

Transport Statement

**Proposed Residential Development
Land Adjacent to Ysgol Pendref, Gwaenynog Road, Denbigh**

Prepared for: Castle Green Homes

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1.0 INTRODUCTION

General

- 1.1 SCP have been instructed by Castle Green Homes to provide highway, traffic and transport advice in connection with a planning application for a residential development on land located adjacent to Ysgol Pendref, Denbigh.
- 1.2 The site is allocated for residential development in the Denbighshire Adopted Local Development Plan 2006-2021 (ref Land adjacent to Ysgol Pendref). In addition, a development brief for the site has been produced which was adopted by Denbighshire County Council's (DCC) Planning Committee on 15 March 2017. The development brief aims to guide overall design and quality of new development on the site.
- 1.3 The proposed development is consistent with the sites allocation / development brief and will deliver 110 dwellings comprising a mix of 1, 2, 3, and 4 bed properties. Further details of the proposed development are provided in Chapter 3 later.

Purpose and Structure of Report

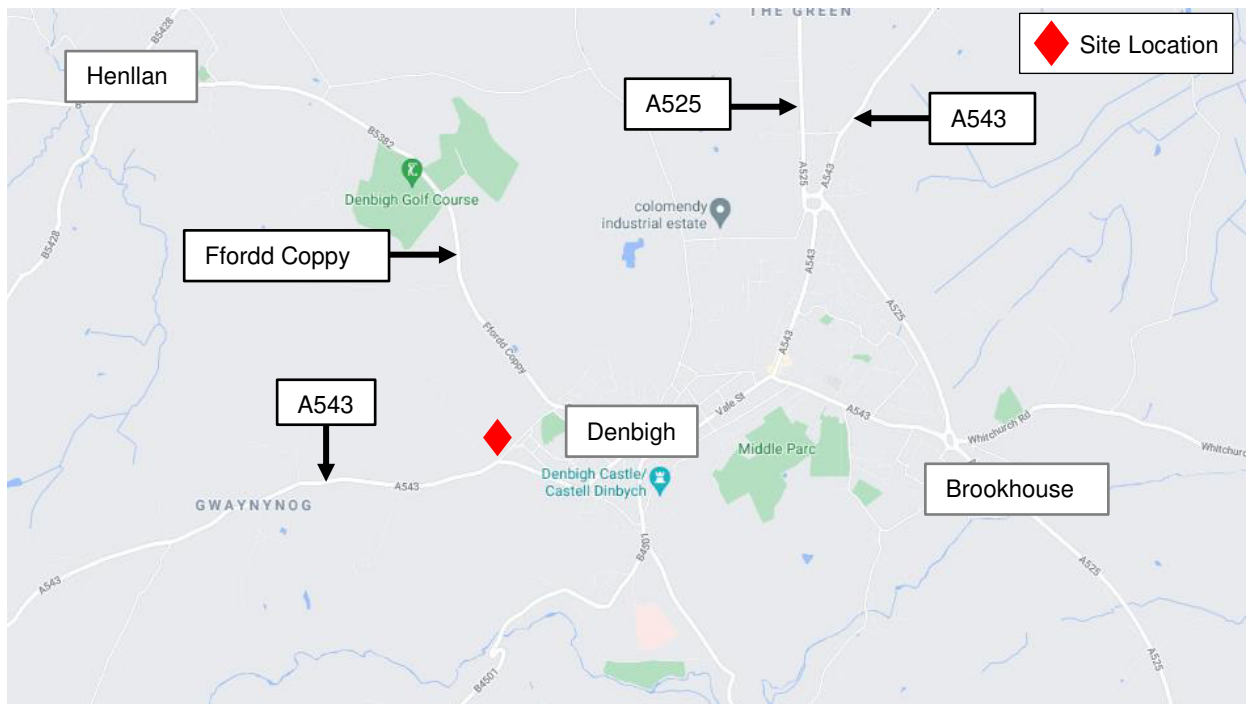
- 1.4 This Transport Statement (TS) has been produced to support the proposed development and demonstrates to the Local Planning and the Highway Authority that the development is satisfactory from a highway safety, traffic and access perspective.
- 1.5 The structure of the report summarised below:-
 - Chapter 2 – describes in detail the site location, local transport network, speed survey data and existing road safety record;
 - Chapter 3 – defines the development proposals including the proposed access, servicing arrangements and car parking;
 - Chapter 4 – considers the location of the site with regard to the existing local sustainable transport infrastructure;
 - Chapter 5 – presents estimates of the trip generating potential of the site along with a summary of impact of the development on the local highway network; and
 - Chapter 6 – provides the summary and conclusions to the above chapters.

