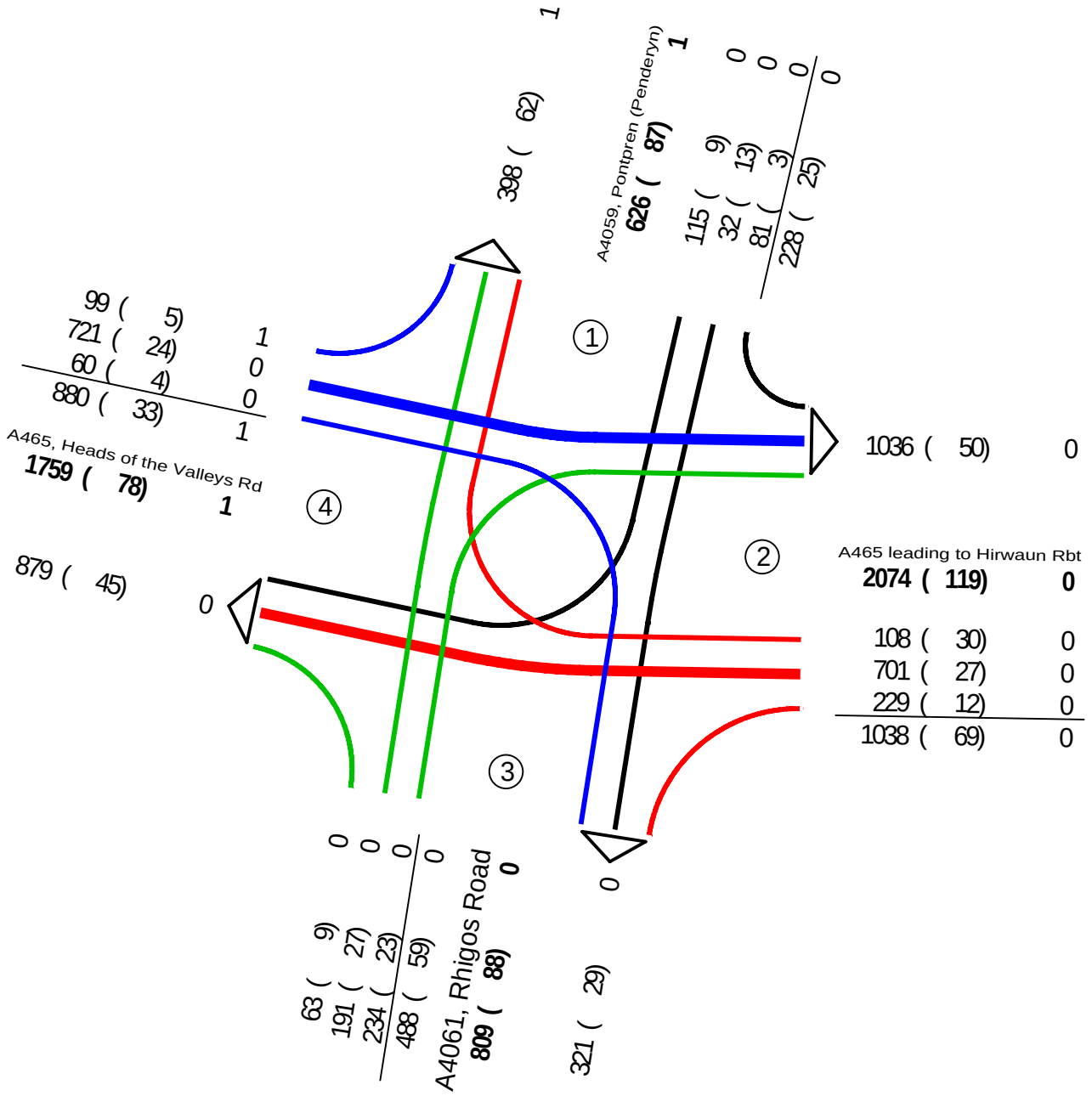
0 3000 6000 Veh

A465, Heads of the Valleys Rd/A4061, Rhigos Rd, Rbt. Site C

site	: CY1041
place	:
date	: Wednesday, 01/10/2008
block	: 16:00 - 18:00 hrs
peak-hour	: 16:30 - 17:30 hrs

1 A4059, Pontpren (Penderyn)
2 A465 leading to Hirwaun Rbt
3 A4061, Rhigos Road
4 A465, Heads of the Valleys Rd (Glynneath)

Grid ref. 295000 205520
Job no. G00002



Veh (HGV) cyc

Veh=Car + LGV + HGV + Bus + MCL

HGV=HGV + Bus

cyc=Cyc

0 2000 4000 Veh

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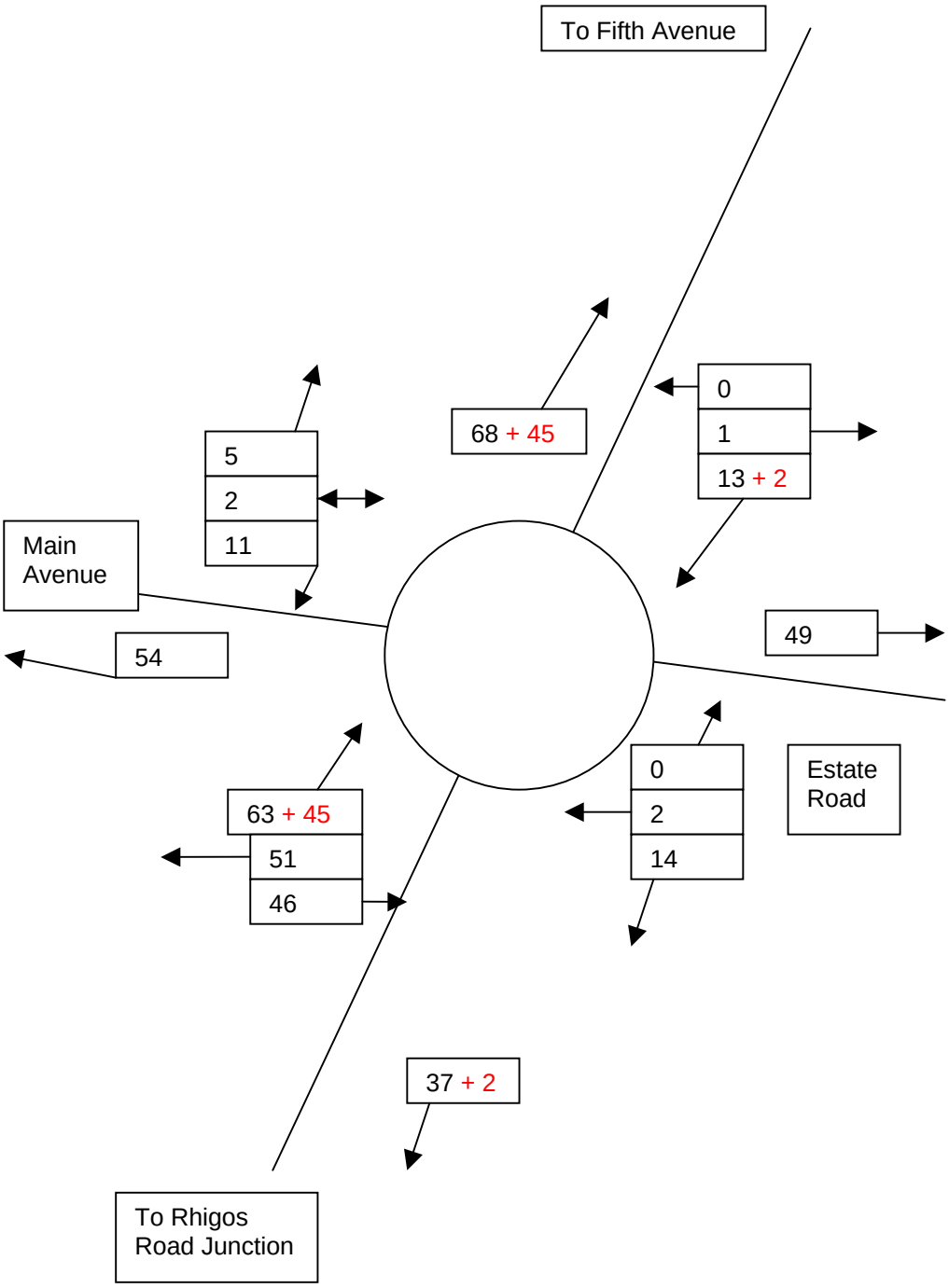
Appendix 2

