



**BARRATT HOMES
PROPOSED RESIDENTIAL DEVELOPMENT
LAND OFF B4265, BOVERTON**

**TRANSPORT ASSESSMENT ADDENDUM
FOR 22 ADDITIONAL UNITS**

JUNE 2015



the journey is the reward

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JUNE 2015

Project Code:	B/BWBoverton.1
Prepared by:	HI
Approved by:	AS
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Barratt Homes
Proposed Residential Development
Land off B4265, Boverton
Transport Assessment Addendum for 22 additional units

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1 Introduction

- 1.1 Mayer Brown Limited prepared a Transport Assessment in respect of a planning application that sought to develop 64 residential dwellings on land off B4265 adjacent to Boverton, Vale of Glamorgan. The application was registered under planning reference 2014/00995/FUL.
- 1.2 Land immediately to the southeast of the site was not available to the developer at the time of the planning application and therefore no development was proposed on that land. The site has now become available to Barratt Homes, with capacity to accommodate an additional 22 residential properties. An amendment to the planning application has therefore been submitted to include all 86 dwellings under the one application.
- 1.3 This Transport Assessment Addendum has been produced to provide the following additional information:
- Summary of proposals for additional housing;
 - Assessment of the additional trips that will be generated by the extra housing;
 - Distribution of additional trips;
 - PICADY assessment of the new site access junction; and
 - A revised assessment of the percentage impact at the two adjacent junctions on the B4265.

2 Revised site proposals

- 2.1 A total of 22 additional dwellings are proposed for the site, using the area of land located to the southeast of the previous application site. The site layout has been redesigned in places to make better use of the space, now that the additional land is available, and to take account of comments from stakeholders through the consultation period.
- 2.2 There are a total of 60 private properties proposed, with five low cost home ownership (LCHO) properties and 21 social rented homes. The LCHO and social rented properties range in size between one and three bedroom, while the private homes all have three or four bedrooms.
- 2.3 A copy of the revised site layout plan is included in **Appendix A**.

Site access

- 2.4 No changes are proposed as a result of the 22 additional units to the proposed ghosted right turn access junction, as shown on plan 1-01A submitted with the January 2015 Addendum.
- 2.5 Pedestrian provision across Eglwys Brewis Road will remain as proposed within the previously submitted Transport Assessment Addendum dated January 2015.
- 2.6 From the southern edge of the development land, a link will be provided onto Llantwit Road, which will enable pedestrians to access the existing signal controlled pedestrian crossing over the B4265 at this location, to travel towards Boverton village. This provides an alternative to using the crossing to the north of the site and was requested by Vale of Glamorgan Council (VoGC) through the earlier consultation process.
- 2.7 Footways are provided throughout the site to enable pedestrians to access the pedestrian links to both the north and south of the site.

Parking

- 2.8 All properties bar the apartments have either two or three parking spaces, and some of the larger properties also have garages, which have minimum internal dimensions of 3m x 6m. The apartments each receive one parking space.
- 2.9 There is space on-street to accommodate visitor parking, without blocking driveways.
- 2.10 VoGC parking standards are in line with the County Surveyors Society (CSS) Wales Parking Standards 2008, which permit one parking space per bedroom up to a maximum

of three spaces, plus one visitor space per five units. Garages count as a parking space only if the minimum internal dimensions are 3m x 6m.

- 2.11 Proposed parking is therefore concluded to be acceptable and in line with prevailing standards.

Swept path analysis

- 2.12 Swept path analysis has been undertaken for the new site layout to confirm that refuse vehicles can travel within the site. This is shown in **Appendix B**.

3 Trip generation

3.1 Trip generation and junction assessment was undertaken within the Transport Assessment dated August 2014 for 64 residential units. Trip generation from the Transport Assessment for the original 64 units is shown in **Table 3.1**.

Time period	Arrivals		Departures		Total	
	Trip rate	Trip numbers	Trip rate	Trip numbers	Trip rate	Trip numbers
08:00-09:00	0.138	9	0.667	43	0.805	52
17:00-18:00	0.600	38	0.313	20	0.912	58
07:00-19:00	3.381	216	3.393	217	6.774	434

Table 3.1: Generated vehicular trip numbers (64 units)

3.2 To assess the impact of an additional 22 homes accessed from the same new junction, the trip rates set out in the Transport Assessment have been used to calculate the increased number of trips generated by the larger development.