2.0 SITE LOCATION AND EXISTING CONDITIONS

Site Location and Composition

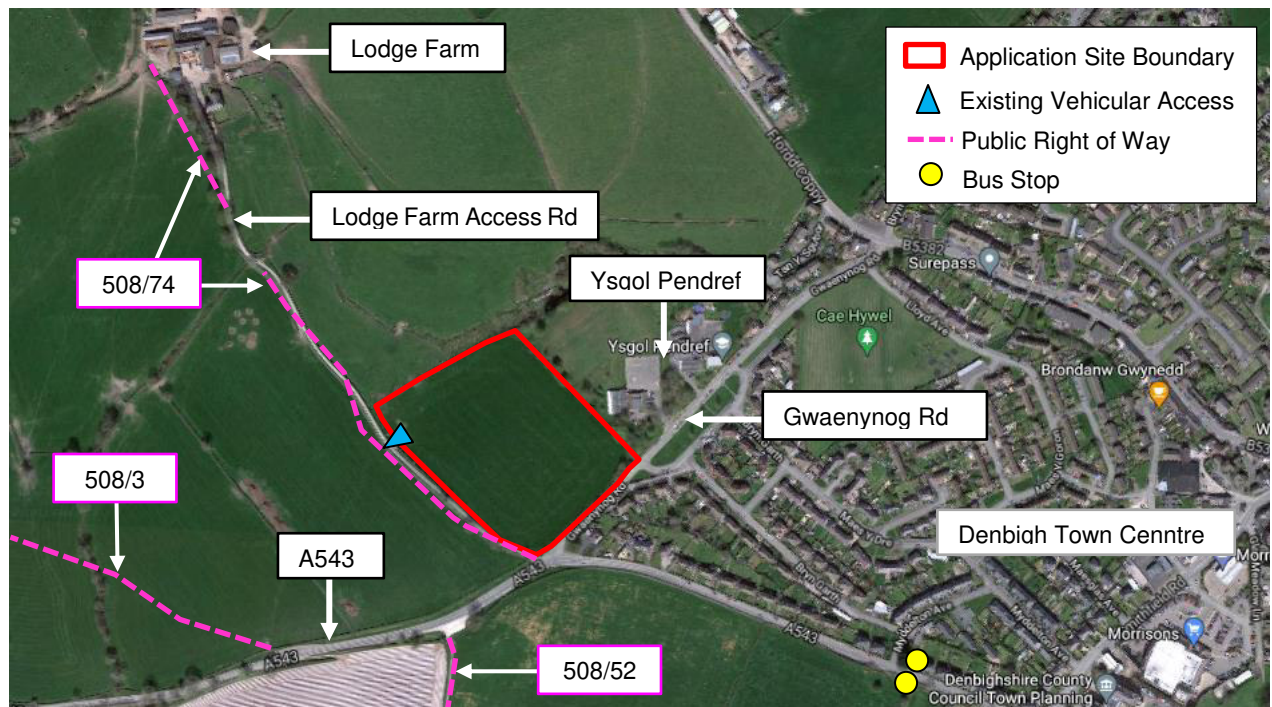
- 2.1 The application site currently comprises undeveloped land and has an area of approximately 2.8ha.
- 2.2 The application site is bounded Ysgol Pendref to the north-east, Gwaenynog Road to the south-east, an access road to Lodge Farm to the south-west and undeveloped land to the north-west.
- 2.3 The location of the application site in relation to the wider highway network is shown on **Figure 2.1** below:-

Figure 2.1 – Site Location – Wider Highway Network



- 2.4 The site location in a more local context is shown on **Figure 2.2** below.