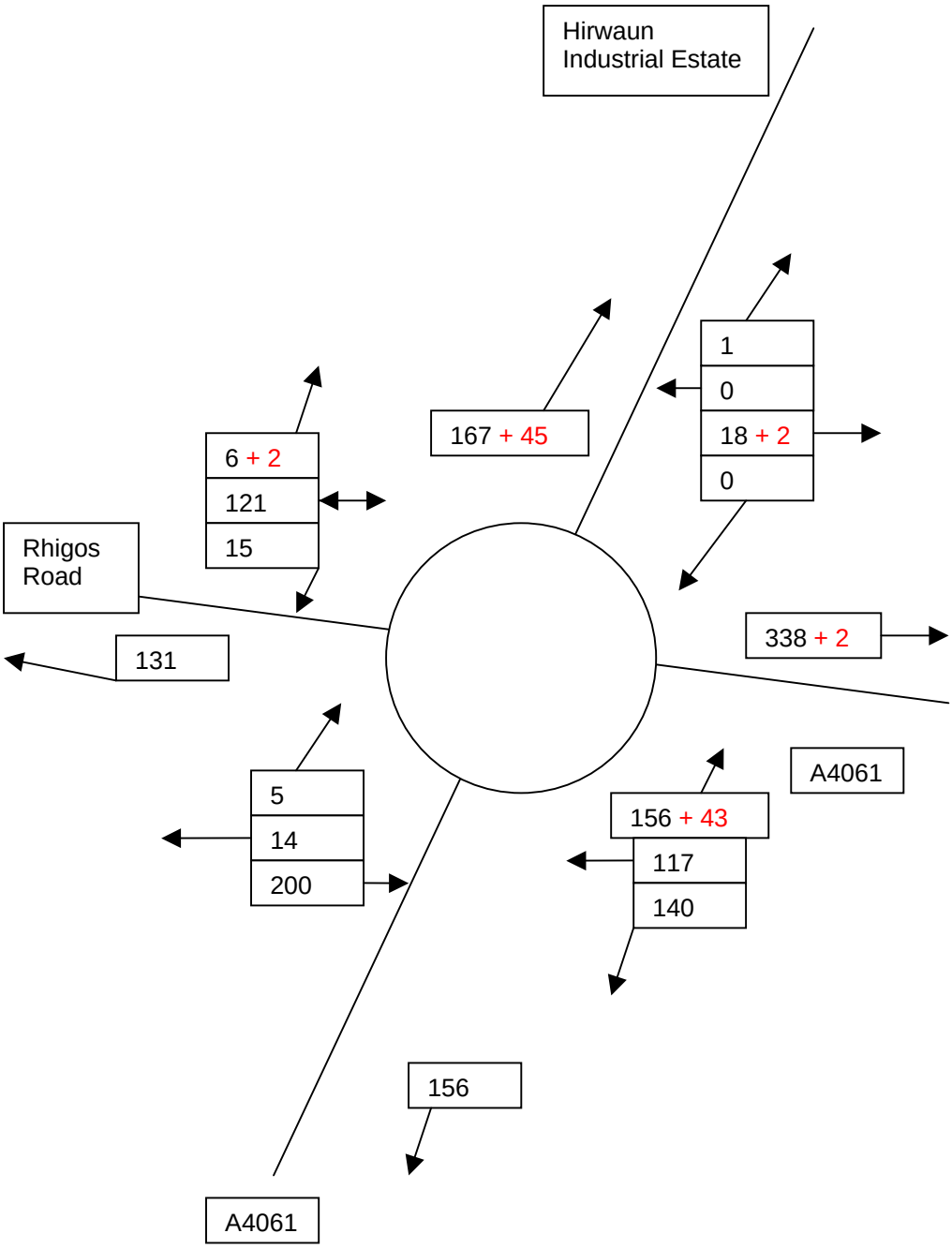
Assessed Traffic Flows

Junction A
Within the Hirwaun Industrial Estate



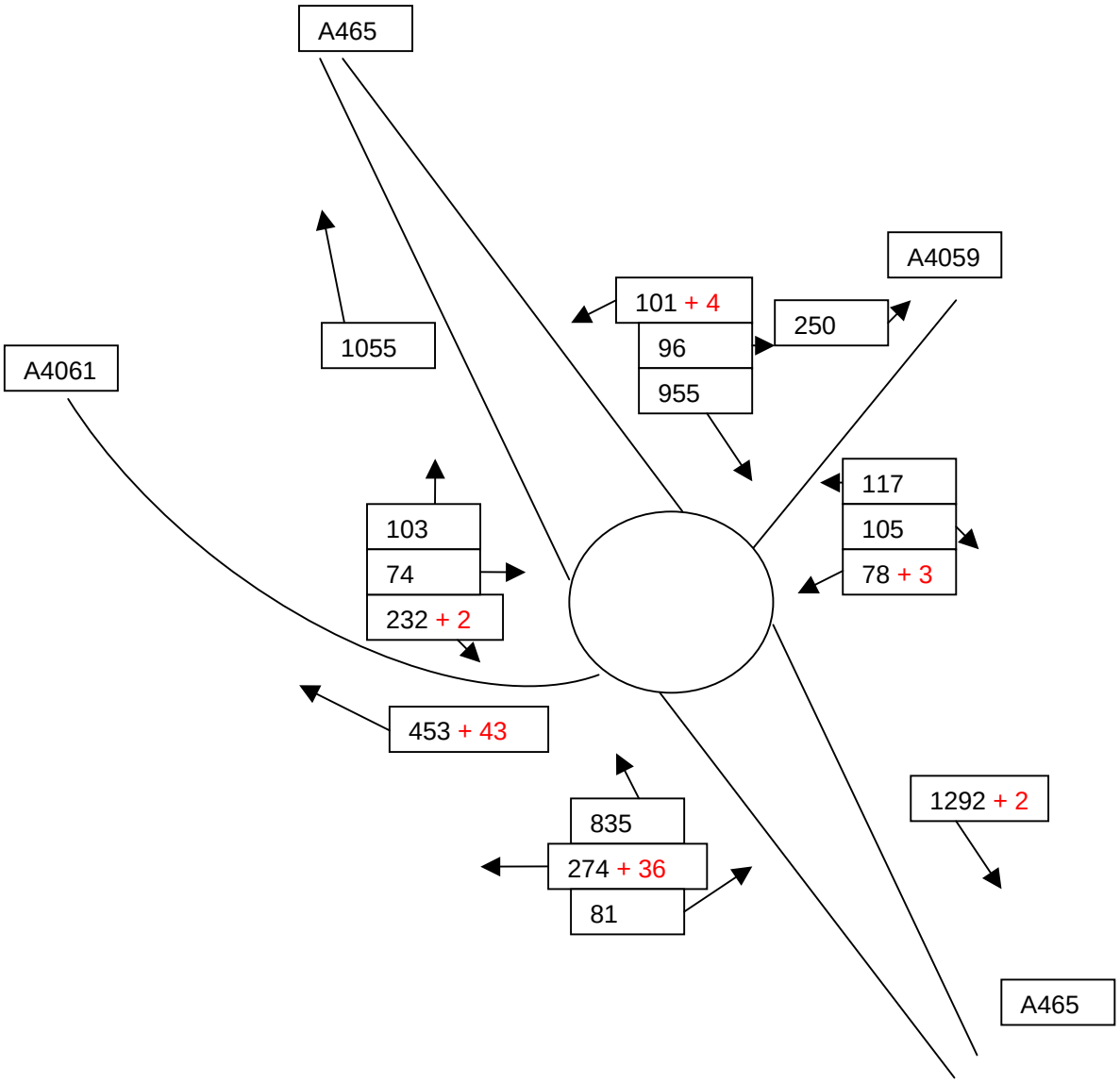
2010 plus development am

Junction B
A4061 Into the Hirwaun Industrial Estate



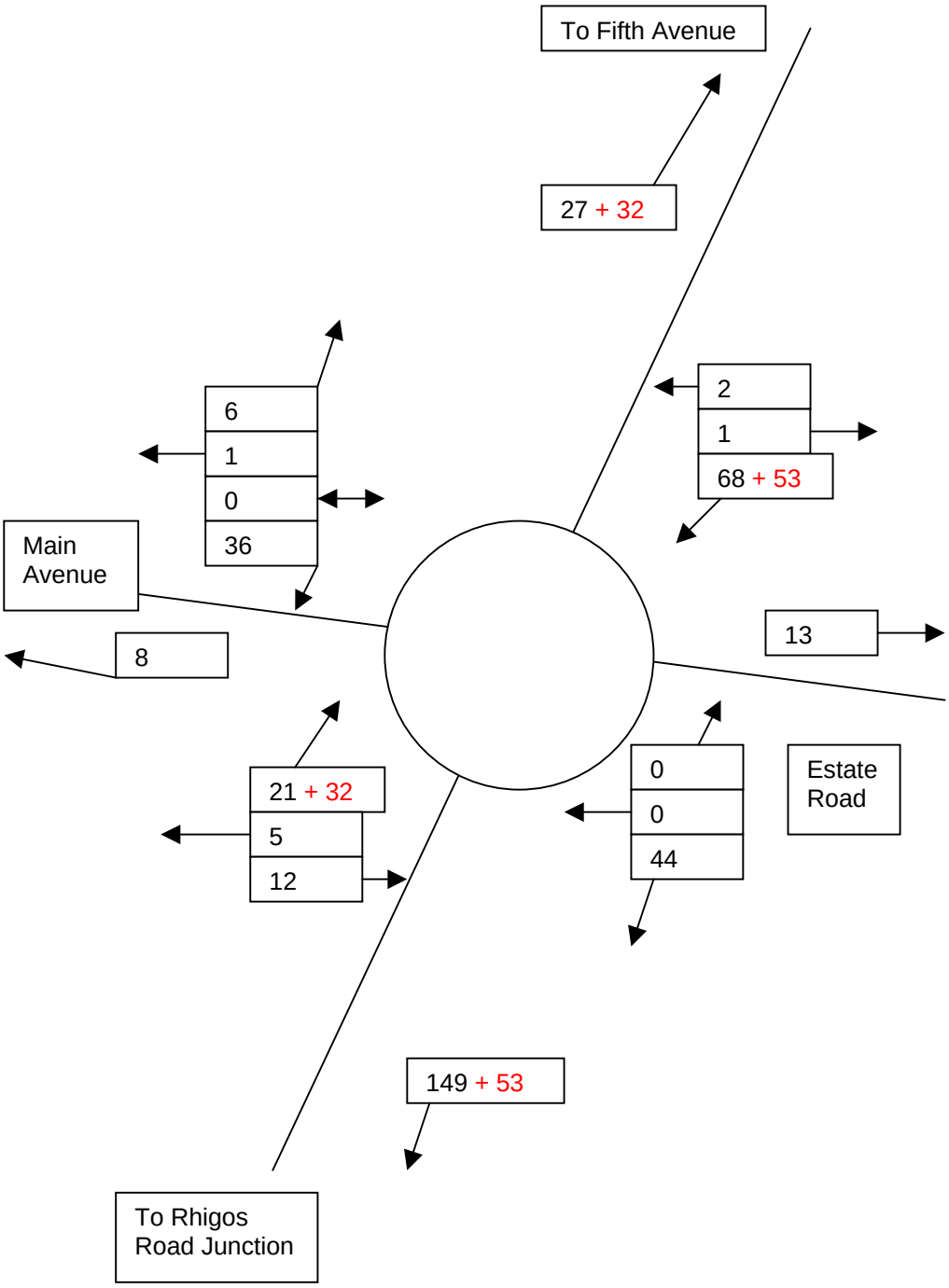
2010 plus development am

Junction C
A465 and A4061



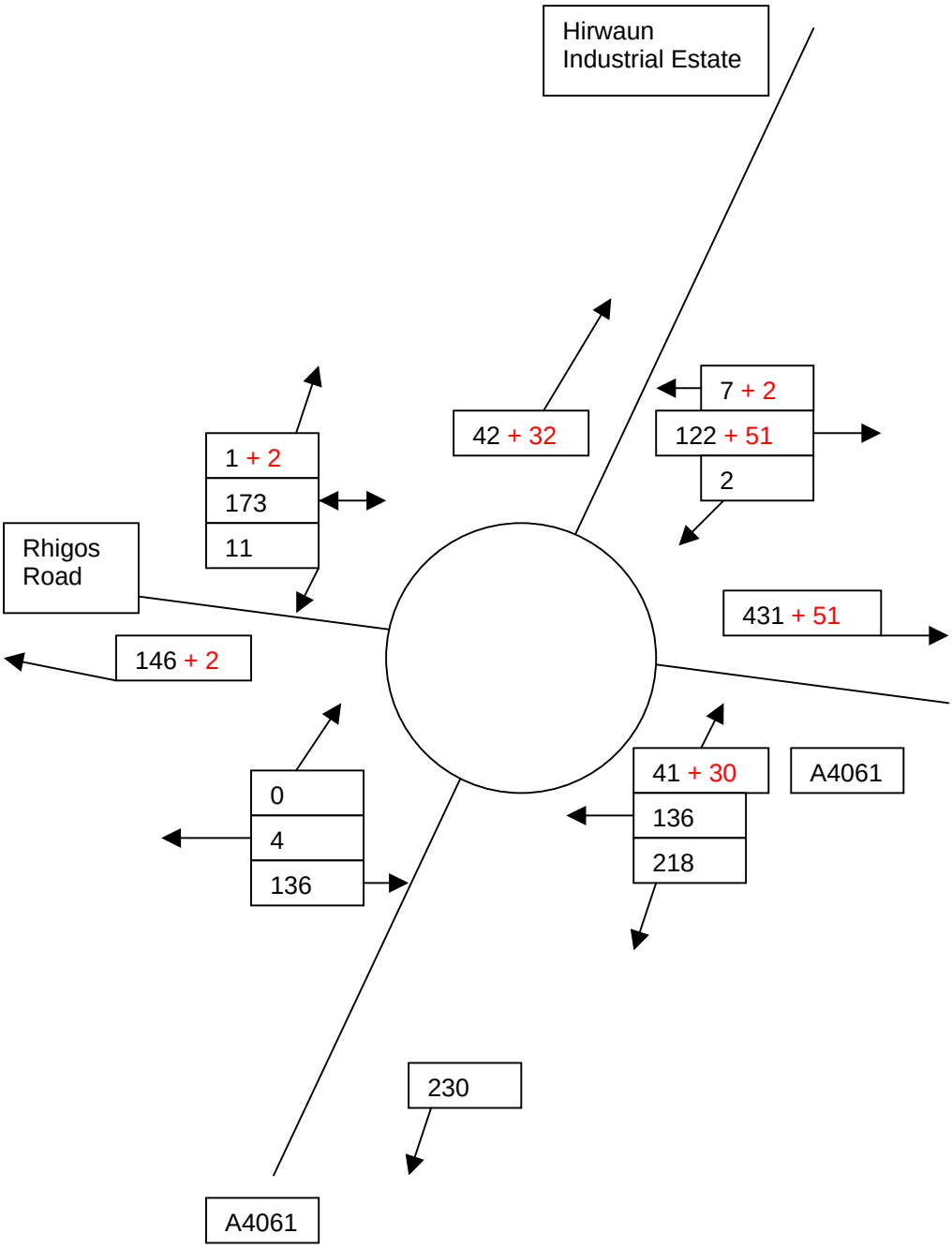
2010 plus development am

Junction A
Within the Hirwaun Industrial Estate



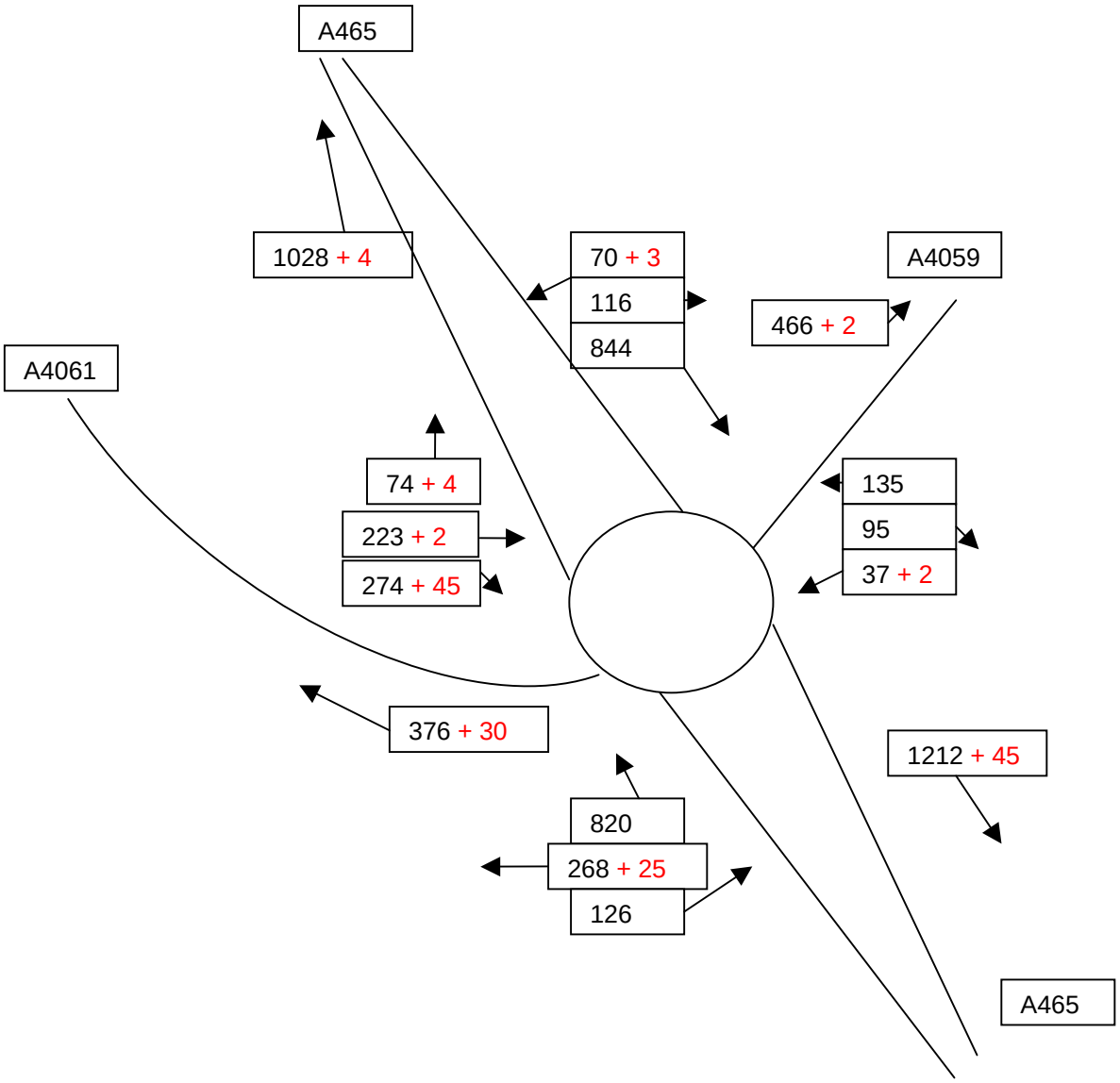
2010 plus development pm

Junction B
A4061 Into the Hirwaun Industrial Estate



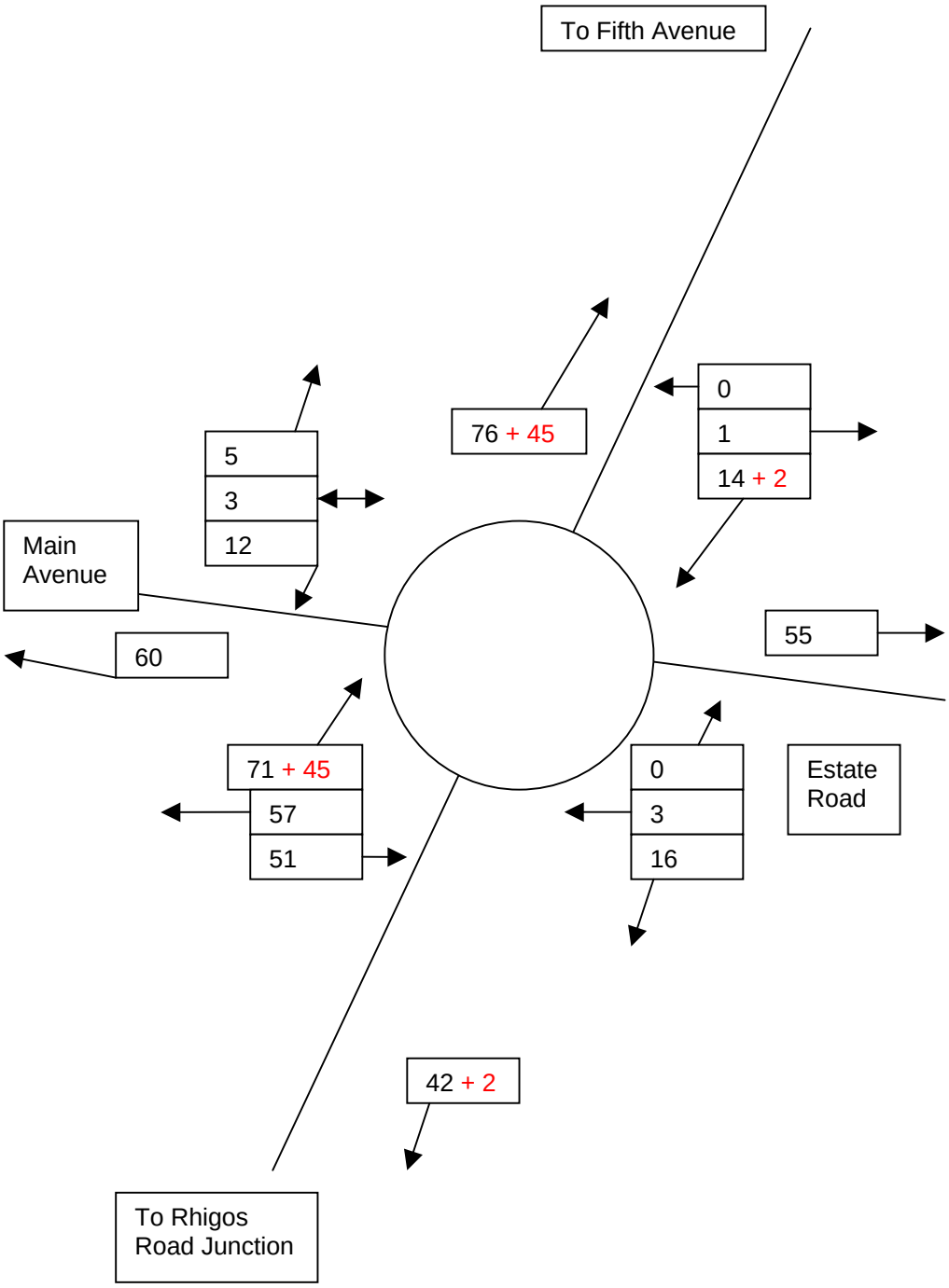
2010 plus development pm

Junction C
A465 and A4061



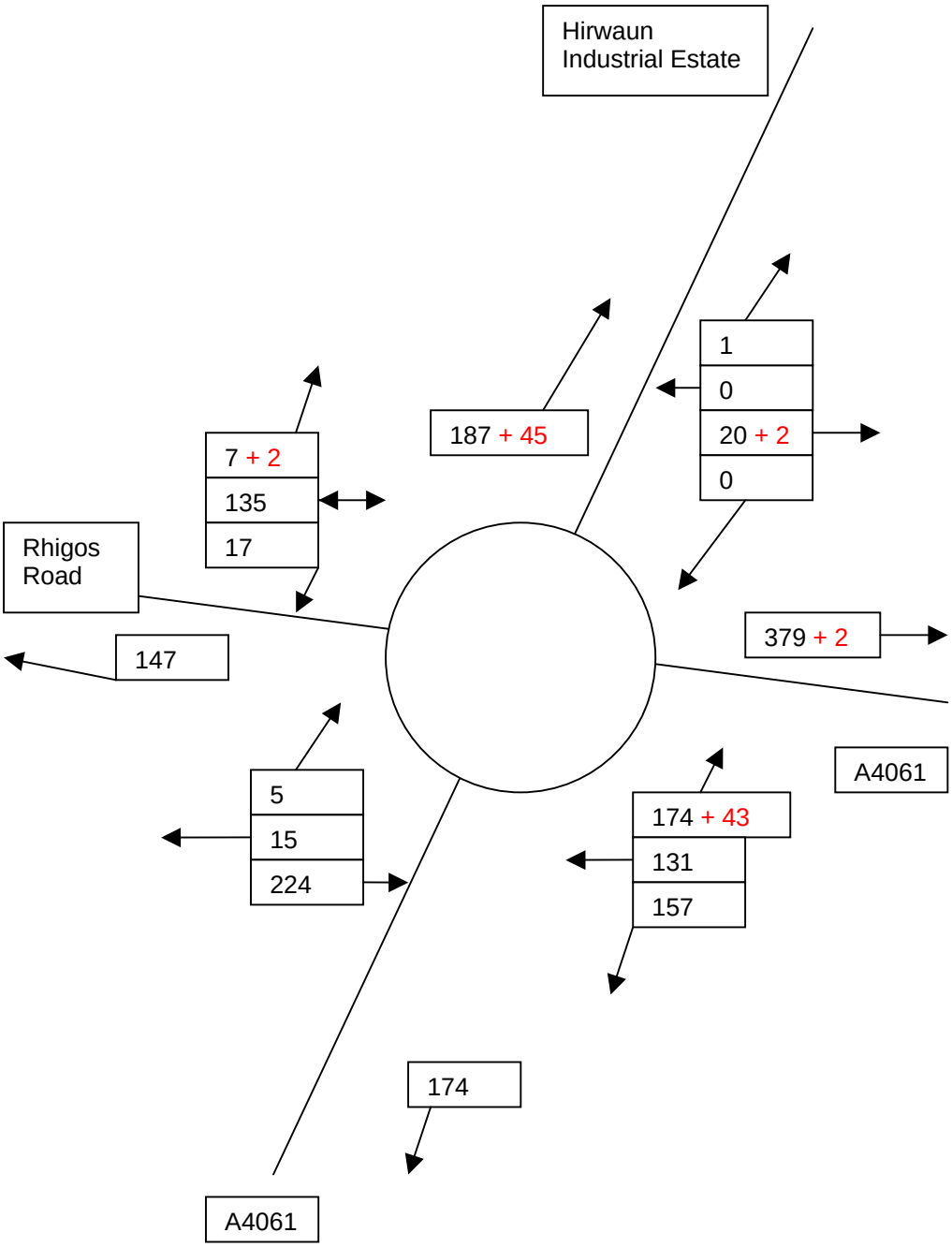
2010 plus development pm

Junction A
Within the Hirwaun Industrial Estate



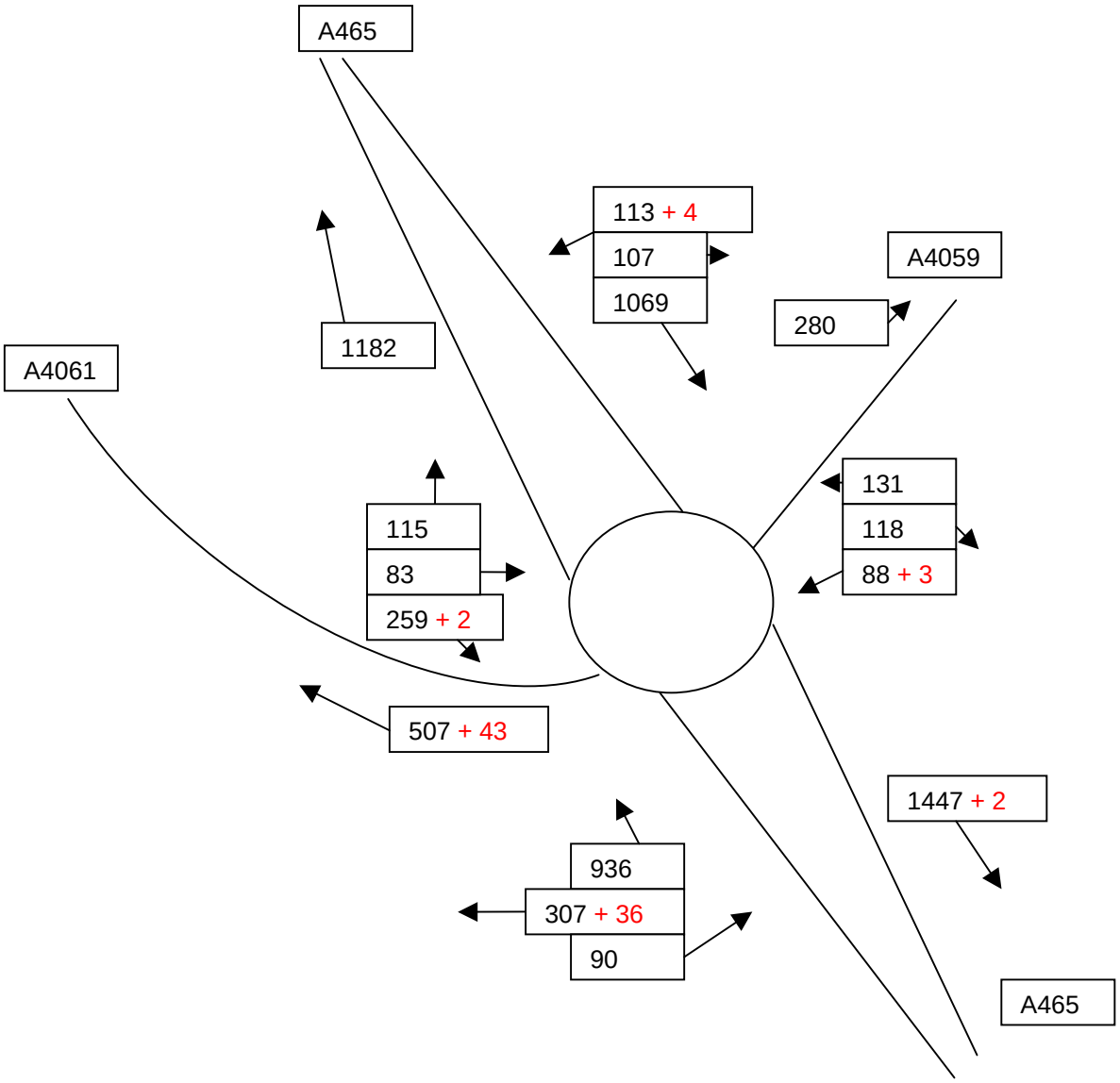