3.3 The trip rates and resultant trip generation for 86 units are summarised in **Table 3.2**.

Time period	Arrivals		Departures		Total	
	Trip rate	Trip numbers	Trip rate	Trip numbers	Trip rate	Trip numbers
08:00-09:00	0.138	12	0.667	57	0.805	69
17:00-18:00	0.600	52	0.313	27	0.912	79
07:00-19:00	3.381	291	3.393	292	6.774	583

Table 3.2: Generated vehicular trip numbers (86 units)

3.4 The increase in traffic as a result of the additional 22 units is set out in **Table 3.3**.

Time period	Arrivals	Departures	Total change
08:00-09:00	+3	+14	+17
17:00-18:00	+14	+7	+21
07:00-19:00	+75	+75	+150

Table 3.3: Additional generated trips (22 new units)

3.5 This is an increase of 17 movements in the morning peak hour and 21 movements in the evening peak hour, and equating to approximately one additional movement every three minutes, compared to the previously submitted scheme.

3.6 Traffic generated by the proposed development has been distributed onto the Local Highway Network on a pro-rata basis, based on observed directional traffic proportions recorded by the ATC survey. This is the same methodology as used in the Transport Assessment.

3.7 For purposes of consistency with the original Transport Assessment, the year of assessment has remained at 2019, being five years after original application. This is considered appropriate given the level of spare capacity that was demonstrated through the original junction analyses.

4 Junction assessment

Site access junction

4.1 For the purpose of assessing the impact of the proposed access junction on the B4265, the following traffic flow scenarios have been assessed for the Weekday AM and PM peak periods:

i) 2019 + Development: (2019 background flows plus predicted development traffic)

4.2 The same PICADY model as used in the original Transport Assessment was used to analysis the traffic from the larger 86 unit development, with the width of the B4265 carriageway adjusted to reflect the slight widening of the through-traffic lanes that was provided through the January 2015 Transport Assessment Addendum.

4.3 **Table 4.1** provides a summary of the PICADY analysis results for the assessed scenario, detailing the maximum RFC for the peak periods. As there is no junction at the site at present, assessment has only been undertaken for the “with development”. Full PICADY outputs are included in **Appendix C**.

Arm	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Site access	0.186	0	0.085	0
Right turn lane from B4265 into site	0.664	2	0.053	0

Table 4.1: Site access – PICADY output – 2019 + development traffic (86 units)

4.4 **Table 4.1** demonstrates that, although proposals will result in additional traffic accessing the B4265 via a new direct access on to the road, the priority junction will operate well within capacity during peak hour, without blocking through traffic, and hence it has been demonstrated that the proposed development will not have an adverse effect upon the safety or operation of the local highway network.

B4265 / Eglwys Brewis Road / Boverton Road

4.5 **Table 4.2** sets out the change in traffic flows at the B4265 / Eglwys Brewis Road junction for the morning and evening peak hours.

Time period	2014 observed flow	2019 base flow	Generated traffic (86 units)	2019 forecast traffic	Percentage change
08:00-09:00	807	863	32	895	+3.7%
17:00-18:00	1,042	1,114	38	1,152	+3.3%

Table 4.2: Percentage change in traffic flows through the B4265 / Eglwys Brewis Road junction

4.6 The results in **Table 4.2** demonstrate only a small increase in traffic flows through the adjacent junction during the network peak hours as a result of the residential development.

B4265 / Llantwit Road

4.7 **Table 4.3** sets out the change in traffic flows at the B4265 / Llantwit Road junction for the morning and evening peak hours.

Time period	2014 observed flow	2019 base flow	Generated traffic (86 units)	2019 forecast traffic	Percentage change
08:00-09:00	807	863	37	900	4.1%
17:00-18:00	978	1,046	41	1,087	3.8%

Table 4.3: Percentage change in traffic flows through the B4265 / Llantwit Road junction

4.8 The results in **Table 4.3** demonstrate only a small increase in traffic flows through the adjacent junction during the network peak hours as a result of the residential development.

Summary

4.9 The proposed increase in units from 64 to 86 will result in an increase in traffic from the development. However, the junction analysis has demonstrated that the access junction will still work well within capacity, and that the impact on the adjacent junction is forecast to be minimal and will not have a significant impact upon junction operation.

4.10 To summarise, it can be concluded that the construction of 86 new dwellings at this site will not have a material impact upon operation of the surrounding local highway network. Consequently, it is considered that there are no significant highways and transportation matters that would preclude the Local Planning Authority from approving this planning application.