Figure 2.2 – Site Location – Local Highway Network



- 2.5 Vehicular access to the site is currently provided along the Lodge Farm access via a gated farm access.
- 2.6 Public Right of Way (PROW) 508/74 runs along the Lodge Farm access road and provides a link between the A543 to the south-east and Lodge Farm to the north-west. PROW 508/3 is located to the south-west of the site and provides a link between the A543 to the south-east and Gwynedd Cottage to the north-west, predominantly used for recreational purposes.

Local Transport Network

A543

- 2.7 The A543 is located to the south of the site and provides a link between the A525 and the A541 to the east, via Denbigh town centre, and the A5 to the south-west. Within the vicinity of the site, the A543 has a carriageway width of between approximately 6.4m – 6.9m and, to the east of its junction with Gwaenynog Road, provides a footway along the northern side of the road.
- 2.8 Within the vicinity of the site, the A543 is subject to a mandatory 30mph speed limit which changes to the national speed limit approximately 40m to the west of the junction with Gwaenynog Road.

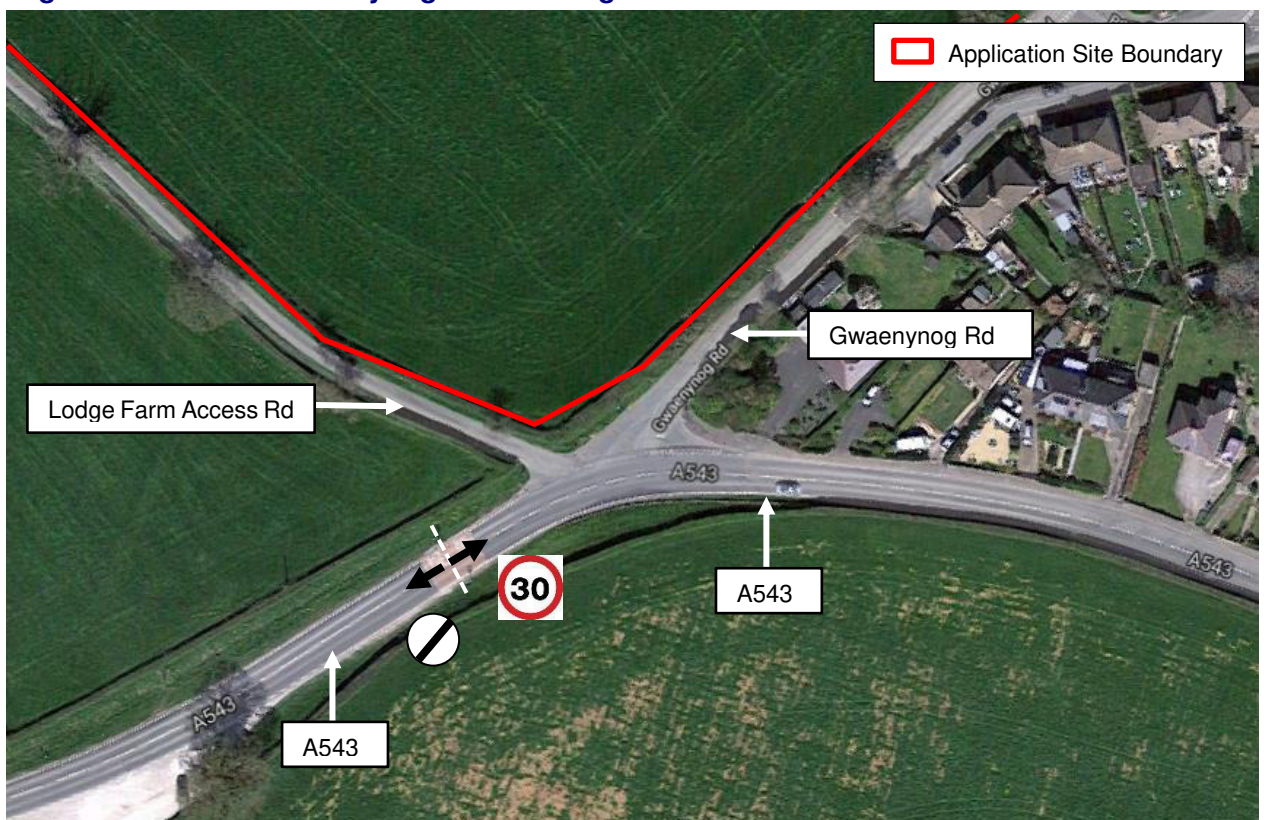
Gwaenynog Road

- 2.9 Gwaenynog Road is located along the south-eastern boundary of the site and provides a link between the A543 to the south-west and Ffordd Coppy to the north-east. Gwaenynog Road provides access to the two schools located immediately to the north-east of the site and to residential roads to the south-east.
- 2.10 Within the vicinity of the site, Gwaenynog Road has a carriageway width of between approximately 4.8m – 6.0m. Footways are provided to the north-east of the junction with Bryn Garth Road, on the south-eastern side of the road, and to the north-east of the Ysgol Heulfi, on the north-western side of the road. No footways are provided along the sites frontage.
- 2.11 Gwaenynog Road is subject to a mandatory speed limit of 30mph and benefits from street lighting. Gwaenynog Road is traffic calmed through the use of regularly spaced speed hump and kerb buildouts.

A543 / Gwaenynog Road / Lodge Farm Access Road Junction

- 2.12 The A543 / Gwaenynog Road / Lodge Farm access road junction is located to the south of the site and takes the form of a four-arm priority junction, with the A543 forming the major arms and Gwaenynog Road and the Lodge Farm access road the minor arms, as shown on **Figure 2.3** below:

Figure 2.3 - A543 / Gwaenynog Road / Lodge Farm Access Road



- 2.13 The junction has a non-standard arrangement with the two minor arms being located directly adjacent to one another. In addition, no junction radii is provided on the western side Gwaenynog Road which results in the potential for vehicle to carry high speeds into Gwaenynog Road and potential risk for drivers to incorrectly view Gwaenynog Road as the priority route.

Speed Survey Data

- 2.14 In accordance with the requirements of the Development Brief a radar speed survey has been undertaken on all approaches to the junction (A543 and Gwaenynog Road), at a distance circa 70m back from the junction.
- 2.15 The surveys was undertaken on 5th February 2018 with the weather conditions being fine and the road surface dry. A copy of the survey results is presented in **Appendix A** with the 85th percentile design speeds on each approach to the junction being as follows:-

85th Percentile Design Speed of the A543 and Gwaenynog Road in the Vicinity of the Site Access		
Approach	Dry Weather 85th Percentile Design Speed	Wet Weather 85th Percentile Design Speed
A543: North-Eastbound	40.2mph / 65kph	37.7mph / 61kph
A543: North-Westbound	35.9mph / 58kph	33.4mph / 54kph
Gwaenynog Road: South-Westbound	24.3mph / 39kph	21.8mph / 35kph

Road Safety

- 2.16 The personal injury accident data has been obtained from the online resource Crash Map for the most recently available five-year period ending June 2020.
- 2.17 The data shows that no accidents occurred along the entire length of Gwaenynog Road for the five-year period. In addition, no accidents occurred at the A543 / Gwaenynog Road / Lodge Farm Access Road junction, or on the A543 200m either side of the junction. This is an enviable accident record and road safety does not therefore represent a material concern in the context of the proposed development.

3.0 PROPOSED DEVELOPMENT

Overview

- 3.1 The proposed development will provide 110 dwellings comprising a mix of 4 no. 1-bed apartments, 28 no. 2-bed houses, 50 no. 3 bed houses and 28 no. 4 bed houses.
- 3.2 The development proposals are shown on the site layout plan presented in **Appendix B**.