2025 plus development am

Junction B
A4061 Into the Hirwaun Industrial Estate



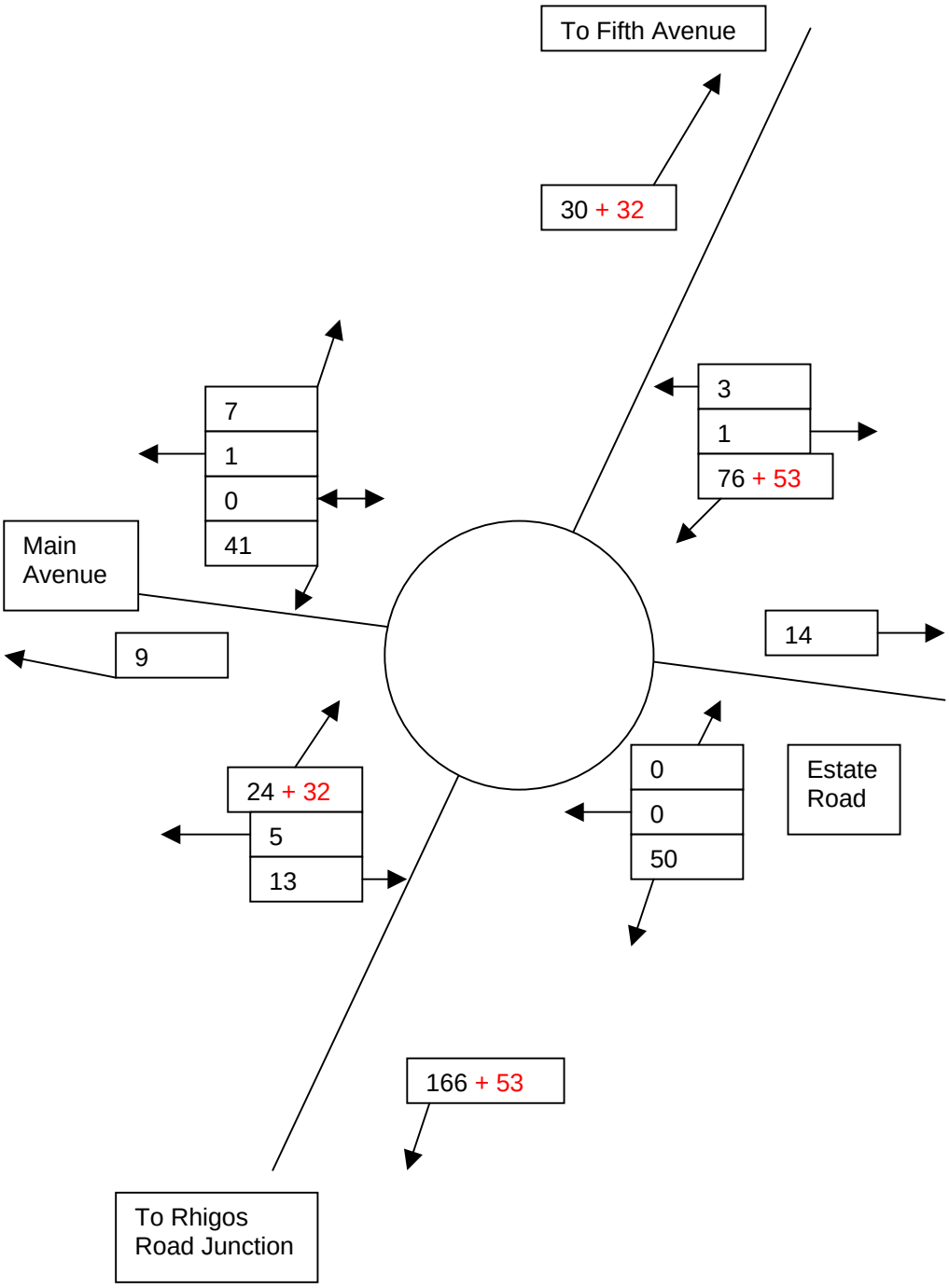
2025 plus development am

Junction C
A465 and A4061



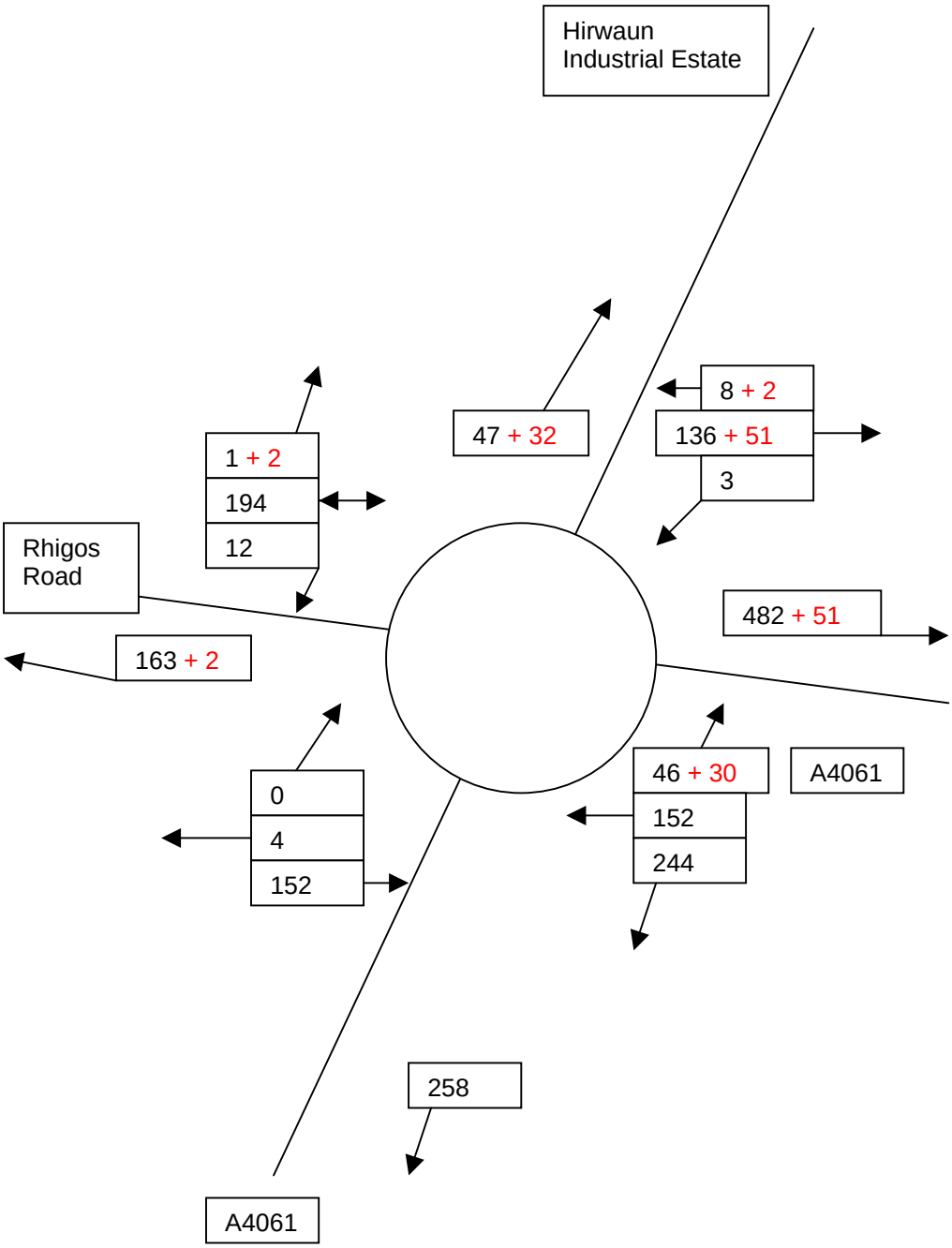
2025 plus development am

Junction A
Within the Hirwaun Industrial Estate



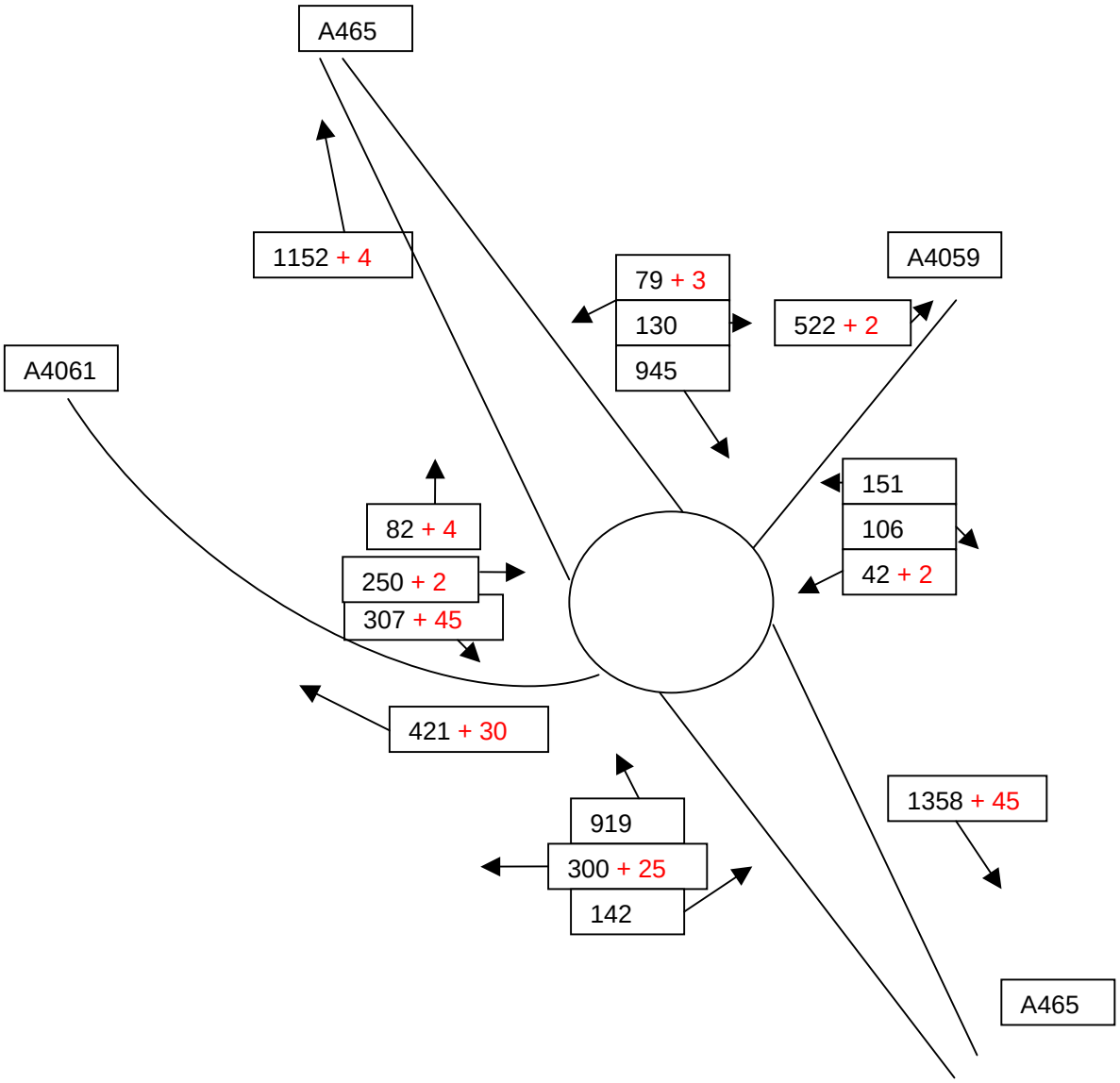
2025 plus development pm

Junction B
A4061 Into the Hirwaun Industrial Estate



2025 plus development pm

Junction C
A465 and A4061



2025 plus development pm

CAPITA
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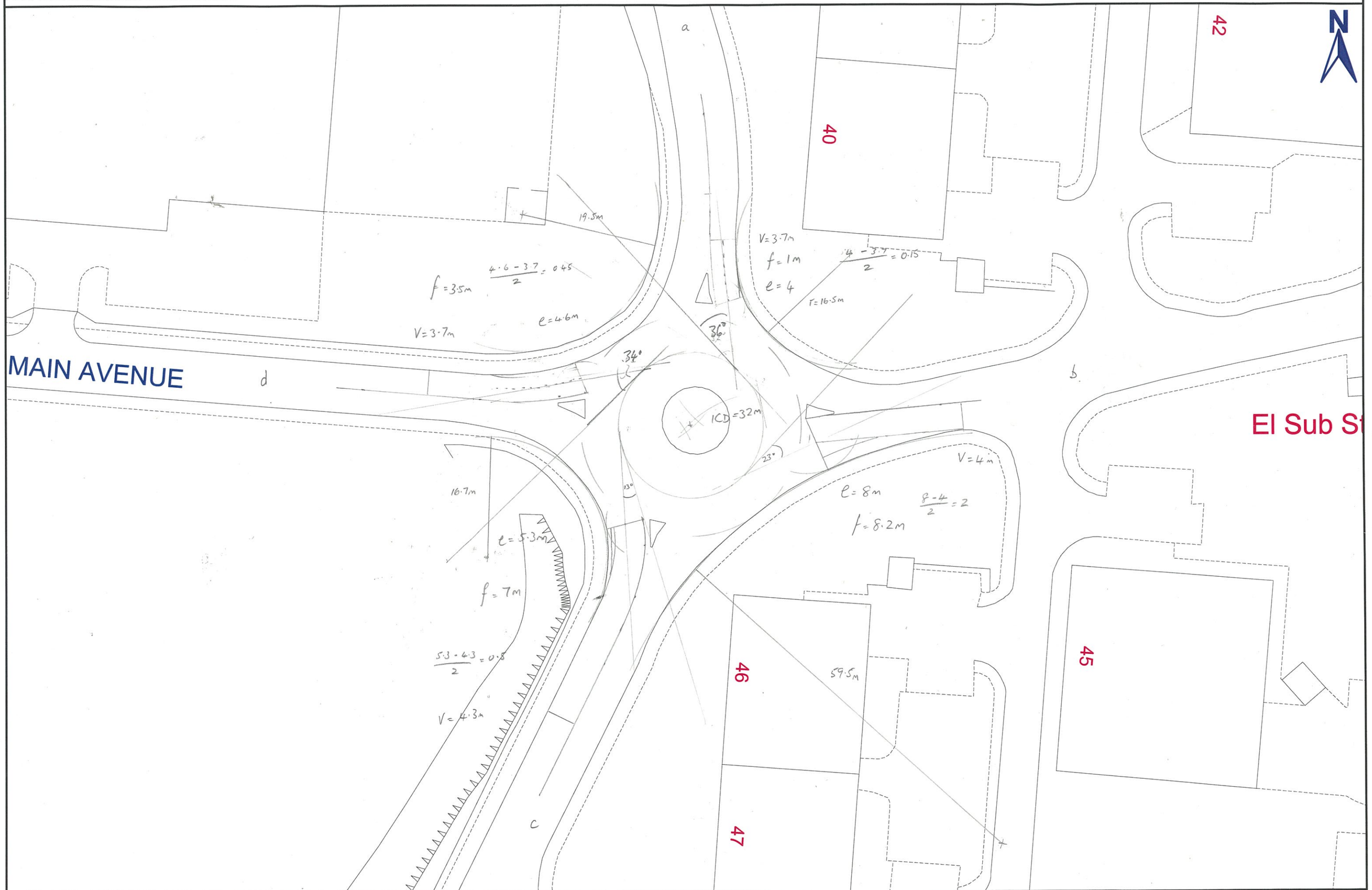
Appendix 3

Junction Geometry Measurements

CAPITA GLAMORGAN CONSULTANCY

A



IG.Germain, Director, Capita Glamorgan Consultancy
Moy Road Industrial Estate, Taff's Well, Cardiff CF15 7GE.