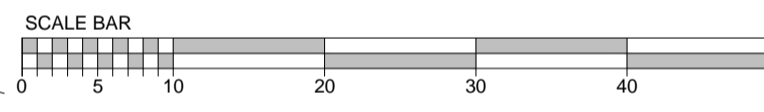
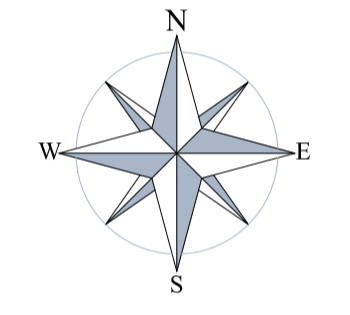
APPENDIX A: Revised site layout



Works to existing highway to be carried out in accordance with MayerBrown highway works information.

House Type Schedule					
House Code	Net Floor Area (ft ²)	Number of Bedrooms	House Type Name	Number of Units	Total Net Area of Each Unit (ft ²)
FIN	831	3	Finchley	14	11634
ALS	1001	3	Alston	10	10010
ROC	1104	4	Rochester	8	8832
HEA	1191	4	Heathfield	6	7146
THO	1203	4	Thornbury	8	9624
LIN	1243	4	Lincoln	6	7458
CAM	1421	4	Cambridge	8	11368
ASH	644	2	Ashford	3	1932
DWS	795	3	Dewsbury	2	1590
HAW	459	1	Hawthorn	6	2754
ALD	534	3	Alder	8	4112
OLI	847	2	Oliver	5	4235
LAR	982	3	Larch	2	1964
Total No. of Units on Site & Total Net Area (ft²)				86	82659

- Site Key**
- 1.8m High Timber Close Board Fence
 - 1.8m High Brick Screen Wall
 - Proposed Hedgerow (Refer to landscaping layout)
 - Existing Hedgerow Retained (Refer to landscaping layout)
 - Proposed Planting and New Trees (Refer to landscaping layout)
 - Existing Tree to be Retained
 - 1.8m High Close Board Gate
 - Affordable Unit - Social Rented
 - Affordable Unit - LCHO
 - 12 Plot Numbers
 - Parking space
 - Existing Building (location picked up from OS)