Proposed Access Arrangements

- 3.3 Vehicular access to the development will be provided from the A543 / Gwaenynog Road / Lodge Farm access road junction via a priority junction, as shown on drawing SCP/210363/SK01 Rev A provided in **Appendix C**. It is not possible to relocate the proposed access further west due to visibility constraints.
- 3.4 The proposed site access provides a visibility splay of 43m in the left hand direction (setback of 2.4m) which is in accordance with guidance presented in Manual for Streets (MfS) for a 30mph road.
- 3.5 The A543 / Gwaenynog Road / Lodge Farm access road junction provides visibility of 90m in the left hand direction and 120m in the right hand direction which is based on the speed survey results detailed earlier and the guidance presented in TAN18.
- 3.6 Safety concerns regarding the proposed access have been addressed through the introduction of a build out and traffic island for pedestrians, as shown on the drawing provided in **Appendix C**. The proposals will help to naturally slow traffic speeds on the A543 and on entry to the traffic calmed area on Gwaenynog Road / past the school, it will provide a clear gateway between the rural and built areas along the A543 and will address the existing straight-line issue for drivers approaching the junction from the west.
- 3.7 In addition, the junction has been designed to ensure that agricultural vehicles accessing Lodge Farm can continue to do so, with the access being widened when compared to the existing arrangement.

- 3.8 The proposed development will change the nature of the area around the junction creating a more residential environment. For this reason and to reduce traffic speeds on the approach to the access, it is proposed to relocate the change in speed limit further to the west on the A543, with additional traffic calming measures being introduced. The precise location of the change in speed limit and traffic calming measures are to be discussed and agreed with DCC, with a potential arrangement shown on Drawing Number SCP/210363/SK02 Rev A presented in **Appendix D**.
- 3.9 Pedestrian and cycle access will be provided from the same location as the vehicular access. In addition, a 2m wide pedestrian link will be provided within the eastern boundary of the site which will connect onto a new footpath to the north, providing a safe traffic free link to Ysgol Pendref and existing footway provision on Gwaenynog Road. This will be of benefit to both prospective residents of the development and existing pedestrians using Gwaenynog Road.

Internal Road Layout and Servicing

- 3.10 The site access and main internal spine road has been designed to typical residential standards providing a 5.5m wide carriageway and 2m wide footway on both sides of the road. This in turn serves a number of cul de sacs and private drives. The internal road network has been designed to ensure the movements of service and refuse vehicles can be accommodated without allowing their requirements to dominate the layout.
- 3.11 Swept path analysis has been undertaken which demonstrates that the movements of a large refuse vehicle can be safely accommodated. Swept path analysis is shown in Drawing Number SCP/210363/ATR01 presented in **Appendix E**.

Parking

- 3.12 Local parking standards are set out in DCC's Supplementary Planning Guidance 3. This specifies the following maximum parking standards for houses and apartments:
- Residents – 1 space per bedroom; and
 - Visitors – 1 space per 5 units;
- 3.13 Parking for each plot will be captured in a mixture of driveways and parking bays within a close proximity to each dwelling, as shown in **Appendix B**, and the level of parking to be provided is in line with DCC's maximum standards with around 2-3 spaces per dwelling.