Site Ref :
Drawing No :

Drawn by :
Checked by :

Scale 1: 500
Date : 07/10/2008

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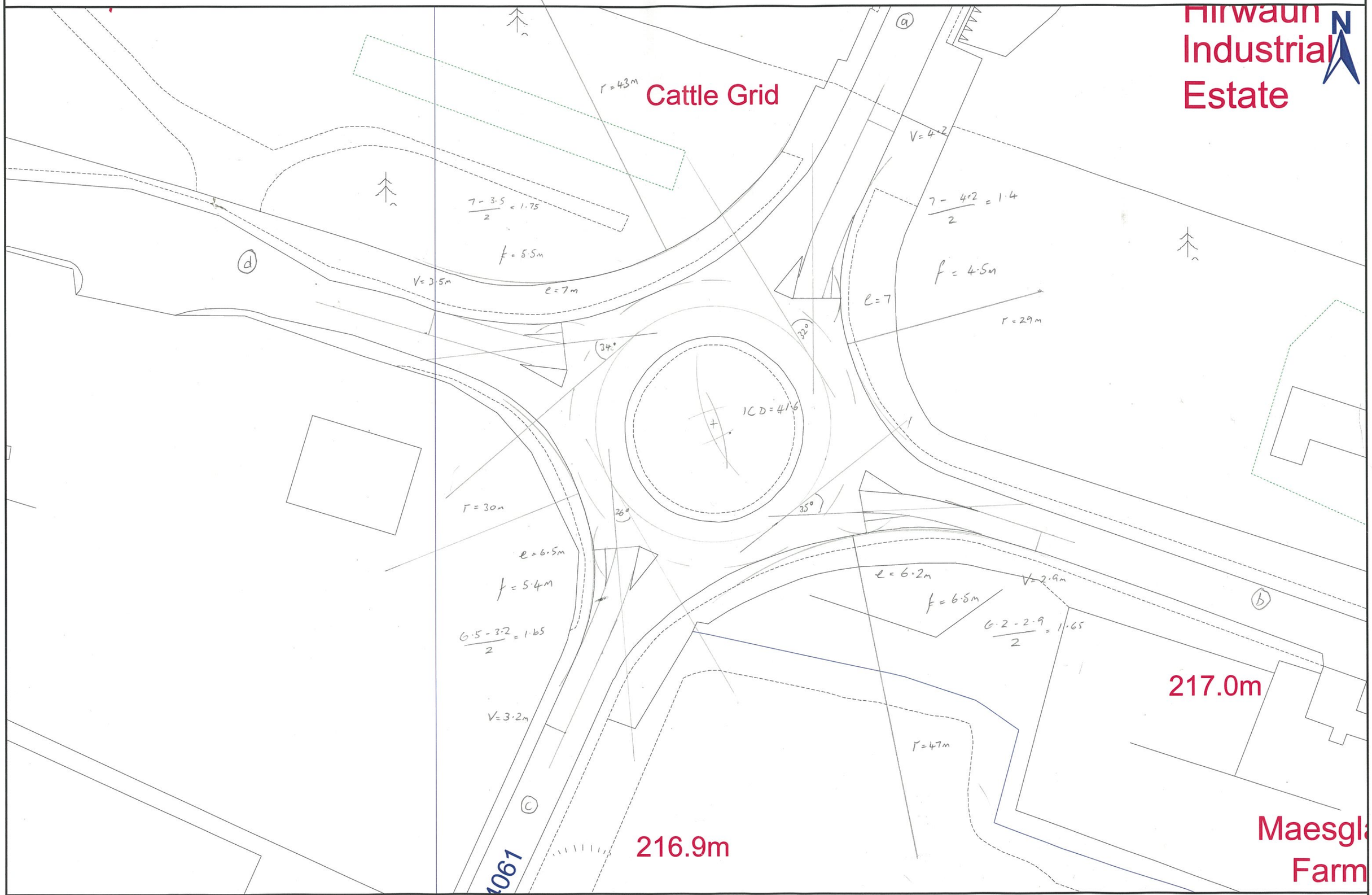
CAPITA GLAMORGAN CONSULTANCY

B



IG.Germain, Director, Capita Glamorgan Consultancy
Moy Road Industrial Estate, Taff's Well, Cardiff CF15 7GE.

Site Ref :
Drawing No :

Drawn by :
Checked by :

Scale 1: 500
Date : 07/10/2008

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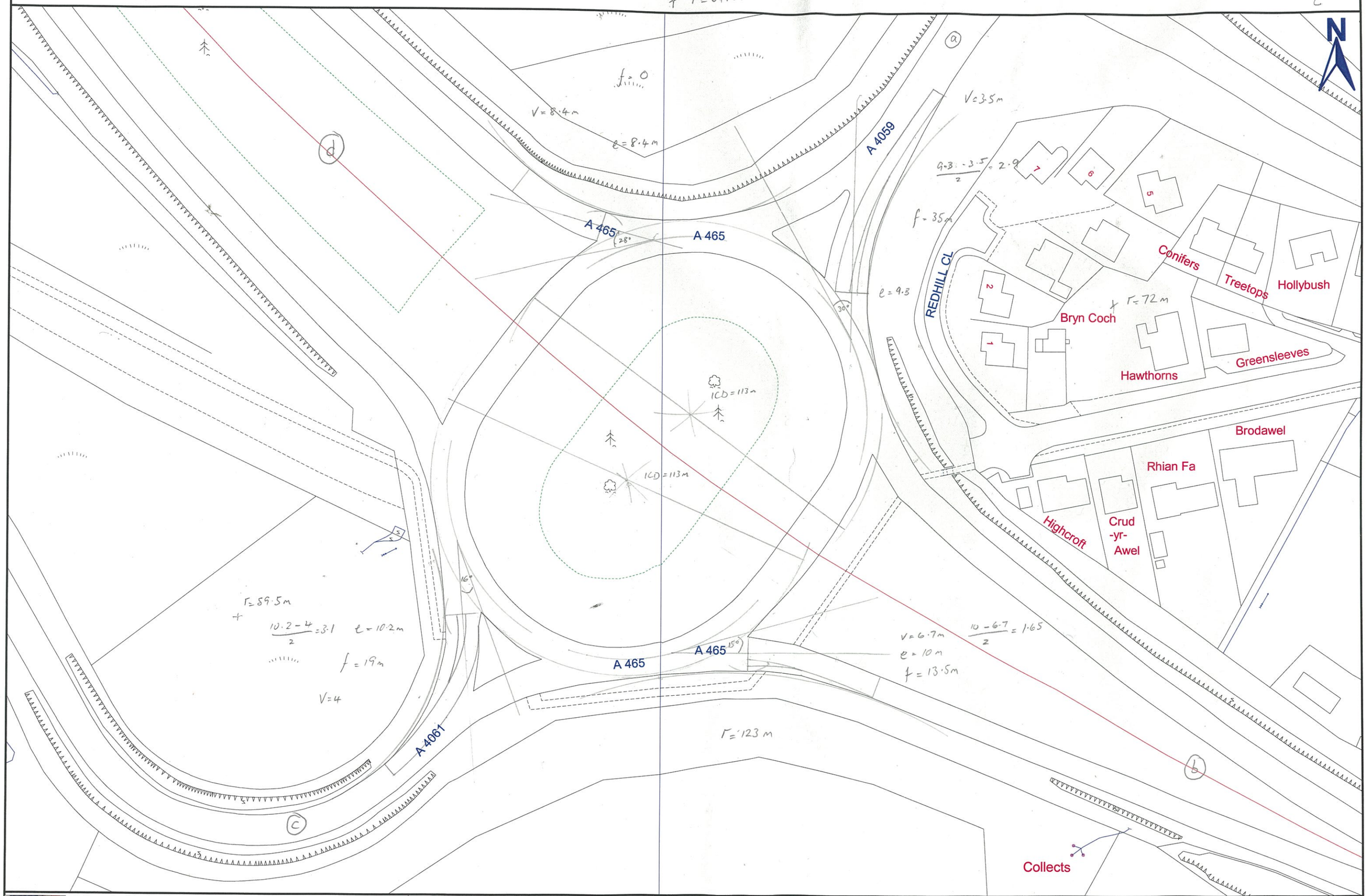
CAPITA GLAMORGAN CONSULTANCY



IG.Germain, Director, Capita Glamorgan Consultancy
Moy Road Industrial Estate, Taff's Well, Cardiff CF15 7GE.

Site Ref :
Drawing No :

Drawn by :
Checked by :

Scale 1: 1000
Date : 07/10/2008

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Appendix 4

ARCADY Results

Junction A - Fifth Avenue / Main Avenue / Spine Road Roundabout, Hirwaun Estate.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Web:www.trlsoftware.co.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 Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\A Fifth Main Ave\Fifth Main Ave Site Access am Base 08.vai**
At: **09:24:38 on Friday, October 17, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Fifth Avenue (Site)
Arm B	Spine Road
Arm C	Link to Rhigos Rbt.
Arm D	Main Avenue

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site A Main / Fifth Ave / Link to Site am base 08
Location	Hirwaun
Date	08/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Errors and Warnings

[No errors or warnings]

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.70	4.00	4.30	3.70
Entry Width (m)	4.00	8.00	5.30	4.60
Flare Length (m)	1.00	8.20	7.00	3.50
Entry Radius (m)	16.50	59.50	16.70	19.50
Inscribed Circle Diameter (m)	32.00	32.00	32.00	32.00
Entry Angle (degrees)	32.00	23.00	13.00	34.00
Slope	0.538	0.690	0.648	0.560
Intercept (PCU/Min)	19.121	29.682	26.423	20.858

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. base 2008

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	1.0	11.0	0.0
Arm B	0.0	0.0	12.0	2.0
Arm C	54.0	39.0	0.0	44.0
Arm D	4.0	2.0	9.0	0.0

Entry Flow Data for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. base 2008

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	0.15	0.23	0.15
Arm B	15.00	45.00	75.00	0.17	0.26	0.17
Arm C	15.00	45.00	75.00	1.71	2.57	1.71
Arm D	15.00	45.00	75.00	0.19	0.28	0.19

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. base 2008

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	100.0	27.3	0.0
	Arm B	0.0	0.0	16.7	50.0
	Arm C	3.7	5.1	0.0	18.2
	Arm D	75.0	50.0	11.1	0.0

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	16.5	11.0	1.2	0.07	1.2	0.07
B	19.2	12.8	0.8	0.04	0.8	0.04
C	187.9	125.2	8.5	0.05	8.5	0.05
D	20.6	13.7	1.4	0.07	1.4	0.07
ALL	244.1	162.7	11.8	0.05	11.8	0.05

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	0.15	14.07	0.011	-	0.0	0.0	0.2	-	0.07
	Arm B	0.17	24.27	0.007	-	0.0	0.0	0.1	-	0.04
	Arm C	1.71	24.27	0.071	-	0.0	0.1	1.1	-	0.04
	Arm D	0.19	15.14	0.012	-	0.0	0.0	0.2	-	0.07
Segment : 2 - 07:30 to 07:45	Arm A	0.18	14.01	0.013	-	0.0	0.0	0.2	-	0.07
	Arm B	0.21	24.23	0.009	-	0.0	0.0	0.1	-	0.04
	Arm C	2.04	24.27	0.084	-	0.1	0.1	1.4	-	0.04
	Arm D	0.22	15.04	0.015	-	0.0	0.0	0.2	-	0.07
Segment : 3 - 07:45 to 08:00	Arm A	0.22	13.94	0.016	-	0.0	0.0	0.2	-	0.07
	Arm B	0.26	24.19	0.011	-	0.0	0.0	0.2	-	0.04
	Arm C	2.50	24.26	0.103	-	0.1	0.1	1.7	-	0.05
	Arm D	0.27	14.90	0.018	-	0.0	0.0	0.3	-	0.07
Segment : 4 - 08:00 to 08:15	Arm A	0.22	13.94	0.016	-	0.0	0.0	0.2	-	0.07
	Arm B	0.26	24.19	0.011	-	0.0	0.0	0.2	-	0.04
	Arm C	2.50	24.26	0.103	-	0.1	0.1	1.7	-	0.05
	Arm D	0.27	14.90	0.018	-	0.0	0.0	0.3	-	0.07
Segment : 5 - 08:15 to 08:30	Arm A	0.18	14.01	0.013	-	0.0	0.0	0.2	-	0.07
	Arm B	0.21	24.23	0.009	-	0.0	0.0	0.1	-	0.04
	Arm C	2.04	24.27	0.084	-	0.1	0.1	1.4	-	0.04
	Arm D	0.22	15.03	0.015	-	0.0	0.0	0.2	-	0.07
Segment : 6 - 08:30 to 08:45	Arm A	0.15	14.06	0.011	-	0.0	0.0	0.2	-	0.07
	Arm B	0.17	24.27	0.007	-	0.0	0.0	0.1	-	0.04
	Arm C	1.71	24.27	0.071	-	0.1	0.1	1.2	-	0.04
	Arm D	0.19	15.13	0.012	-	0.0	0.0	0.2	-	0.07

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Email: softwarebureau@ trl.co.uk
Web:www.trlsoftware.co.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 Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\A Fifth Main Ave\Fifth Main Ave Site Access pm Base 08.vai**
At: **15:27:11 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Fifth Avenue (Site)
Arm B	Spine Road
Arm C	Link to Rhigos Rbt.
Arm D	Main Avenue

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site A Main / Fifth Ave / Link to Site pm base 08
Location	Hirwaun
Date	08/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.70	4.00	4.30	3.70
Entry Width (m)	4.00	8.00	5.30	4.60
Flare Length (m)	1.00	8.20	7.00	3.50
Entry Radius (m)	16.50	59.50	16.70	19.50
Inscribed Circle Diameter (m)	32.00	32.00	32.00	32.00
Entry Angle (degrees)	32.00	23.00	13.00	34.00
Slope	0.538	0.690	0.648	0.560
Intercept (PCU/Min)	19.121	29.682	26.423	20.858

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **16:00 to 17:30**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. base 08

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	1.0	58.0	2.0
Arm B	0.0	0.0	38.0	0.0
Arm C	18.0	10.0	0.0	4.0
Arm D	5.0	0.0	31.0	0.0

Entry Flow Data for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. base 08

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	0.76	1.14	0.76
Arm B	15.00	45.00	75.00	0.47	0.71	0.47
Arm C	15.00	45.00	75.00	0.40	0.60	0.40
Arm D	15.00	45.00	75.00	0.45	0.67	0.45

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. base 08

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
16:00 to 17:30	Arm A	0.0	0.0	10.3	0.0
	Arm B	0.0	0.0	2.6	0.0
	Arm C	27.8	20.0	0.0	25.0
	Arm D	0.0	0.0	9.7	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 16:00 to 16:15	Arm A	0.76	17.13	0.045	-	0.0	0.0	0.7	-	0.06
	Arm B	0.47	28.09	0.017	-	0.0	0.0	0.3	-	0.04
	Arm C	0.40	21.12	0.019	-	0.0	0.0	0.3	-	0.05
	Arm D	0.45	19.02	0.024	-	0.0	0.0	0.4	-	0.05
Segment : 2 - 16:15 to 16:30	Arm A	0.91	17.08	0.053	-	0.0	0.1	0.8	-	0.06
	Arm B	0.57	27.92	0.020	-	0.0	0.0	0.3	-	0.04
	Arm C	0.48	21.12	0.023	-	0.0	0.0	0.3	-	0.05
	Arm D	0.54	18.98	0.028	-	0.0	0.0	0.4	-	0.05
Segment : 3 - 16:30 to 16:45	Arm A	1.12	17.00	0.066	-	0.1	0.1	1.0	-	0.06
	Arm B	0.69	27.70	0.025	-	0.0	0.0	0.4	-	0.04
	Arm C	0.58	21.12	0.028	-	0.0	0.0	0.4	-	0.05
	Arm D	0.66	18.92	0.035	-	0.0	0.0	0.5	-	0.05
Segment : 4 - 16:45 to 17:00	Arm A	1.12	17.00	0.066	-	0.1	0.1	1.0	-	0.06
	Arm B	0.69	27.70	0.025	-	0.0	0.0	0.4	-	0.04
	Arm C	0.58	21.12	0.028	-	0.0	0.0	0.4	-	0.05
	Arm D	0.66	18.92	0.035	-	0.0	0.0	0.5	-	0.05
Segment : 5 - 17:00 to 17:15	Arm A	0.91	17.08	0.053	-	0.1	0.1	0.9	-	0.06
	Arm B	0.57	27.92	0.020	-	0.0	0.0	0.3	-	0.04
	Arm C	0.48	21.12	0.023	-	0.0	0.0	0.4	-	0.05
	Arm D	0.54	18.98	0.028	-	0.0	0.0	0.4	-	0.05
Segment : 6 - 17:15 to 17:30	Arm A	0.76	17.13	0.045	-	0.1	0.0	0.7	-	0.06
	Arm B	0.47	28.09	0.017	-	0.0	0.0	0.3	-	0.04
	Arm C	0.40	21.12	0.019	-	0.0	0.0	0.3	-	0.05
	Arm D	0.45	19.02	0.024	-	0.0	0.0	0.4	-	0.05

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	83.6	55.8	5.2	0.06	5.2	0.06
B	52.1	34.7	1.9	0.04	1.9	0.04
C	43.9	29.3	2.1	0.05	2.1	0.05
D	49.4	32.9	2.7	0.05	2.7	0.05
ALL	229.0	152.7	11.9	0.05	11.9	0.05

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Web:www.trlsoftware.co.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 Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\A Fifth Main Ave\Fifth Main Ave Site Access am 2010 + dev.vai**
At: **15:25:31 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Fifth Avenue (Site)
Arm B	Spine Road
Arm C	Link to Rhigos Rbt.
Arm D	Main Avenue

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site A Main / Fifth Ave / Link to Site am 2010 plus dev
Location	Hirwaun
Date	08/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.70	4.00	4.30	3.70
Entry Width (m)	4.00	8.00	5.30	4.60
Flare Length (m)	1.00	8.20	7.00	3.50
Entry Radius (m)	16.50	59.50	16.70	19.50
Inscribed Circle Diameter (m)	32.00	32.00	32.00	32.00
Entry Angle (degrees)	32.00	23.00	13.00	34.00
Slope	0.538	0.690	0.648	0.560
Intercept (PCU/Min)	19.121	29.682	26.423	20.858

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. 2010 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	1.0	15.0	0.0
Arm B	0.0	0.0	14.0	2.0
Arm C	108.0	46.0	0.0	51.0
Arm D	5.0	2.0	11.0	0.0

Entry Flow Data for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. 2010 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	0.20	0.30	0.20
Arm B	15.00	45.00	75.00	0.20	0.30	0.20
Arm C	15.00	45.00	75.00	2.56	3.84	2.56
Arm D	15.00	45.00	75.00	0.22	0.34	0.22