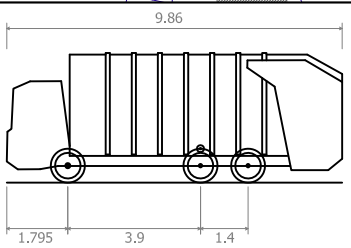
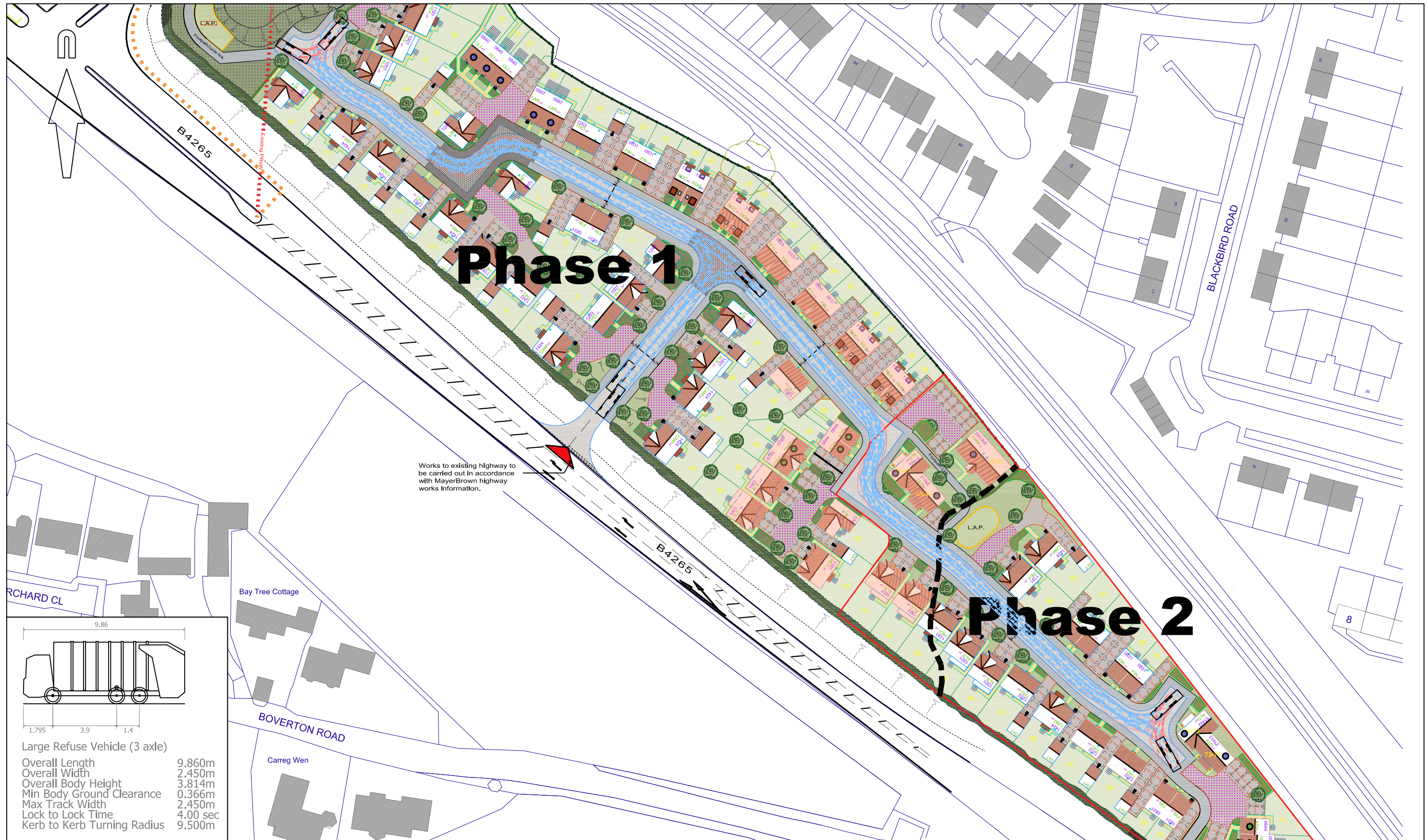
- F: Layout revised in accordance with client instructions. 14.05.15
- E: Layout replanned from 40 to 51to accommodate Phase 2 (Plots 65 to 86). 10.03.15
- D: Layout replanned from plots 29 to 55. Faversham house type has been replaced with the Rochester unit. 22.01.15
- C: Application boundary added. 12.08.14
- B: Allocation of social rented and LCHO units revised. HT schedule updated. Rear garden gates added to all properties. Plot 35/39 Handred. 06.08.14
- A: Plot 20 brought forward 0.6m, existing vegetation on northeastern boundary removed and replaced with new 1.8mH. New hedgerow added to the northeastern boundary of P.O.S. and to the side of plot 15 front garden. 05.08.14

REV.	DESCRIPTION	DATE
CLIENT		
Barratt Homes South Wales		
JOB TITLE		
Land North of B4265, Boverton		
DRAWING TITLE		
Site Layout		
SCALE @ A1		
1:500	DATE	DRAWN BY
	Aug '14	RW
JOB NO.		
1363	DRAWING NO.	REVISION
	TP-01	F

hammond
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 Figured dimensions must be taken in preference to scaled dimensions and any discrepancies are to be referred to Hammond Architectural Ltd. Contractors, subcontractors and suppliers must verify all dimensions on site before commencing any work or making any workshop drawings.

APPENDIX B: Swept path analysis



Large Refuse Vehicle (3 axle)

Overall Length 9.860m
 Overall Width 2.450m
 Overall Body Height 3.814m
 Min Body Ground Clearance 0.366m
 Max Track Width 2.450m
 Lock to Lock Time 4.00 sec
 Kerb to Kerb Turning Radius 9.500m

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client
BARRATT HOMES

project
LAND OFF B4265, BOVERTON

title
**SWEPT PATH ANALYSIS
 9.8M REFUSE VEHICLE**

scale 1:1000 @ A3 | drawn by RB | checked by AP

date AUGUST 2014 | cad file 1-02B.DWG

drawing number **B/BWBOVERTON.1/02** | rev. **B**

B Revised site layout HI 18/06/2015

APPENDIX C: PICADY output

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010) (Patch 15 Apr 2011)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
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THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-
"H:\BWBoverton.1\05 Calculations\PICADY - Site access junction - 2019 forecast flows - 86 units (June 2015).vpi"
(drive-on-the-left) at 12:15:24 on Monday, 15 June 2015

RUN INFORMATION

RUN TITLE : Proposed access off B4265
LOCATION : Boverton
DATE : 14/04/15
CLIENT : Barratt Homes
ENUMERATOR : hiorwerth [MBBPC06]
JOB NUMBER : b/BWBoverton.1
STATUS :
DESCRIPTION : New access junction (86 units in total)