4.0 SUSTAINABLE TRANSPORT APPRAISAL

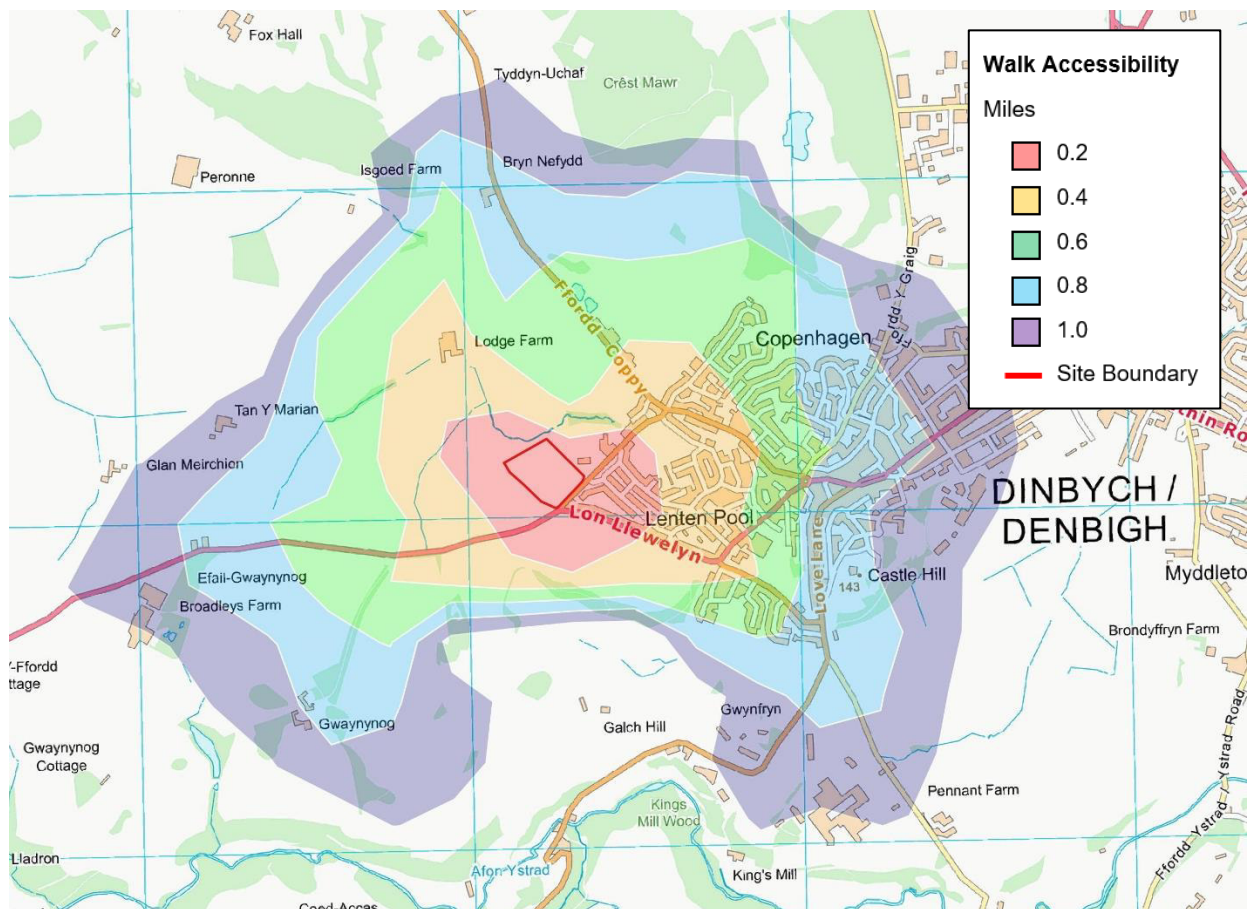
General

- 4.1 This chapter presents a review of the accessibility of the site by walking, cycling and public transport modes.

Pedestrians

- 4.2 Reference has been made to the Walking and Cycling Strategy for Wales, dated December 2003, which indicates that the practical distance for journeys on foot are up to 1 mile.
- 4.3 The pedestrian accessibility of the development has been modelled using Geographical Information System (GIS) software to produce isochrones mapping. The purpose of the isochrones is to demonstrate the areas within an acceptable walk distance of the site, as shown on **Figure 4.1** below:-

Figure 4.1 – Walk Accessibility



- 4.4 There are a number of facilities located within Denbigh town centre which is located to the east of the application site. Facilities located within a 1 mile walking distance include the following:

Table 4.1 – Local Facilities

Ysgol Pendref (Primary School)	K&A's Stores Convenience Store
Ysgol Heulfi (Primary School)	Morrisons Supermarket and Petrol Station
Myddelton College	Takeouts / Cafes / Restaurants / Public Houses
Denbighshire Childrens Centre Hospital	Denbigh Post Office
Bupa Dental Care Denbigh	Dewnbighshire County Council Offices
Cohens Chemist	Llyfrgell Library
Bronyffynnon Surgery (GP)	Cae Hywel Park
Specsavers	Denbigh Castle

- 4.5 A number of other facilities in Denbigh town centre are located just outside of the 1 mile walking distance including Lidl and Aldi stores.
- 4.6 Pedestrian and cycle access will be provided from the same location as the vehicular access. In addition, a 2m wide pedestrian link will be provided within the eastern boundary of the site which will connect onto a new footpath to the north, providing a safe traffic free link to Ysgol Pendref and existing footway provision on Gwaenynog Road. This will be of benefit to both prospective residents of the development and existing pedestrians using Gwaenynog Road.