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. 2010 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	100.0	27.3	0.0
	Arm B	0.0	0.0	16.7	50.0
	Arm C	3.7	5.1	0.0	18.2
	Arm D	75.0	50.0	11.1	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	0.20	14.18	0.014	-	0.0	0.0	0.2	-	0.07
	Arm B	0.20	24.33	0.008	-	0.0	0.0	0.1	-	0.04
	Arm C	2.56	24.53	0.104	-	0.0	0.1	1.7	-	0.05
	Arm D	0.22	14.82	0.015	-	0.0	0.0	0.2	-	0.07
Segment : 2 - 07:30 to 07:45	Arm A	0.24	14.11	0.017	-	0.0	0.0	0.3	-	0.07
	Arm B	0.24	24.29	0.010	-	0.0	0.0	0.1	-	0.04
	Arm C	3.06	24.52	0.125	-	0.1	0.1	2.1	-	0.05
	Arm D	0.27	14.65	0.018	-	0.0	0.0	0.3	-	0.07
Segment : 3 - 07:45 to 08:00	Arm A	0.29	14.03	0.021	-	0.0	0.0	0.3	-	0.07
	Arm B	0.29	24.23	0.012	-	0.0	0.0	0.2	-	0.04
	Arm C	3.75	24.52	0.153	-	0.1	0.2	2.7	-	0.05
	Arm D	0.33	14.43	0.023	-	0.0	0.0	0.3	-	0.07
Segment : 4 - 08:00 to 08:15	Arm A	0.29	14.03	0.021	-	0.0	0.0	0.3	-	0.07
	Arm B	0.29	24.23	0.012	-	0.0	0.0	0.2	-	0.04
	Arm C	3.75	24.52	0.153	-	0.2	0.2	2.7	-	0.05
	Arm D	0.33	14.43	0.023	-	0.0	0.0	0.3	-	0.07
Segment : 5 - 08:15 to 08:30	Arm A	0.24	14.11	0.017	-	0.0	0.0	0.3	-	0.07
	Arm B	0.24	24.29	0.010	-	0.0	0.0	0.2	-	0.04
	Arm C	3.06	24.52	0.125	-	0.2	0.1	2.2	-	0.05
	Arm D	0.27	14.65	0.018	-	0.0	0.0	0.3	-	0.07
Segment : 6 - 08:30 to 08:45	Arm A	0.20	14.18	0.014	-	0.0	0.0	0.2	-	0.07
	Arm B	0.20	24.33	0.008	-	0.0	0.0	0.1	-	0.04
	Arm C	2.56	24.53	0.104	-	0.1	0.1	1.8	-	0.05
	Arm D	0.22	14.82	0.015	-	0.0	0.0	0.2	-	0.07

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	21.9	14.6	1.6	0.07	1.6	0.07
B	21.9	14.6	0.9	0.04	0.9	0.04
C	281.1	187.4	13.1	0.05	13.1	0.05
D	24.7	16.5	1.7	0.07	1.7	0.07
ALL	349.7	233.1	17.3	0.05	17.3	0.05

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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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 Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\A Fifth Main Ave\Main Ave Site Access pm 2010 + dev.vai**
At: **15:24:19 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Fifth Avenue (Site)
Arm B	Spine Road
Arm C	Link to Rhigos Rbt.
Arm D	Main Avenue

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site A Main / Fifth Ave / Link to Site pm 2010 plus dev
Location	Hirwaun
Date	08/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.70	4.00	4.30	3.70
Entry Width (m)	4.00	8.00	5.30	4.60
Flare Length (m)	1.00	8.20	7.00	3.50
Entry Radius (m)	16.50	59.50	16.70	19.50
Inscribed Circle Diameter (m)	32.00	32.00	32.00	32.00
Entry Angle (degrees)	32.00	23.00	13.00	34.00
Slope	0.538	0.690	0.648	0.560
Intercept (PCU/Min)	19.121	29.682	26.423	20.858

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site A Main / Fifth Ave / Link to Site p.m. 2010 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	1.0	121.0	0.0
Arm B	0.0	0.0	44.0	0.0
Arm C	53.0	12.0	0.0	5.0
Arm D	6.0	1.0	36.0	0.0

Entry Flow Data for Demand Set: Site A Main / Fifth Ave / Link to Site p.m. 2010 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	1.52	2.29	1.52
Arm B	15.00	45.00	75.00	0.55	0.83	0.55
Arm C	15.00	45.00	75.00	0.88	1.31	0.88
Arm D	15.00	45.00	75.00	0.54	0.81	0.54

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site A Main / Fifth Ave / Link to Site p.m. 2010 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	100.0	27.3	0.0
	Arm B	0.0	0.0	16.7	50.0
	Arm C	3.7	5.1	0.0	18.2
	Arm D	75.0	50.0	11.1	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	1.52	14.67	0.104	-	0.0	0.1	1.7	-	0.08
	Arm B	0.55	24.00	0.023	-	0.0	0.0	0.3	-	0.04
	Arm C	0.88	25.17	0.035	-	0.0	0.0	0.5	-	0.04
	Arm D	0.54	16.86	0.032	-	0.0	0.0	0.5	-	0.06
Segment : 2 - 07:30 to 07:45	Arm A	1.82	14.61	0.125	-	0.1	0.1	2.1	-	0.08
	Arm B	0.66	23.72	0.028	-	0.0	0.0	0.4	-	0.04
	Arm C	1.04	25.17	0.042	-	0.0	0.0	0.6	-	0.04
	Arm D	0.64	16.78	0.038	-	0.0	0.0	0.6	-	0.06
Segment : 3 - 07:45 to 08:00	Arm A	2.23	14.53	0.153	-	0.1	0.2	2.7	-	0.08
	Arm B	0.80	23.33	0.034	-	0.0	0.0	0.5	-	0.04
	Arm C	1.28	25.17	0.051	-	0.0	0.1	0.8	-	0.04
	Arm D	0.79	16.68	0.047	-	0.0	0.0	0.7	-	0.06
Segment : 4 - 08:00 to 08:15	Arm A	2.23	14.53	0.153	-	0.2	0.2	2.7	-	0.08
	Arm B	0.80	23.33	0.034	-	0.0	0.0	0.5	-	0.04
	Arm C	1.28	25.17	0.051	-	0.1	0.1	0.8	-	0.04
	Arm D	0.79	16.68	0.047	-	0.0	0.0	0.7	-	0.06
Segment : 5 - 08:15 to 08:30	Arm A	1.82	14.61	0.125	-	0.2	0.1	2.2	-	0.08
	Arm B	0.66	23.71	0.028	-	0.0	0.0	0.4	-	0.04
	Arm C	1.04	25.17	0.042	-	0.1	0.0	0.7	-	0.04
	Arm D	0.64	16.78	0.038	-	0.0	0.0	0.6	-	0.06
Segment : 6 - 08:30 to 08:45	Arm A	1.52	14.66	0.104	-	0.1	0.1	1.8	-	0.08
	Arm B	0.55	23.99	0.023	-	0.0	0.0	0.4	-	0.04
	Arm C	0.88	25.17	0.035	-	0.0	0.0	0.5	-	0.04
	Arm D	0.54	16.86	0.032	-	0.0	0.0	0.5	-	0.06

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	167.3	111.5	13.1	0.08	13.1	0.08
B	60.3	40.2	2.6	0.04	2.6	0.04
C	96.0	64.0	4.0	0.04	4.0	0.04
D	59.0	39.3	3.6	0.06	3.6	0.06
ALL	382.6	255.0	23.4	0.06	23.4	0.06

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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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 Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\A Fifth Main Ave\Main Ave Site Accessam 2025 + dev.vai**
At: **15:23:25 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Fifth Avenue (Site)
Arm B	Spine Road
Arm C	Link to Rhigos Rbt.
Arm D	Main Avenue

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site A Main / Fifth Ave / Link to Site am 2025 plus dev
Location	Hirwaun
Date	08/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.70	4.00	4.30	3.70
Entry Width (m)	4.00	8.00	5.30	4.60
Flare Length (m)	1.00	8.20	7.00	3.50
Entry Radius (m)	16.50	59.50	16.70	19.50
Inscribed Circle Diameter (m)	32.00	32.00	32.00	32.00
Entry Angle (degrees)	32.00	23.00	13.00	34.00
Slope	0.538	0.690	0.648	0.560
Intercept (PCU/Min)	19.121	29.682	26.423	20.858

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. 2025 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	1.0	16.0	0.0
Arm B	0.0	0.0	16.0	3.0
Arm C	116.0	51.0	0.0	57.0
Arm D	5.0	3.0	12.0	0.0

Entry Flow Data for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. 2025 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	0.21	0.32	0.21
Arm B	15.00	45.00	75.00	0.24	0.36	0.24
Arm C	15.00	45.00	75.00	2.80	4.20	2.80
Arm D	15.00	45.00	75.00	0.25	0.38	0.25

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site A Main / Fifth Ave / Link to Site a.m. 2025 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	100.0	27.3	0.0
	Arm B	0.0	0.0	16.7	50.0
	Arm C	3.7	5.1	0.0	18.2
	Arm D	75.0	50.0	11.1	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	0.21	14.17	0.015	-	0.0	0.0	0.2	-	0.07
	Arm B	0.24	24.10	0.010	-	0.0	0.0	0.1	-	0.04
	Arm C	2.80	24.50	0.114	-	0.0	0.1	1.9	-	0.05
	Arm D	0.25	14.78	0.017	-	0.0	0.0	0.3	-	0.07
Segment : 2 - 07:30 to 07:45	Arm A	0.25	14.10	0.018	-	0.0	0.0	0.3	-	0.07
	Arm B	0.28	24.05	0.012	-	0.0	0.0	0.2	-	0.04
	Arm C	3.34	24.49	0.137	-	0.1	0.2	2.3	-	0.05
	Arm D	0.30	14.60	0.020	-	0.0	0.0	0.3	-	0.07
Segment : 3 - 07:45 to 08:00	Arm A	0.31	14.00	0.022	-	0.0	0.0	0.3	-	0.07
	Arm B	0.35	23.99	0.014	-	0.0	0.0	0.2	-	0.04
	Arm C	4.09	24.48	0.167	-	0.2	0.2	3.0	-	0.05
	Arm D	0.37	14.35	0.025	-	0.0	0.0	0.4	-	0.07
Segment : 4 - 08:00 to 08:15	Arm A	0.31	14.00	0.022	-	0.0	0.0	0.3	-	0.07
	Arm B	0.35	23.99	0.014	-	0.0	0.0	0.2	-	0.04
	Arm C	4.09	24.48	0.167	-	0.2	0.2	3.0	-	0.05
	Arm D	0.37	14.35	0.025	-	0.0	0.0	0.4	-	0.07
Segment : 5 - 08:15 to 08:30	Arm A	0.25	14.09	0.018	-	0.0	0.0	0.3	-	0.07
	Arm B	0.28	24.05	0.012	-	0.0	0.0	0.2	-	0.04
	Arm C	3.34	24.49	0.137	-	0.2	0.2	2.4	-	0.05
	Arm D	0.30	14.60	0.020	-	0.0	0.0	0.3	-	0.07
Segment : 6 - 08:30 to 08:45	Arm A	0.21	14.17	0.015	-	0.0	0.0	0.2	-	0.07
	Arm B	0.24	24.10	0.010	-	0.0	0.0	0.2	-	0.04
	Arm C	2.80	24.50	0.114	-	0.2	0.1	2.0	-	0.05
	Arm D	0.25	14.77	0.017	-	0.0	0.0	0.3	-	0.07

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	23.3	15.5	1.7	0.07	1.7	0.07
B	26.1	17.4	1.1	0.04	1.1	0.04
C	307.2	204.8	14.6	0.05	14.6	0.05
D	27.4	18.3	1.9	0.07	1.9	0.07
ALL	383.9	256.0	19.3	0.05	19.3	0.05

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Web:www.trlsoftware.co.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 Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\A Fifth Main Ave\Main Ave Site Access pm 2025 + dev.vai**
At: **15:20:34 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Fifth Avenue (Site)
Arm B	Spine Road
Arm C	Link to Rhigos Rbt.
Arm D	Main Avenue

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site A Main / Fifth Ave / Link to Site pm 2025 plus dev
Location	Hirwaun
Date	08/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.70	4.00	4.30	3.70
Entry Width (m)	4.00	8.00	5.30	4.60
Flare Length (m)	1.00	8.20	7.00	3.50
Entry Radius (m)	16.50	59.50	16.70	19.50
Inscribed Circle Diameter (m)	32.00	32.00	32.00	32.00
Entry Angle (degrees)	32.00	23.00	13.00	34.00
Slope	0.538	0.690	0.648	0.560
Intercept (PCU/Min)	19.121	29.682	26.423	20.858

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site A Main / Fifth Ave / Link to Site pm 2025 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	1.0	129.0	3.0
Arm B	0.0	0.0	50.0	0.0
Arm C	56.0	13.0	0.0	5.0
Arm D	7.0	0.0	1.0	41.0

Entry Flow Data for Demand Set: Site A Main / Fifth Ave / Link to Site pm 2025 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	1.66	2.49	1.66
Arm B	15.00	45.00	75.00	0.63	0.94	0.63
Arm C	15.00	45.00	75.00	0.93	1.39	0.93
Arm D	15.00	45.00	75.00	0.61	0.92	0.61

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site A Main / Fifth Ave / Link to Site pm 2025 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	100.0	27.3	0.0
	Arm B	0.0	0.0	16.7	50.0
	Arm C	3.7	5.1	0.0	18.2
	Arm D	75.0	50.0	11.1	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	1.66	14.73	0.113	-	0.0	0.1	1.9	-	0.08
	Arm B	0.63	23.89	0.026	-	0.0	0.0	0.4	-	0.04
	Arm C	0.93	24.84	0.037	-	0.0	0.0	0.6	-	0.04
	Arm D	0.61	18.35	0.033	-	0.0	0.0	0.5	-	0.06
Segment : 2 - 07:30 to 07:45	Arm A	1.99	14.68	0.135	-	0.1	0.2	2.3	-	0.08
	Arm B	0.75	23.58	0.032	-	0.0	0.0	0.5	-	0.04
	Arm C	1.10	24.78	0.045	-	0.0	0.0	0.7	-	0.04
	Arm D	0.73	18.26	0.040	-	0.0	0.0	0.6	-	0.06
Segment : 3 - 07:45 to 08:00	Arm A	2.43	14.60	0.167	-	0.2	0.2	2.9	-	0.08
	Arm B	0.91	23.16	0.039	-	0.0	0.0	0.6	-	0.04
	Arm C	1.35	24.68	0.055	-	0.0	0.1	0.9	-	0.04
	Arm D	0.90	18.14	0.049	-	0.0	0.1	0.8	-	0.06
Segment : 4 - 08:00 to 08:15	Arm A	2.43	14.60	0.167	-	0.2	0.2	3.0	-	0.08
	Arm B	0.91	23.16	0.039	-	0.0	0.0	0.6	-	0.04
	Arm C	1.35	24.68	0.055	-	0.1	0.1	0.9	-	0.04
	Arm D	0.90	18.14	0.049	-	0.1	0.1	0.8	-	0.06
Segment : 5 - 08:15 to 08:30	Arm A	1.99	14.68	0.135	-	0.2	0.2	2.4	-	0.08
	Arm B	0.75	23.58	0.032	-	0.0	0.0	0.5	-	0.04
	Arm C	1.10	24.78	0.045	-	0.1	0.0	0.7	-	0.04
	Arm D	0.73	18.26	0.040	-	0.1	0.0	0.6	-	0.06
Segment : 6 - 08:30 to 08:45	Arm A	1.66	14.73	0.113	-	0.2	0.1	1.9	-	0.08
	Arm B	0.63	23.88	0.026	-	0.0	0.0	0.4	-	0.04
	Arm C	0.93	24.84	0.037	-	0.0	0.0	0.6	-	0.04
	Arm D	0.61	18.35	0.033	-	0.0	0.0	0.5	-	0.06

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	182.4	121.6	14.4	0.08	14.4	0.08
B	68.6	45.7	3.0	0.04	3.0	0.04
C	101.5	67.6	4.3	0.04	4.3	0.04
D	67.2	44.8	3.8	0.06	3.8	0.06
ALL	419.6	279.7	25.5	0.06	25.5	0.06

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

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GLAMORGAN CONSULTANCY

Appendix 5

ARCADY Results

Junction B - A4061 Rhigos Road / Access to Hirwaun Estate Roundabout.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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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 Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\B Rhigos Road\Rhigos Link Rbt am base 08.vai**
At: **15:46:15 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Link Road to Estate and Site
Arm B	A4061 Rhigos Road (A465)
Arm C	A4061 Rhigos Road (Treherbert)
Arm D	Rhigos Road (Rhigos)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site B A4061 Rhigos Road / Link Road a.m. base 08
Location	Hirwaun
Date	07/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	4.20	2.90	3.20	3.50
Entry Width (m)	7.00	6.20	6.50	7.00
Flare Length (m)	4.50	6.50	5.40	5.50
Entry Radius (m)	29.00	47.00	30.00	43.00
Inscribed Circle Diameter (m)	41.60	41.60	41.60	41.60
Entry Angle (degrees)	32.00	35.00	26.00	34.00
Slope	0.614	0.556	0.577	0.587
Intercept (PCU/Min)	26.151	21.220	22.456	23.785

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site B Rhigos Road / Link Road a.m. base 08

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	1.0	15.0	0.0	0.0
Arm B	133.0	0.0	120.0	100.0
Arm C	4.0	171.0	0.0	12.0
Arm D	5.0	103.0	13.0	0.0

Entry Flow Data for Demand Set: Site B Rhigos Road / Link Road a.m. base 08

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	0.20	0.30	0.20
Arm B	15.00	45.00	75.00	4.41	6.62	4.41
Arm C	15.00	45.00	75.00	2.34	3.51	2.34
Arm D	15.00	45.00	75.00	1.51	2.27	1.51

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site B Rhigos Road / Link Road a.m. base 08

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	13.3	0.0	0.0
	Arm B	9.0	0.0	15.8	8.0
	Arm C	0.0	8.8	0.0	0.0
	Arm D	0.0	6.8	0.0	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	0.20	21.15	0.009	-	0.0	0.0	0.1	-	0.05
	Arm B	4.41	19.02	0.232	-	0.0	0.3	4.4	-	0.07
	Arm C	2.34	19.10	0.122	-	0.0	0.1	2.0	-	0.06
	Arm D	1.51	20.16	0.075	-	0.0	0.1	1.2	-	0.05
Segment : 2 - 07:30 to 07:45	Arm A	0.24	20.73	0.012	-	0.0	0.0	0.2	-	0.05
	Arm B	5.27	19.01	0.277	-	0.3	0.4	5.6	-	0.07
	Arm C	2.79	18.76	0.149	-	0.1	0.2	2.6	-	0.06
	Arm D	1.81	19.70	0.092	-	0.1	0.1	1.5	-	0.06
Segment : 3 - 07:45 to 08:00	Arm A	0.29	20.17	0.015	-	0.0	0.0	0.2	-	0.05
	Arm B	6.45	18.98	0.340	-	0.4	0.5	7.5	-	0.08
	Arm C	3.42	18.31	0.187	-	0.2	0.2	3.4	-	0.07
	Arm D	2.21	19.08	0.116	-	0.1	0.1	1.9	-	0.06
Segment : 4 - 08:00 to 08:15	Arm A	0.29	20.17	0.015	-	0.0	0.0	0.2	-	0.05
	Arm B	6.45	18.98	0.340	-	0.5	0.5	7.7	-	0.08
	Arm C	3.42	18.30	0.187	-	0.2	0.2	3.4	-	0.07
	Arm D	2.21	19.07	0.116	-	0.1	0.1	2.0	-	0.06
Segment : 5 - 08:15 to 08:30	Arm A	0.24	20.73	0.012	-	0.0	0.0	0.2	-	0.05
	Arm B	5.27	19.01	0.277	-	0.5	0.4	5.9	-	0.07
	Arm C	2.79	18.76	0.149	-	0.2	0.2	2.7	-	0.06
	Arm D	1.81	19.69	0.092	-	0.1	0.1	1.5	-	0.06
Segment : 6 - 08:30 to 08:45	Arm A	0.20	21.14	0.009	-	0.0	0.0	0.1	-	0.05
	Arm B	4.41	19.02	0.232	-	0.4	0.3	4.6	-	0.07
	Arm C	2.34	19.09	0.122	-	0.2	0.1	2.1	-	0.06
	Arm D	1.51	20.15	0.075	-	0.1	0.1	1.2	-	0.05