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

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

ARM A IS B4265 northwest
ARM B IS Site access
ARM C IS B4265 southeast

STREAM LABELLING CONVENTION

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

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I (W) 7.30 M.
CENTRAL RESERVE WIDTH	I (WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	I (WC-B) 3.50 M.
- VISIBILITY	I (VC-B)160.00 M.
- BLOCKS TRAFFIC (SPACES)	I NO (0)
MINOR ROAD - VISIBILITY TO LEFT	I (VB-C) 15.0 M.
- VISIBILITY TO RIGHT	I (VB-A) 15.0 M.
- LANE 1 WIDTH	I (WB-C) 2.75 M.
- LANE 2 WIDTH	I (WB-A) 0.00 M.

.SLOPES AND INTERCEPT

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

Intercept For	Slope For	Opposing	Slope For	Opposing
STREAM B-C	STREAM A-C	STREAM A-B	STREAM A-B	STREAM A-B
617.53	0.23	0.09		

Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing
STREAM B-A	STREAM A-C	STREAM A-B	STREAM A-B	STREAM C-A	STREAM C-B	STREAM C-B
477.62	0.21	0.08		0.13	0.30	

Intercept For	Slope For	Opposing	Slope For	Opposing
STREAM C-B	STREAM A-C	STREAM A-B	STREAM A-B	STREAM A-B
760.94	0.28	0.28		

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

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.85	6.31	0.135		0.23	0.16	2.5		0.18
C-A	0.09								
C-B	5.53	10.65	0.519		1.93	1.11	17.6		0.20
A-B	0.09								
A-C	6.44								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.72	6.80	0.105		0.16	0.12	1.8		0.16
C-A	0.08								
C-B	4.63	10.98	0.422		1.11	0.74	11.6		0.16
A-B	0.08								
A-C	5.40								

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.2
08.30	0.2
08.45	0.2
09.00	0.2
09.15	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.7 *
08.15	1.1 *
08.30	1.9 **
08.45	1.9 **
09.00	1.1 *
09.15	0.7 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND	* QUEUEING * * DELAY *	* INCLUSIVE QUEUEING * * DELAY *
(VEH)	(VEH/H)	(MIN)	(MIN/VEH)
B-AC	78.5	14.8	0.19
C-A	8.3		
C-B	507.9	109.0	0.21
A-B	8.3		
A-C	591.9	394.6	
ALL	1194.7	123.9	0.10

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

*****END OF RUN*****

.SLOPES AND INTERCEPT

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

Intercept For	Slope For	Opposing	Slope For	Opposing
STREAM B-C	STREAM A-C	STREAM A-B	STREAM A-B	STREAM A-B
617.53	0.23		0.09	

Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing
STREAM B-A	STREAM A-C	STREAM A-B	STREAM C-A	STREAM C-B	STREAM C-B	STREAM C-B
477.62	0.21	0.08	0.13	0.30		

Intercept For	Slope For	Opposing	Slope For	Opposing
STREAM C-B	STREAM A-C	STREAM A-B	STREAM A-B	STREAM A-B
760.94	0.28		0.28	

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

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	17.45-18.00										I
I	B-AC	0.40	6.38	0.063		0.09	0.07	1.1		0.17	I
I	C-A	8.29									I
I	C-B	0.45	10.83	0.042		0.06	0.04	0.7		0.10	I
I	A-B	0.33									I
I	A-C	6.04									I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	18.00-18.15										I
I	B-AC	0.34	6.78	0.050		0.07	0.05	0.8		0.16	I
I	C-A	6.94									I
I	C-B	0.38	11.13	0.034		0.04	0.04	0.5		0.09	I
I	A-B	0.28									I
I	A-C	5.06									I

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.1
17.45	0.1
18.00	0.0
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL DEMAND	I	* QUEUEING * * DELAY *	I	* INCLUSIVE QUEUEING * * DELAY *	I	I
I	I	I	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)	I
I	B-AC	I	37.2	I	24.8	I	6.3	I	0.17
I	C-A	I	761.2	I	507.4	I		I	
I	C-B	I	41.3	I	27.5	I	4.0	I	0.10
I	A-B	I	30.3	I	20.2	I		I	
I	A-C	I	554.7	I	369.8	I		I	
I	ALL	I	1424.6	I	949.7	I	10.3	I	0.01

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

*****END OF RUN*****

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