Cyclists

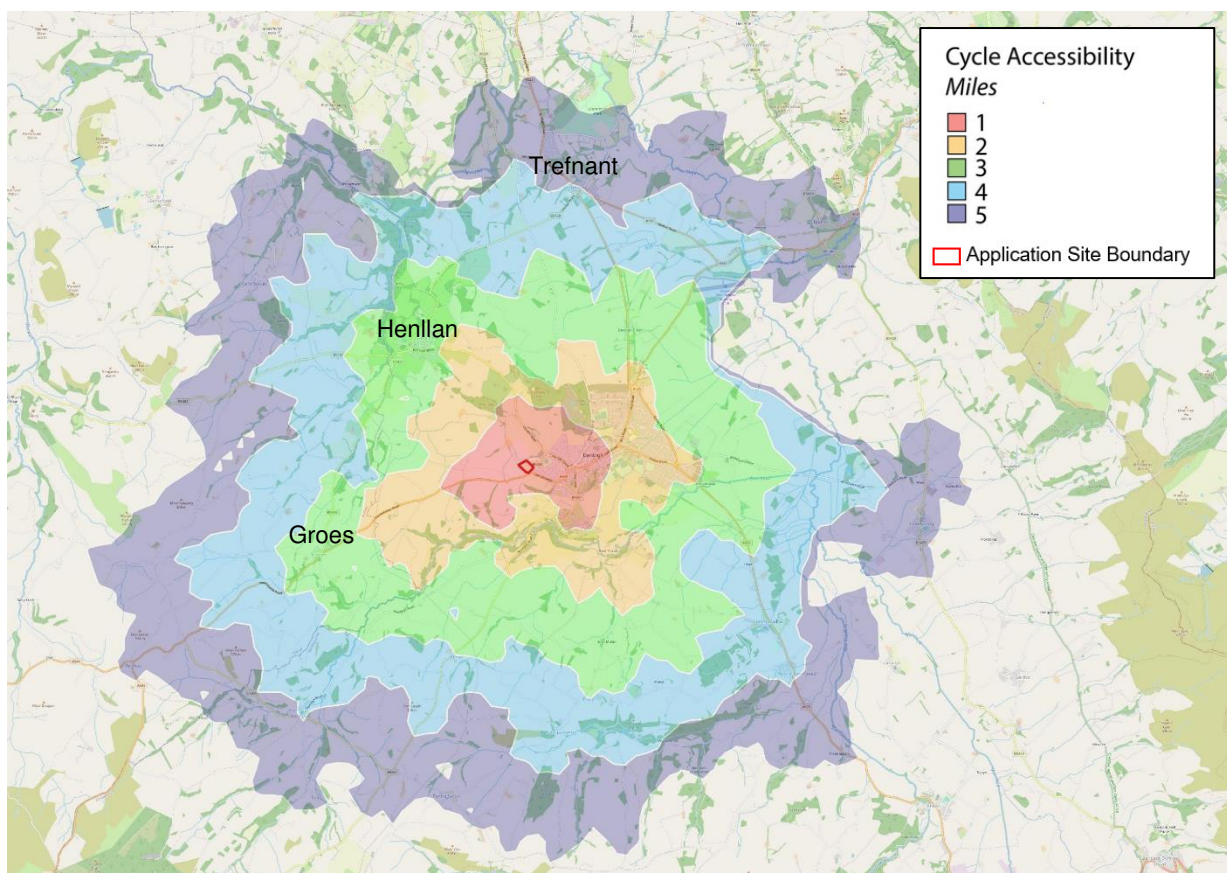
- 4.7 The Brennig Loop is located approximately 0.2 miles to the north-east of the site and is a 37 mile loop which provides links to the nearby areas of Llansannan, Henllan and Rhewl, amongst others, as shown on **Figure 4.2** below.

Figure 4.2 – Local Cycle Route Plan



- 4.8 Again, reference has been made to the Walking and Cycling Strategy for Wales, dated December 2003, which indicates that the practical distance for cyclist are up to 5 mile.
- 4.9 GIS software has been used to model a 5 mile cycle catchment from the site and is shown on **Figure 4.3** below. The plan demonstrates that all of Denbigh and the surrounding areas of Henllan and Trefnant, amongst others, are within acceptable cycle distance of the site.