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	21.9	14.6	1.1	0.05	1.1	0.05
B	484.0	322.7	35.7	0.07	35.7	0.07
C	256.4	170.9	16.2	0.06	16.2	0.06
D	165.9	110.6	9.4	0.06	9.4	0.06
ALL	928.3	618.9	62.4	0.07	62.4	0.07

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Run Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\B Rhigos Road\Rhigos Link Rbt pm base 08.vai**
At: **15:47:20 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Link Road to Estate and Site
Arm B	A4061 Rhigos Road (A465)
Arm C	A4061 Rhigos Road (Treherbert)
Arm D	Rhigos Road (Rhigos)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site B A4061 Rhigos Road / Link Road p.m. base 08
Location	Hirwaun
Date	07/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	4.20	2.90	3.20	3.50
Entry Width (m)	7.00	6.20	6.50	7.00
Flare Length (m)	4.50	6.50	5.40	5.50
Entry Radius (m)	29.00	47.00	30.00	43.00
Inscribed Circle Diameter (m)	41.60	41.60	41.60	41.60
Entry Angle (degrees)	32.00	35.00	26.00	34.00
Slope	0.614	0.556	0.577	0.587
Intercept (PCU/Min)	26.151	21.220	22.456	23.785

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **15:45 to 17:15**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site B Rhigos Road / Link Road a.m. base 08

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	104.0	2.0	6.0
Arm B	35.0	0.0	186.0	116.0
Arm C	0.0	116.0	0.0	3.0
Arm D	1.0	148.0	9.0	0.0

Entry Flow Data for Demand Set: Site B Rhigos Road / Link Road a.m. base 08

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	1.40	2.10	1.40
Arm B	15.00	45.00	75.00	4.21	6.32	4.21
Arm C	15.00	45.00	75.00	1.49	2.23	1.49
Arm D	15.00	45.00	75.00	1.98	2.96	1.98

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site B Rhigos Road / Link Road a.m. base 08

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
15:45 to 17:15	Arm A	0.0	8.7	0.0	16.7
	Arm B	20.0	0.0	3.2	8.6
	Arm C	0.0	7.8	0.0	0.0
	Arm D	100.0	2.0	0.0	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 15:45 to 16:00	Arm A	1.40	21.99	0.064	-	0.0	0.1	1.0	-	0.05
	Arm B	4.21	19.75	0.213	-	0.0	0.3	4.0	-	0.06
	Arm C	1.49	19.70	0.076	-	0.0	0.1	1.2	-	0.05
	Arm D	1.98	22.01	0.090	-	0.0	0.1	1.4	-	0.05
Segment : 2 - 16:00 to 16:15	Arm A	1.67	21.60	0.077	-	0.1	0.1	1.2	-	0.05
	Arm B	5.03	19.73	0.255	-	0.3	0.3	5.0	-	0.07
	Arm C	1.78	19.47	0.091	-	0.1	0.1	1.5	-	0.06
	Arm D	2.36	21.78	0.108	-	0.1	0.1	1.8	-	0.05
Segment : 3 - 16:15 to 16:30	Arm A	2.05	21.06	0.097	-	0.1	0.1	1.6	-	0.05
	Arm B	6.16	19.70	0.313	-	0.3	0.5	6.7	-	0.07
	Arm C	2.18	19.16	0.114	-	0.1	0.1	1.9	-	0.06
	Arm D	2.89	21.45	0.135	-	0.1	0.2	2.3	-	0.05
Segment : 4 - 16:30 to 16:45	Arm A	2.05	21.06	0.097	-	0.1	0.1	1.6	-	0.05
	Arm B	6.16	19.70	0.313	-	0.5	0.5	6.8	-	0.07
	Arm C	2.18	19.15	0.114	-	0.1	0.1	1.9	-	0.06
	Arm D	2.89	21.45	0.135	-	0.2	0.2	2.3	-	0.05
Segment : 5 - 16:45 to 17:00	Arm A	1.67	21.60	0.077	-	0.1	0.1	1.3	-	0.05
	Arm B	5.03	19.73	0.255	-	0.5	0.3	5.3	-	0.07
	Arm C	1.78	19.47	0.091	-	0.1	0.1	1.5	-	0.06
	Arm D	2.36	21.77	0.108	-	0.2	0.1	1.9	-	0.05
Segment : 6 - 17:00 to 17:15	Arm A	1.40	21.98	0.064	-	0.1	0.1	1.0	-	0.05
	Arm B	4.21	19.75	0.213	-	0.3	0.3	4.2	-	0.06
	Arm C	1.49	19.69	0.076	-	0.1	0.1	1.2	-	0.05
	Arm D	1.98	22.00	0.090	-	0.1	0.1	1.5	-	0.05

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	153.6	102.4	7.8	0.05	7.8	0.05
B	462.1	308.1	31.8	0.07	31.8	0.07
C	163.2	108.8	9.3	0.06	9.3	0.06
D	216.7	144.4	11.2	0.05	11.2	0.05
ALL	995.5	663.7	60.1	0.06	60.1	0.06

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6		
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Run Information

Run with file:- o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\B Rhigos Road\Rhigos Link Rbt am 2010 plus dev.vai
At: 15:34:16 on Thursday, October 16, 2008
Mode: Drive On The Left
Units: Metric

Arm Labelling

Arm	Full Arm Names
Arm A	Link Road to Estate and Site
Arm B	A4061 Rhigos Road (A465)
Arm C	A4061 Rhigos Road (Treherbert)
Arm D	Rhigos Road (Rhigos)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site B A4061 Rhigos Road / Link Road a.m. 2010 plus dev
Location	Hirwaun
Date	07/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	4.20	2.90	3.20	3.50
Entry Width (m)	7.00	6.20	6.50	7.00
Flare Length (m)	4.50	6.50	5.40	5.50
Entry Radius (m)	29.00	47.00	30.00	43.00
Inscribed Circle Diameter (m)	41.60	41.60	41.60	41.60
Entry Angle (degrees)	32.00	35.00	26.00	34.00
Slope	0.614	0.556	0.577	0.587
Intercept (PCU/Min)	26.151	21.220	22.456	23.785

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site B Rhigos Road / Link Road a.m. 2010 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	1.0	20.0	0.0	0.0
Arm B	199.0	0.0	140.0	117.0
Arm C	5.0	200.0	0.0	14.0
Arm D	8.0	121.0	15.0	0.0

Entry Flow Data for Demand Set: Site B Rhigos Road / Link Road a.m. 2010 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	0.26	0.39	0.26
Arm B	15.00	45.00	75.00	5.70	8.55	5.70
Arm C	15.00	45.00	75.00	2.74	4.11	2.74
Arm D	15.00	45.00	75.00	1.80	2.70	1.80

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site B Rhigos Road / Link Road a.m. 2010 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	13.3	0.0	0.0
	Arm B	9.0	0.0	15.8	8.0
	Arm C	0.0	8.8	0.0	0.0
	Arm D	0.0	6.8	0.0	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	0.26	20.75	0.013	-	0.0	0.0	0.2	-	0.05
	Arm B	5.70	19.05	0.299	-	0.0	0.4	6.2	-	0.07
	Arm C	2.74	18.50	0.148	-	0.0	0.2	2.5	-	0.06
	Arm D	1.80	19.45	0.093	-	0.0	0.1	1.5	-	0.06
Segment : 2 - 07:30 to 07:45	Arm A	0.31	20.27	0.015	-	0.0	0.0	0.2	-	0.05
	Arm B	6.81	19.03	0.358	-	0.4	0.6	8.1	-	0.08
	Arm C	3.27	18.04	0.181	-	0.2	0.2	3.3	-	0.07
	Arm D	2.15	18.85	0.114	-	0.1	0.1	1.9	-	0.06
Segment : 3 - 07:45 to 08:00	Arm A	0.38	19.61	0.020	-	0.0	0.0	0.3	-	0.05
	Arm B	8.34	19.00	0.439	-	0.6	0.8	11.3	-	0.09
	Arm C	4.00	17.43	0.230	-	0.2	0.3	4.4	-	0.07
	Arm D	2.63	18.03	0.146	-	0.1	0.2	2.5	-	0.06
Segment : 4 - 08:00 to 08:15	Arm A	0.38	19.60	0.020	-	0.0	0.0	0.3	-	0.05
	Arm B	8.34	19.00	0.439	-	0.8	0.8	11.6	-	0.09
	Arm C	4.00	17.42	0.230	-	0.3	0.3	4.5	-	0.07
	Arm D	2.63	18.02	0.146	-	0.2	0.2	2.6	-	0.06
Segment : 5 - 08:15 to 08:30	Arm A	0.31	20.26	0.015	-	0.0	0.0	0.2	-	0.05
	Arm B	6.81	19.03	0.358	-	0.8	0.6	8.6	-	0.08
	Arm C	3.27	18.04	0.181	-	0.3	0.2	3.4	-	0.07
	Arm D	2.15	18.84	0.114	-	0.2	0.1	2.0	-	0.06
Segment : 6 - 08:30 to 08:45	Arm A	0.26	20.74	0.013	-	0.0	0.0	0.2	-	0.05
	Arm B	5.70	19.05	0.299	-	0.6	0.4	6.6	-	0.08
	Arm C	2.74	18.48	0.148	-	0.2	0.2	2.7	-	0.06
	Arm D	1.80	19.43	0.093	-	0.1	0.1	1.6	-	0.06

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	28.8	19.2	1.4	0.05	1.4	0.05
B	625.3	416.8	52.4	0.08	52.4	0.08
C	300.3	200.2	20.7	0.07	20.7	0.07
D	197.5	131.6	12.0	0.06	12.0	0.06
ALL	1151.8	767.9	86.5	0.08	86.6	0.08

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Run Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\B Rhigos Road\Rhigos Link Rbt pm 2010 plus dev.vai**
At: **15:39:32 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Link Road to Estate and Site
Arm B	A4061 Rhigos Road (A465)
Arm C	A4061 Rhigos Road (Treherbert)
Arm D	Rhigos Road (Rhigos)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site B A4061 Rhigos Road / Link Road p.m. 2010 plus dev
Location	Hirwaun
Date	07/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	4.20	2.90	3.20	3.50
Entry Width (m)	7.00	6.20	6.50	7.00
Flare Length (m)	4.50	6.50	5.40	5.50
Entry Radius (m)	29.00	47.00	30.00	43.00
Inscribed Circle Diameter (m)	41.60	41.60	41.60	41.60
Entry Angle (degrees)	32.00	35.00	26.00	34.00
Slope	0.614	0.556	0.577	0.587
Intercept (PCU/Min)	26.151	21.220	22.456	23.785

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **15:45 to 17:15**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site B Rhigos Road / Link Road pm 2010 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	173.0	2.0	9.0
Arm B	71.0	0.0	218.0	136.0
Arm C	0.0	136.0	0.0	4.0
Arm D	3.0	173.0	11.0	0.0

Entry Flow Data for Demand Set: Site B Rhigos Road / Link Road pm 2010 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	2.30	3.45	2.30
Arm B	15.00	45.00	75.00	5.31	7.97	5.31
Arm C	15.00	45.00	75.00	1.75	2.63	1.75
Arm D	15.00	45.00	75.00	2.34	3.51	2.34

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site B Rhigos Road / Link Road pm 2010 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
15:45 to 17:15	Arm A	0.0	8.7	0.0	16.7
	Arm B	20.0	0.0	3.2	8.6
	Arm C	0.0	7.8	0.0	0.0
	Arm D	100.0	2.0	0.0	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 15:45 to 16:00	Arm A	2.30	21.65	0.106	-	0.0	0.1	1.7	-	0.05
	Arm B	5.31	19.55	0.272	-	0.0	0.4	5.4	-	0.07
	Arm C	1.75	19.25	0.091	-	0.0	0.1	1.5	-	0.06
	Arm D	2.34	21.35	0.109	-	0.0	0.1	1.8	-	0.05
Segment : 2 - 16:00 to 16:15	Arm A	2.75	21.18	0.130	-	0.1	0.1	2.2	-	0.05
	Arm B	6.34	19.52	0.325	-	0.4	0.5	7.0	-	0.08
	Arm C	2.09	18.93	0.110	-	0.1	0.1	1.8	-	0.06
	Arm D	2.79	21.03	0.133	-	0.1	0.2	2.3	-	0.05
Segment : 3 - 16:15 to 16:30	Arm A	3.36	20.55	0.164	-	0.1	0.2	2.9	-	0.06
	Arm B	7.77	19.47	0.399	-	0.5	0.7	9.6	-	0.09
	Arm C	2.56	18.49	0.138	-	0.1	0.2	2.4	-	0.06
	Arm D	3.42	20.59	0.166	-	0.2	0.2	2.9	-	0.06
Segment : 4 - 16:30 to 16:45	Arm A	3.36	20.55	0.164	-	0.2	0.2	2.9	-	0.06
	Arm B	7.77	19.47	0.399	-	0.7	0.7	9.9	-	0.09
	Arm C	2.56	18.49	0.138	-	0.2	0.2	2.4	-	0.06
	Arm D	3.42	20.58	0.166	-	0.2	0.2	3.0	-	0.06
Segment : 5 - 16:45 to 17:00	Arm A	2.75	21.18	0.130	-	0.2	0.1	2.3	-	0.05
	Arm B	6.34	19.52	0.325	-	0.7	0.5	7.4	-	0.08
	Arm C	2.09	18.92	0.110	-	0.2	0.1	1.9	-	0.06
	Arm D	2.79	21.02	0.133	-	0.2	0.2	2.3	-	0.05
Segment : 6 - 17:00 to 17:15	Arm A	2.30	21.64	0.106	-	0.1	0.1	1.8	-	0.05
	Arm B	5.31	19.54	0.272	-	0.5	0.4	5.7	-	0.07
	Arm C	1.75	19.24	0.091	-	0.1	0.1	1.5	-	0.06
	Arm D	2.34	21.34	0.110	-	0.2	0.1	1.9	-	0.05

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	252.3	168.2	13.8	0.05	13.8	0.05
B	582.8	388.5	45.2	0.08	45.2	0.08
C	192.0	128.0	11.5	0.06	11.5	0.06
D	256.4	170.9	14.2	0.06	14.2	0.06
ALL	1283.5	855.6	84.7	0.07	84.7	0.07

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6		
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Run Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\B Rhigos Road\Rhigos Link Rbt am 2025 plus dev.vai**
At: **15:42:57 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Link Road to Estate and Site
Arm B	A4061 Rhigos Road (A465)
Arm C	A4061 Rhigos Road (Treherbert)
Arm D	Rhigos Road (Rhigos)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site B A4061 Rhigos Road / Link Road a.m. 2025 plus dev
Location	Hirwaun
Date	07/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	4.20	2.90	3.20	3.50
Entry Width (m)	7.00	6.20	6.50	7.00
Flare Length (m)	4.50	6.50	5.40	5.50
Entry Radius (m)	29.00	47.00	30.00	43.00
Inscribed Circle Diameter (m)	41.60	41.60	41.60	41.60
Entry Angle (degrees)	32.00	35.00	26.00	34.00
Slope	0.614	0.556	0.577	0.587
Intercept (PCU/Min)	26.151	21.220	22.456	23.785

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site B Rhigos Road / Link Road a.m. 2025 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	1.0	22.0	0.0	0.0
Arm B	217.0	0.0	157.0	131.0
Arm C	5.0	224.0	0.0	15.0
Arm D	9.0	135.0	17.0	0.0

Entry Flow Data for Demand Set: Site B Rhigos Road / Link Road a.m. 2025 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	0.29	0.43	0.29
Arm B	15.00	45.00	75.00	6.31	9.47	6.31
Arm C	15.00	45.00	75.00	3.05	4.57	3.05
Arm D	15.00	45.00	75.00	2.01	3.02	2.01

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site B Rhigos Road / Link Road a.m. 2025 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	13.3	0.0	0.0
	Arm B	9.0	0.0	15.8	8.0
	Arm C	0.0	8.8	0.0	0.0
	Arm D	0.0	6.8	0.0	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	0.29	20.45	0.014	-	0.0	0.0	0.2	-	0.05
	Arm B	6.31	19.03	0.332	-	0.0	0.5	7.2	-	0.08
	Arm C	3.05	18.26	0.167	-	0.0	0.2	2.9	-	0.07
	Arm D	2.01	19.14	0.105	-	0.0	0.1	1.7	-	0.06
Segment : 2 - 07:30 to 07:45	Arm A	0.34	19.91	0.017	-	0.0	0.0	0.3	-	0.05
	Arm B	7.54	19.01	0.397	-	0.5	0.7	9.5	-	0.09
	Arm C	3.64	17.76	0.205	-	0.2	0.3	3.8	-	0.07
	Arm D	2.40	18.47	0.130	-	0.1	0.1	2.2	-	0.06
Segment : 3 - 07:45 to 08:00	Arm A	0.42	19.17	0.022	-	0.0	0.0	0.3	-	0.05
	Arm B	9.23	18.98	0.486	-	0.7	0.9	13.6	-	0.10
	Arm C	4.46	17.09	0.261	-	0.3	0.4	5.2	-	0.08
	Arm D	2.94	17.57	0.168	-	0.1	0.2	3.0	-	0.07
Segment : 4 - 08:00 to 08:15	Arm A	0.42	19.17	0.022	-	0.0	0.0	0.3	-	0.05
	Arm B	9.23	18.98	0.486	-	0.9	0.9	14.1	-	0.10
	Arm C	4.46	17.08	0.261	-	0.4	0.4	5.3	-	0.08
	Arm D	2.94	17.56	0.168	-	0.2	0.2	3.0	-	0.07
Segment : 5 - 08:15 to 08:30	Arm A	0.34	19.90	0.017	-	0.0	0.0	0.3	-	0.05
	Arm B	7.54	19.01	0.397	-	0.9	0.7	10.2	-	0.09
	Arm C	3.64	17.75	0.205	-	0.4	0.3	4.0	-	0.07
	Arm D	2.40	18.46	0.130	-	0.2	0.2	2.3	-	0.06
Segment : 6 - 08:30 to 08:45	Arm A	0.29	20.44	0.014	-	0.0	0.0	0.2	-	0.05
	Arm B	6.31	19.03	0.332	-	0.7	0.5	7.7	-	0.08
	Arm C	3.05	18.24	0.167	-	0.3	0.2	3.1	-	0.07
	Arm D	2.01	19.12	0.105	-	0.2	0.1	1.8	-	0.06

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	31.5	21.0	1.6	0.05	1.6	0.05
B	692.5	461.6	62.3	0.09	62.3	0.09
C	334.6	223.1	24.2	0.07	24.2	0.07
D	220.8	147.2	14.0	0.06	14.0	0.06
ALL	1279.3	852.9	102.1	0.08	102.1	0.08

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Run Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\B Rhigos Road\Rhigos Link Rbt pm 2025 plus dev.vai**
At: **15:45:17 on Thursday, October 16, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	Link Road to Estate and Site
Arm B	A4061 Rhigos Road (A465)
Arm C	A4061 Rhigos Road (Treherbert)
Arm D	Rhigos Road (Rhigos)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site B A4061 Rhigos Road / Link Road p.m. 2025 plus dev
Location	Hirwaun
Date	07/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	
Status	
Description	

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	4.20	2.90	3.20	3.50
Entry Width (m)	7.00	6.20	6.50	7.00
Flare Length (m)	4.50	6.50	5.40	5.50
Entry Radius (m)	29.00	47.00	30.00	43.00
Inscribed Circle Diameter (m)	41.60	41.60	41.60	41.60
Entry Angle (degrees)	32.00	35.00	26.00	34.00
Slope	0.614	0.556	0.577	0.587
Intercept (PCU/Min)	26.151	21.220	22.456	23.785

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **15:45 to 17:15**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site B Rhigos Road / Link Road a.m. 2025 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	187.0	3.0	10.0
Arm B	76.0	0.0	244.0	152.0
Arm C	0.0	152.0	0.0	4.0
Arm D	3.0	194.0	12.0	0.0

Entry Flow Data for Demand Set: Site B Rhigos Road / Link Road a.m. 2025 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	2.50	3.75	2.50
Arm B	15.00	45.00	75.00	5.90	8.85	5.90
Arm C	15.00	45.00	75.00	1.95	2.93	1.95
Arm D	15.00	45.00	75.00	2.61	3.92	2.61

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site B Rhigos Road / Link Road a.m. 2025 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
15:45 to 17:15	Arm A	0.0	8.7	0.0	16.7
	Arm B	20.0	0.0	3.2	8.6
	Arm C	0.0	7.8	0.0	0.0
	Arm D	100.0	2.0	0.0	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 15:45 to 16:00	Arm A	2.50	21.37	0.117	-	0.0	0.1	1.9	-	0.05
	Arm B	5.90	19.54	0.302	-	0.0	0.4	6.3	-	0.07
	Arm C	1.95	19.08	0.102	-	0.0	0.1	1.7	-	0.06
	Arm D	2.61	21.22	0.123	-	0.0	0.1	2.1	-	0.05
Segment : 2 - 16:00 to 16:15	Arm A	2.99	20.86	0.143	-	0.1	0.2	2.5	-	0.06
	Arm B	7.05	19.51	0.361	-	0.4	0.6	8.2	-	0.08
	Arm C	2.33	18.73	0.124	-	0.1	0.1	2.1	-	0.06
	Arm D	3.12	20.86	0.150	-	0.1	0.2	2.6	-	0.06
Segment : 3 - 16:15 to 16:30	Arm A	3.66	20.15	0.181	-	0.2	0.2	3.3	-	0.06
	Arm B	8.63	19.46	0.443	-	0.6	0.8	11.5	-	0.09
	Arm C	2.85	18.25	0.156	-	0.1	0.2	2.7	-	0.06
	Arm D	3.82	20.38	0.187	-	0.2	0.2	3.4	-	0.06
Segment : 4 - 16:30 to 16:45	Arm A	3.66	20.15	0.181	-	0.2	0.2	3.3	-	0.06
	Arm B	8.63	19.46	0.443	-	0.8	0.8	11.9	-	0.09
	Arm C	2.85	18.24	0.156	-	0.2	0.2	2.8	-	0.06
	Arm D	3.82	20.37	0.188	-	0.2	0.2	3.4	-	0.06
Segment : 5 - 16:45 to 17:00	Arm A	2.99	20.85	0.143	-	0.2	0.2	2.6	-	0.06
	Arm B	7.05	19.51	0.361	-	0.8	0.6	8.8	-	0.08
	Arm C	2.33	18.72	0.124	-	0.2	0.1	2.2	-	0.06
	Arm D	3.12	20.86	0.150	-	0.2	0.2	2.7	-	0.06
Segment : 6 - 17:00 to 17:15	Arm A	2.50	21.36	0.117	-	0.2	0.1	2.0	-	0.05
	Arm B	5.90	19.54	0.302	-	0.6	0.4	6.7	-	0.07
	Arm C	1.95	19.07	0.102	-	0.1	0.1	1.7	-	0.06
	Arm D	2.61	21.21	0.123	-	0.2	0.1	2.1	-	0.05

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	274.2	182.8	15.6	0.06	15.6	0.06
B	647.2	431.5	53.3	0.08	53.3	0.08
C	213.9	142.6	13.2	0.06	13.2	0.06
D	286.6	191.1	16.3	0.06	16.3	0.06
ALL	1421.9	948.0	98.3	0.07	98.3	0.07

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

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Appendix 6

ARCADY Results

Junction C - A465 Heads of the Valleys Road / A4059 Rhigos Road / Pontpren Roundabout

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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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 Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\C A465 Heads of Valley\A465 Rbt am base 08.vai**
At: **09:13:48 on Friday, October 17, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	A4059 Pontpren (Penderyn)
Arm B	A465 Heads of Valley (Hirwaun Rbt.)
Arm C	A4061 Rhigos Road
Arm D	A465 Heads of Valley (Glynneath)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site C A465 Hiwaun Roundabout am base 08
Location	Heads of the Valley
Date	09/10/2008
Client	Envirparks
Enumerator	MearsD [COM70BRM]
Job Number	G00038
Status	
Description	

Errors and Warnings

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

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.50	6.70	4.00	8.40
Entry Width (m)	9.30	10.00	10.20	8.40
Flare Length (m)	35.00	13.50	19.00	0.00
Entry Radius (m)	72.00	123.00	59.50	64.00
Inscribed Circle Diameter (m)	113.00	113.00	113.00	113.00
Entry Angle (degrees)	30.00	15.00	16.00	28.00
Slope	0.536	0.624	0.548	0.587
Intercept (PCU/Min)	38.115	47.202	38.395	44.140

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site C A465 Hiwaun Roundabout_am 2008

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	90.0	67.0	100.0
Arm B	69.0	0.0	234.0	714.0
Arm C	63.0	198.0	0.0	88.0
Arm D	82.0	816.0	86.0	0.0

Entry Flow Data for Demand Set: Site C A465 Hiwaun Roundabout_am 2008

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	3.21	4.82	3.21
Arm B	15.00	45.00	75.00	12.71	19.07	12.71
Arm C	15.00	45.00	75.00	4.36	6.54	4.36
Arm D	15.00	45.00	75.00	12.30	18.45	12.30

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site C A465 Hiwaun Roundabout_am 2008

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	8.9	14.9	48.0
	Arm B	27.5	0.0	7.7	5.6
	Arm C	19.0	14.1	0.0	29.5
	Arm D	13.4	7.6	27.9	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	3.21	23.88	0.135	-	0.0	0.2	2.3	-	0.05
	Arm B	12.71	41.46	0.307	-	0.0	0.4	6.5	-	0.03
	Arm C	4.36	26.61	0.164	-	0.0	0.2	2.9	-	0.04
	Arm D	12.30	37.59	0.327	-	0.0	0.5	7.1	-	0.04
Segment : 2 - 07:30 to 07:45	Arm A	3.84	22.61	0.170	-	0.2	0.2	3.0	-	0.05
	Arm B	15.18	40.98	0.370	-	0.4	0.6	8.7	-	0.04
	Arm C	5.21	25.50	0.204	-	0.2	0.3	3.8	-	0.05
	Arm D	14.69	37.08	0.396	-	0.5	0.7	9.6	-	0.04
Segment : 3 - 07:45 to 08:00	Arm A	4.70	20.88	0.225	-	0.2	0.3	4.3	-	0.06
	Arm B	18.59	40.33	0.461	-	0.6	0.9	12.5	-	0.05
	Arm C	6.38	23.97	0.266	-	0.3	0.4	5.3	-	0.06
	Arm D	17.99	36.38	0.494	-	0.7	1.0	14.3	-	0.05
Segment : 4 - 08:00 to 08:15	Arm A	4.70	20.87	0.225	-	0.3	0.3	4.3	-	0.06
	Arm B	18.59	40.33	0.461	-	0.9	0.9	12.8	-	0.05
	Arm C	6.38	23.96	0.266	-	0.4	0.4	5.4	-	0.06
	Arm D	17.99	36.38	0.494	-	1.0	1.0	14.6	-	0.05
Segment : 5 - 08:15 to 08:30	Arm A	3.84	22.59	0.170	-	0.3	0.2	3.1	-	0.05
	Arm B	15.18	40.98	0.370	-	0.9	0.6	9.0	-	0.04
	Arm C	5.21	25.48	0.204	-	0.4	0.3	3.9	-	0.05
	Arm D	14.69	37.07	0.396	-	1.0	0.7	10.1	-	0.04
Segment : 6 - 08:30 to 08:45	Arm A	3.21	23.85	0.135	-	0.2	0.2	2.4	-	0.05
	Arm B	12.71	41.45	0.307	-	0.6	0.4	6.7	-	0.03
	Arm C	4.36	26.59	0.164	-	0.3	0.2	3.0	-	0.05
	Arm D	12.30	37.58	0.327	-	0.7	0.5	7.4	-	0.04

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	352.4	234.9	19.4	0.06	19.4	0.06
B	1394.5	929.7	56.2	0.04	56.2	0.04
C	478.6	319.0	24.3	0.05	24.3	0.05
D	1349.3	899.5	63.1	0.05	63.1	0.05
ALL	3574.7	2383.2	163.1	0.05	163.1	0.05

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Web:www.trlsoftware.co.uk

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Run Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\C A465 Heads of Valley\A465 Rbt pm base 08.vai**
At: **09:14:35 on Friday, October 17, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	A4059 Pontpren (Penderyn)
Arm B	A465 Heads of Valley (Hirwaun Rbt.)
Arm C	A4061 Rhigos Road
Arm D	A465 Heads of Valley (Glynneath)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site C A465 Hiwaun Roundabout pm base 08
Location	Heads of the Valley
Date	09/10/2008
Client	Envirparks
Enumerator	MearsD [COM70BRM]
Job Number	G00038
Status	
Description	

Errors and Warnings

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

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.50	6.70	4.00	8.40
Entry Width (m)	9.30	10.00	10.20	8.40
Flare Length (m)	35.00	13.50	19.00	0.00
Entry Radius (m)	72.00	123.00	59.50	64.00
Inscribed Circle Diameter (m)	113.00	113.00	113.00	113.00
Entry Angle (degrees)	30.00	15.00	16.00	28.00
Slope	0.536	0.624	0.548	0.587
Intercept (PCU/Min)	38.115	47.202	38.395	44.140

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **16:15 to 17:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site C A465 Hiwaun Roundabout pm 2008

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	81.0	32.0	115.0
Arm B	108.0	0.0	229.0	701.0
Arm C	191.0	234.0	0.0	63.0
Arm D	99.0	721.0	60.0	0.0

Entry Flow Data for Demand Set: Site C A465 Hiwaun Roundabout pm 2008

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	2.85	4.27	2.85
Arm B	15.00	45.00	75.00	12.98	19.46	12.98
Arm C	15.00	45.00	75.00	6.10	9.15	6.10
Arm D	15.00	45.00	75.00	11.00	16.50	11.00

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site C A465 Hiwaun Roundabout pm 2008

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
16:15 to 17:45	Arm A	0.0	3.7	40.6	7.8
	Arm B	27.8	0.0	5.2	3.9
	Arm C	14.1	9.8	0.0	14.3
	Arm D	5.1	3.3	6.7	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 16:15 to 16:30	Arm A	2.85	27.94	0.102	-	0.0	0.1	1.7	-	0.04
	Arm B	12.98	42.55	0.305	-	0.0	0.4	6.5	-	0.03
	Arm C	6.10	28.23	0.216	-	0.0	0.3	4.0	-	0.05
	Arm D	11.00	38.23	0.288	-	0.0	0.4	5.9	-	0.04
Segment : 2 - 16:30 to 16:45	Arm A	3.40	26.68	0.128	-	0.1	0.1	2.2	-	0.04
	Arm B	15.49	42.22	0.367	-	0.4	0.6	8.6	-	0.04
	Arm C	7.28	27.04	0.269	-	0.3	0.4	5.4	-	0.05
	Arm D	13.14	37.38	0.351	-	0.4	0.5	8.0	-	0.04
Segment : 3 - 16:45 to 17:00	Arm A	4.17	24.96	0.167	-	0.1	0.2	3.0	-	0.05
	Arm B	18.98	41.76	0.454	-	0.6	0.8	12.2	-	0.04
	Arm C	8.92	25.42	0.351	-	0.4	0.5	7.9	-	0.06
	Arm D	16.09	36.22	0.444	-	0.5	0.8	11.7	-	0.05
Segment : 4 - 17:00 to 17:15	Arm A	4.17	24.95	0.167	-	0.2	0.2	3.0	-	0.05
	Arm B	18.98	41.76	0.454	-	0.8	0.8	12.4	-	0.04
	Arm C	8.92	25.41	0.351	-	0.5	0.5	8.1	-	0.06
	Arm D	16.09	36.21	0.444	-	0.8	0.8	11.9	-	0.05
Segment : 5 - 17:15 to 17:30	Arm A	3.40	26.66	0.128	-	0.2	0.1	2.2	-	0.04
	Arm B	15.49	42.21	0.367	-	0.8	0.6	8.9	-	0.04
	Arm C	7.28	27.03	0.269	-	0.5	0.4	5.7	-	0.05
	Arm D	13.14	37.37	0.352	-	0.8	0.5	8.3	-	0.04
Segment : 6 - 17:30 to 17:45	Arm A	2.85	27.92	0.102	-	0.1	0.1	1.7	-	0.04
	Arm B	12.98	42.55	0.305	-	0.6	0.4	6.7	-	0.03
	Arm C	6.10	28.21	0.216	-	0.4	0.3	4.2	-	0.05
	Arm D	11.00	38.21	0.288	-	0.5	0.4	6.2	-	0.04

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	312.6	208.4	13.8	0.04	13.8	0.04
B	1423.3	948.9	55.2	0.04	55.2	0.04
C	669.2	446.1	35.3	0.05	35.3	0.05
D	1206.7	804.4	52.0	0.04	52.0	0.04
ALL	3611.8	2407.8	156.3	0.04	156.3	0.04

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Run Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\C A465 Heads of Valley\A465 Rbt am 2010 plus dev.vai**
At: **08:37:12 on Friday, October 17, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	A4059 Pontpren (Penderyn)
Arm B	A465 Heads of Valley (Hirwaun Rbt.)
Arm C	A4061 Rhigos Road
Arm D	A465 Heads of Valley (Glynneath)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site C A465 Hiwaun Roundabout am 2010 plus dev
Location	Heads of the Valley
Date	09/10/2008
Client	Envirparks
Enumerator	MearsD [COM70BRM]
Job Number	G00038
Status	
Description	

Errors and Warnings

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

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.50	6.70	4.00	8.40
Entry Width (m)	9.30	10.00	10.20	8.40
Flare Length (m)	35.00	13.50	19.00	0.00
Entry Radius (m)	72.00	123.00	59.50	64.00
Inscribed Circle Diameter (m)	113.00	113.00	113.00	113.00
Entry Angle (degrees)	30.00	15.00	16.00	28.00
Slope	0.536	0.624	0.548	0.587
Intercept (PCU/Min)	38.115	47.202	38.395	44.140

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site C A465 Hiwaun Roundabout 2010 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	105.0	81.0	117.0
Arm B	81.0	0.0	310.0	835.0
Arm C	74.0	234.0	0.0	103.0
Arm D	96.0	955.0	105.0	0.0

Entry Flow Data for Demand Set: Site C A465 Hiwaun Roundabout 2010 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	3.79	5.68	3.79
Arm B	15.00	45.00	75.00	15.32	22.99	15.32
Arm C	15.00	45.00	75.00	5.14	7.71	5.14
Arm D	15.00	45.00	75.00	14.45	21.67	14.45

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site C A465 Hiwaun Roundabout 2010 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	8.9	14.9	48.0
	Arm B	27.5	0.0	7.7	5.6
	Arm C	19.0	14.1	0.0	29.5
	Arm D	13.4	7.6	27.9	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	3.79	22.75	0.166	-	0.0	0.2	2.9	-	0.05
	Arm B	15.32	40.98	0.374	-	0.0	0.6	8.8	-	0.04
	Arm C	5.14	25.65	0.200	-	0.0	0.2	3.7	-	0.05
	Arm D	14.45	37.10	0.389	-	0.0	0.6	9.3	-	0.04
Segment : 2 - 07:30 to 07:45	Arm A	4.52	21.26	0.213	-	0.2	0.3	4.0	-	0.06
	Arm B	18.30	40.41	0.453	-	0.6	0.8	12.1	-	0.05
	Arm C	6.13	24.35	0.252	-	0.2	0.3	5.0	-	0.05
	Arm D	17.25	36.50	0.473	-	0.6	0.9	13.1	-	0.05
Segment : 3 - 07:45 to 08:00	Arm A	5.54	19.22	0.288	-	0.3	0.4	5.9	-	0.07
	Arm B	22.41	39.64	0.565	-	0.8	1.3	18.9	-	0.06
	Arm C	7.51	22.56	0.333	-	0.3	0.5	7.3	-	0.07
	Arm D	21.13	35.69	0.592	-	0.9	1.4	20.9	-	0.07
Segment : 4 - 08:00 to 08:15	Arm A	5.54	19.20	0.288	-	0.4	0.4	6.0	-	0.07
	Arm B	22.41	39.63	0.566	-	1.3	1.3	19.4	-	0.06
	Arm C	7.51	22.55	0.333	-	0.5	0.5	7.5	-	0.07
	Arm D	21.13	35.68	0.592	-	1.4	1.4	21.6	-	0.07
Segment : 5 - 08:15 to 08:30	Arm A	4.52	21.23	0.213	-	0.4	0.3	4.2	-	0.06
	Arm B	18.30	40.40	0.453	-	1.3	0.8	12.7	-	0.05
	Arm C	6.13	24.33	0.252	-	0.5	0.3	5.2	-	0.06
	Arm D	17.25	36.49	0.473	-	1.4	0.9	13.8	-	0.05
Segment : 6 - 08:30 to 08:45	Arm A	3.79	22.72	0.167	-	0.3	0.2	3.1	-	0.05
	Arm B	15.32	40.97	0.374	-	0.8	0.6	9.1	-	0.04
	Arm C	5.14	25.63	0.200	-	0.3	0.3	3.8	-	0.05
	Arm D	14.45	37.09	0.390	-	0.9	0.6	9.8	-	0.04

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	415.5	277.0	26.1	0.06	26.1	0.06
B	1681.1	1120.7	81.0	0.05	81.0	0.05
C	563.6	375.7	32.4	0.06	32.4	0.06
D	1585.1	1056.7	88.6	0.06	88.6	0.06
ALL	4245.3	2830.2	228.1	0.05	228.1	0.05

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6		
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TRL Limited Crowthorne House Nine Mile Ride Wokingham, Berks. RG40 3GA, UK	Software Bureau	Tel: +44 (0)1344 770018 Fax:+44 (0)1344 770864 Email: softwarebureau@ trl.co.uk Web:www.trlsoftware.co.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 Information

Run with file:- o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\C A465 Heads of Valley\A465 Rbt pm 2010 plus dev.vai
At: 09:07:12 on Friday, October 17, 2008
Mode: Drive On The Left
Units: Metric

Arm Labelling

Arm	Full Arm Names
Arm A	A4059 Pontpren (Penderyn)
Arm B	A465 Heads of Valley (Hirwaun Rbt.)
Arm C	A4061 Rhigos Road
Arm D	A465 Heads of Valley (Glynneath)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site C A465 Hirwaun Roundabout pm 2010 plus dev
Location	Heads of the Valley
Date	09/10/2008
Client	Enviroparks
Enumerator	MearsD [COM70BRM]
Job Number	G00038
Status	
Description	

Errors and Warnings

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

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.50	6.70	4.00	8.40
Entry Width (m)	9.30	10.00	10.20	8.40
Flare Length (m)	35.00	13.50	19.00	0.00
Entry Radius (m)	72.00	123.00	59.50	64.00
Inscribed Circle Diameter (m)	113.00	113.00	113.00	113.00
Entry Angle (degrees)	30.00	15.00	16.00	28.00
Slope	0.536	0.624	0.548	0.587
Intercept (PCU/Min)	38.115	47.202	38.395	44.140

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **16:15 to 17:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site C A465 Hiwaun Roundabout pm 2010 plus

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	95.0	39.0	135.0
Arm B	126.0	0.0	293.0	820.0
Arm C	225.0	319.0	0.0	78.0
Arm D	116.0	844.0	73.0	0.0

Entry Flow Data for Demand Set: Site C A465 Hiwaun Roundabout pm 2010 plus

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	3.36	5.04	3.36
Arm B	15.00	45.00	75.00	15.49	23.23	15.49
Arm C	15.00	45.00	75.00	7.78	11.66	7.78
Arm D	15.00	45.00	75.00	12.91	19.37	12.91

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site C A465 Hiwaun Roundabout pm 2010 plus

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
16:15 to 17:45	Arm A	0.0	3.7	40.6	7.8
	Arm B	27.8	0.0	5.2	3.9
	Arm C	14.1	9.8	0.0	14.3
	Arm D	5.1	3.3	6.7	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 16:15 to 16:30	Arm A	3.36	26.49	0.127	-	0.0	0.1	2.1	-	0.04
	Arm B	15.49	42.24	0.367	-	0.0	0.6	8.5	-	0.04
	Arm C	7.78	27.24	0.285	-	0.0	0.4	5.8	-	0.05
	Arm D	12.91	37.13	0.348	-	0.0	0.5	7.8	-	0.04
Segment : 2 - 16:30 to 16:45	Arm A	4.02	24.96	0.161	-	0.1	0.2	2.8	-	0.05
	Arm B	18.49	41.84	0.442	-	0.6	0.8	11.6	-	0.04
	Arm C	9.28	25.85	0.359	-	0.4	0.6	8.2	-	0.06
	Arm D	15.42	36.07	0.427	-	0.5	0.7	11.0	-	0.05
Segment : 3 - 16:45 to 17:00	Arm A	4.92	22.87	0.215	-	0.2	0.3	4.0	-	0.06
	Arm B	22.65	41.29	0.549	-	0.8	1.2	17.7	-	0.05
	Arm C	11.37	23.95	0.475	-	0.6	0.9	13.1	-	0.08
	Arm D	18.88	34.62	0.546	-	0.7	1.2	17.4	-	0.06
Segment : 4 - 17:00 to 17:15	Arm A	4.92	22.85	0.215	-	0.3	0.3	4.1	-	0.06
	Arm B	22.65	41.29	0.549	-	1.2	1.2	18.1	-	0.05
	Arm C	11.37	23.94	0.475	-	0.9	0.9	13.5	-	0.08
	Arm D	18.88	34.60	0.546	-	1.2	1.2	17.9	-	0.06
Segment : 5 - 17:15 to 17:30	Arm A	4.02	24.93	0.161	-	0.3	0.2	2.9	-	0.05
	Arm B	18.49	41.83	0.442	-	1.2	0.8	12.2	-	0.04
	Arm C	9.28	25.83	0.359	-	0.9	0.6	8.7	-	0.06
	Arm D	15.42	36.05	0.428	-	1.2	0.8	11.5	-	0.05
Segment : 6 - 17:30 to 17:45	Arm A	3.36	26.46	0.127	-	0.2	0.1	2.2	-	0.04
	Arm B	15.49	42.23	0.367	-	0.8	0.6	8.8	-	0.04
	Arm C	7.78	27.21	0.286	-	0.6	0.4	6.1	-	0.05
	Arm D	12.91	37.11	0.348	-	0.8	0.5	8.2	-	0.04

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	368.9	245.9	18.2	0.05	18.2	0.05
B	1698.9	1132.6	77.0	0.05	77.0	0.05
C	852.9	568.6	55.4	0.06	55.4	0.06
D	1416.5	944.3	73.7	0.05	73.7	0.05
ALL	4337.1	2891.4	224.3	0.05	224.3	0.05

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that 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.

ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Web:www.trlsoftware.co.uk

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Run Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\C A465 Heads of Valley\A465 Rbt am 2025 plus dev.vai**
At: **09:10:51 on Friday, October 17, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	A4059 Pontpren (Penderyn)
Arm B	A465 Heads of Valley (Hirwaun Rbt.)
Arm C	A4061 Rhigos Road
Arm D	A465 Heads of Valley (Glynneath)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site C A465 Hiwaun Roundabout am 2025 plus dev
Location	Heads of the Valley
Date	09/10/2008
Client	Envirparks
Enumerator	MearsD [COM70BRM]
Job Number	G00038
Status	
Description	

Errors and Warnings

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

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.50	6.70	4.00	8.40
Entry Width (m)	9.30	10.00	10.20	8.40
Flare Length (m)	35.00	13.50	19.00	0.00
Entry Radius (m)	72.00	123.00	59.50	64.00
Inscribed Circle Diameter (m)	113.00	113.00	113.00	113.00
Entry Angle (degrees)	30.00	15.00	16.00	28.00
Slope	0.536	0.624	0.548	0.587
Intercept (PCU/Min)	38.115	47.202	38.395	44.140

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **07:15 to 08:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site C A465 Hiwaun Roundabout am 2025 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	118.0	91.0	131.0
Arm B	90.0	0.0	343.0	936.0
Arm C	83.0	261.0	0.0	115.0
Arm D	107.0	1069.0	117.0	0.0

Entry Flow Data for Demand Set: Site C A465 Hiwaun Roundabout am 2025 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	4.25	6.38	4.25
Arm B	15.00	45.00	75.00	17.11	25.67	17.11
Arm C	15.00	45.00	75.00	5.74	8.61	5.74
Arm D	15.00	45.00	75.00	16.16	24.24	16.16

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site C A465 Hiwaun Roundabout am 2025 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
07:15 to 08:45	Arm A	0.0	8.9	14.9	48.0
	Arm B	27.5	0.0	7.7	5.6
	Arm C	19.0	14.1	0.0	29.5
	Arm D	13.4	7.6	27.9	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 07:15 to 07:30	Arm A	4.25	21.86	0.194	-	0.0	0.2	3.5	-	0.06
	Arm B	17.11	40.65	0.421	-	0.0	0.7	10.6	-	0.04
	Arm C	5.74	24.86	0.231	-	0.0	0.3	4.4	-	0.05
	Arm D	16.16	36.76	0.440	-	0.0	0.8	11.4	-	0.05
Segment : 2 - 07:30 to 07:45	Arm A	5.07	20.19	0.251	-	0.2	0.3	4.9	-	0.07
	Arm B	20.43	40.01	0.511	-	0.7	1.0	15.2	-	0.05
	Arm C	6.85	23.39	0.293	-	0.3	0.4	6.1	-	0.06
	Arm D	19.30	36.09	0.535	-	0.8	1.1	16.7	-	0.06
Segment : 3 - 07:45 to 08:00	Arm A	6.22	17.92	0.347	-	0.3	0.5	7.7	-	0.09
	Arm B	25.03	39.14	0.639	-	1.0	1.8	25.4	-	0.07
	Arm C	8.39	21.40	0.392	-	0.4	0.6	9.4	-	0.08
	Arm D	23.64	35.17	0.672	-	1.1	2.0	29.0	-	0.09
Segment : 4 - 08:00 to 08:15	Arm A	6.22	17.89	0.347	-	0.5	0.5	7.9	-	0.09
	Arm B	25.03	39.13	0.640	-	1.8	1.8	26.4	-	0.07
	Arm C	8.39	21.38	0.392	-	0.6	0.6	9.6	-	0.08
	Arm D	23.64	35.17	0.672	-	2.0	2.0	30.4	-	0.09
Segment : 5 - 08:15 to 08:30	Arm A	5.07	20.15	0.252	-	0.5	0.3	5.2	-	0.07
	Arm B	20.43	39.99	0.511	-	1.8	1.1	16.2	-	0.05
	Arm C	6.85	23.36	0.293	-	0.6	0.4	6.4	-	0.06
	Arm D	19.30	36.07	0.535	-	2.0	1.2	17.9	-	0.06
Segment : 6 - 08:30 to 08:45	Arm A	4.25	21.82	0.195	-	0.3	0.2	3.7	-	0.06
	Arm B	17.11	40.63	0.421	-	1.1	0.7	11.2	-	0.04
	Arm C	5.74	24.83	0.231	-	0.4	0.3	4.6	-	0.05
	Arm D	16.16	36.74	0.440	-	1.2	0.8	12.1	-	0.05

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	466.2	310.8	33.0	0.07	33.0	0.07
B	1877.2	1251.5	105.0	0.06	105.0	0.06
C	629.4	419.6	40.4	0.06	40.4	0.06
D	1773.0	1182.0	117.5	0.07	117.5	0.07
ALL	4745.8	3163.8	295.9	0.06	295.9	0.06

Delay is that occuring only within the time period.
Inclusive delay includes delay suffered by vehicles that are still queueing after the end of the time period.
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ARCADY 6

GUI Version: 6.00 AD
Analysis Program: Release 4.0 (FEBRUARY 2006)
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Run Information

Run with file:- **o:\G00038 Hirwaun Enviroparks Jct Assess\ARCADY\C A465 Heads of Valley\A465 Rbt pm 2025 plus dev.vai**
At: **09:12:50 on Friday, October 17, 2008**
Mode: **Drive On The Left**
Units: **Metric**

Arm Labelling

Arm	Full Arm Names
Arm A	A4059 Pontpren (Penderyn)
Arm B	A465 Heads of Valley (Hirwaun Rbt.)
Arm C	A4061 Rhigos Road
Arm D	A465 Heads of Valley (Glynneath)

Flow Scaling Factor

Arm	Flow Scaling Factor (%)
Arm A	100
Arm B	100
Arm C	100
Arm D	100

File Properties

Run Title	Site C A465 Hiwaun Roundabout pm 2025 plus dev
Location	Heads of the Valley
Date	09/10/2008
Client	Envirparks
Enumerator	MearsD [COM70BRM]
Job Number	G00038
Status	
Description	

Errors and Warnings

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

Geometric Data

Data Item	Arm A	Arm B	Arm C	Arm D
Approach Road Half-Width (m)	3.50	6.70	4.00	8.40
Entry Width (m)	9.30	10.00	10.20	8.40
Flare Length (m)	35.00	13.50	19.00	0.00
Entry Radius (m)	72.00	123.00	59.50	64.00
Inscribed Circle Diameter (m)	113.00	113.00	113.00	113.00
Entry Angle (degrees)	30.00	15.00	16.00	28.00
Slope	0.536	0.624	0.548	0.587
Intercept (PCU/Min)	38.115	47.202	38.395	44.140

Demand Data

Demand Profiles are Synthesised using **ODTAB** Data
Period of interest (for Queue and Delay calculations): **16:15 to 17:45**
Length of Time Period: **90 min**
Length of Time Segment: **15 min**

Total Traffic Demand (Vehicles/Hour) for Demand Set: Site C A465 Hiwaun Roundabout pm 2025 plus dev

From/To	Arm A	Arm B	Arm C	Arm D
Arm A	0.0	106.0	44.0	151.0
Arm B	142.0	0.0	325.0	919.0
Arm C	252.0	352.0	0.0	86.0
Arm D	130.0	945.0	82.0	0.0

Entry Flow Data for Demand Set: Site C A465 Hiwaun Roundabout pm 2025 plus dev

Arms	Number of Minutes From Start When			Rate of flow (Veh/Min)		
	Flow Starts To Rise	Top of Peak is Reached	Flow Stops Falling	Before Peak	At Top of Peak	After Peak
Arm A	15.00	45.00	75.00	3.76	5.64	3.76
Arm B	15.00	45.00	75.00	17.33	25.99	17.33
Arm C	15.00	45.00	75.00	8.63	12.94	8.63
Arm D	15.00	45.00	75.00	14.46	21.69	14.46

Turning Proportions

ODTAB Demand Data type is used, no turning proportions available.

Heavy Vehicle Percentages for Demand Set: Site C A465 Hiwaun Roundabout pm 2025 plus dev

Vary over entry and calculated from turning count data

Time Period	From/To	Arm A	Arm B	Arm C	Arm D
16:15 to 17:45	Arm A	0.0	3.7	40.6	7.8
	Arm B	27.8	0.0	5.2	3.9
	Arm C	14.1	9.8	0.0	14.3
	Arm D	5.1	3.3	6.7	0.0

Queues and Delay:

Segment	Arm	Demand (Veh/ Min)	Capacity (Veh/ Min)	Demand/ Capacity (RFC)	Ped Flow (Ped/ Min)	Start Queue (Veh)	End Queue (Veh)	Delay (Veh.Min/ Time Segment)	Geometric Delay (Veh.Min/ Time Segment)	Arrival Delay (Min/ Veh)
Segment : 1 - 16:15 to 16:30	Arm A	3.76	25.58	0.147	-	0.0	0.2	2.5	-	0.05
	Arm B	17.33	41.98	0.413	-	0.0	0.7	10.3	-	0.04
	Arm C	8.63	26.38	0.327	-	0.0	0.5	7.1	-	0.06
	Arm D	14.46	36.52	0.396	-	0.0	0.7	9.6	-	0.05
Segment : 2 - 16:30 to 16:45	Arm A	4.49	23.87	0.188	-	0.2	0.2	3.4	-	0.05
	Arm B	20.69	41.54	0.498	-	0.7	1.0	14.5	-	0.05
	Arm C	10.30	24.82	0.415	-	0.5	0.7	10.3	-	0.07
	Arm D	17.27	35.33	0.489	-	0.7	0.9	14.0	-	0.06
Segment : 3 - 16:45 to 17:00	Arm A	5.50	21.54	0.255	-	0.2	0.3	5.0	-	0.06
	Arm B	25.34	40.93	0.619	-	1.0	1.6	23.4	-	0.06
	Arm C	12.61	22.70	0.556	-	0.7	1.2	17.8	-	0.10
	Arm D	21.15	33.72	0.627	-	0.9	1.7	24.0	-	0.08
Segment : 4 - 17:00 to 17:15	Arm A	5.50	21.51	0.256	-	0.3	0.3	5.1	-	0.06
	Arm B	25.34	40.92	0.619	-	1.6	1.6	24.2	-	0.06
	Arm C	12.61	22.68	0.556	-	1.2	1.2	18.6	-	0.10
	Arm D	21.15	33.70	0.628	-	1.7	1.7	25.0	-	0.08
Segment : 5 - 17:15 to 17:30	Arm A	4.49	23.83	0.189	-	0.3	0.2	3.6	-	0.05
	Arm B	20.69	41.53	0.498	-	1.6	1.0	15.3	-	0.05
	Arm C	10.30	24.80	0.415	-	1.2	0.7	11.0	-	0.07
	Arm D	17.27	35.30	0.489	-	1.7	1.0	14.8	-	0.06
Segment : 6 - 17:30 to 17:45	Arm A	3.76	25.54	0.147	-	0.2	0.2	2.6	-	0.05
	Arm B	17.33	41.97	0.413	-	1.0	0.7	10.8	-	0.04
	Arm C	8.63	26.35	0.327	-	0.7	0.5	7.5	-	0.06
	Arm D	14.46	36.49	0.396	-	1.0	0.7	10.1	-	0.05

Queuing Delay Information Over Whole Period

Arm	Total Demand		Queueing Delay		Inclusive Queueing Delay	
	(Veh)	(Veh/Hr)	(Min)	(Min/Veh)	(Min)	(Min/Veh)
A	412.7	275.2	22.3	0.05	22.3	0.05
B	1900.5	1267.0	98.5	0.05	98.5	0.05
C	946.1	630.8	72.3	0.08	72.3	0.08
D	1586.5	1057.7	97.5	0.06	97.5	0.06
ALL	4845.9	3230.6	290.6	0.06	290.6	0.06

Delay is that occuring only within the time period.
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