Figure 4.3 – Cycle Accessibility



Public Transport

- 4.10 The nearest bus stops are located along the A543, approximately 0.2 miles (5 mins) walking distance to the south-east of the site.
- 4.11 The bus stops are served by the 71A service which provides one morning service per day either way between Denbigh and Llansannan via Bylchau.
- 4.12 Further bus stops are provided approximately 0.5 miles (10 minutes) walking distance to the south-east of the site at Morrisons supermarket which are served by additional services including the 76 and 141 which provide links to Ruthin and Cwm, amongst other locations.

Conclusion

- 4.13 The Welsh Government released the Active Travel Guidance document in February 2020 with the overall aim of increasing the number of people in Wales who walk and cycle for everyday journeys, in particular to use these modes for the high proportion of regular journeys that are less than 2.5 miles in length.

- 4.14 The analysis presented in this Chapter demonstrates that the site well located in terms of its accessibility by all the major non-car modes of transport and a number of key local facilities. The existing linkages to these facilities are considered acceptable and will be improved further with the introduction of the new pedestrian route to the east of the site. The proposed development and sustainable location is therefore considered to contribute to the key aims of the Active Travel Wales.

5.0 ANTICIPATED TRANSPORT IMPACTS

Overview

- 5.1 This chapter sets out the methodology used to estimate the number of trips generated by the proposed uses of the site and draws conclusions on the anticipated impact of the development on the local highway network.

Trip Generation

- 5.2 To estimate the trip generating potential of the development, the TRICS 7.8.1 Database has been interrogated for surveys of residential developments similar to that proposed. The selection criteria for the TRICS-based trip rates is as follows:-

- Land use Residential / Houses Privately Owned;
- London and Ireland sites excluded;
- 'Edge of Town Centre' and 'Suburban' areas included; and
- Range of households between 50 and 200 selected.

- 5.3 The TRICS outputs are presented in **Appendix F** and are summarised in **Table 5.1** below:-

Table 5.1 – Proposed Development Trip Rates

Mode	Weekday AM Peak Hour (08:00 to 09:00)		Weekday PM Peak Hour (17:00 to 18:00)	
	Arrivals	Departures	Arrivals	Departures
Vehicles	0.117	0.333	0.284	0.133
Cyclists	0.013	0.023	0.019	0.009
Pedestrians	0.050	0.092	0.063	0.030
Public Transport	0.002	0.042	0.013	0.005

- 5.4 The above trip rates have been applied to the proposed 110 dwellings to determine the trip generation for the proposed development, as summarised in **Table 5.2** below.

Table 5.2 – Proposed Development Trip Generation

Mode	Weekday AM Peak Hour (08:00 to 09:00)		Weekday PM Peak Hour (17:00 to 18:00)	
	Arrivals	Departures	Arrivals	Departures
Vehicles	13	37	31	15
Cyclists	1	3	2	1
Pedestrians	6	10	7	3
Public Transport	0	5	1	1

- 5.5 As can be seen from the above, the maximum number of vehicular trips arising from the development will be 51 two-way trips during the AM peak hour and 46 two-way trips during the PM peak hour. Volumetrically, this equates to roughly one additional vehicle movement every 1-2 minutes at the site access during the peak hours, which will reduce further when distributed across the local highway network. This increase in traffic is not anticipated to have a material impact on the operation or safety of the local highway network.
- 5.6 It should be noted that the above trip rates have also been applied to the 16 affordable houses and 4 apartments which are likely to have lower trip rates per dwelling than privately owned properties. As a result, the above trip generation estimates presented above are considered robust.

6.0 SUMMARY AND CONCLUSION

- 6.1 SCP have been instructed by Castle Green Homes to provide highway, traffic and transport advice in connection with a planning application for a residential development on land located adjacent to Ysgol Pendref, Denbigh. The proposed development will provide 110 dwellings comprising a mix of 1, 2, 3, and 4 bed properties.
- 6.2 Vehicular access to the development will be provided from the A543 / Gwaenynog Road / Lodge Farm access road junction via a priority junction. It is not possible to relocate the proposed access due to visibility constraints. Safety concerns regarding the proposed access have been addressed through the introduction of a build out and traffic island for pedestrians which. The proposals will help to naturally slow traffic speeds on the A543 and on entry to the traffic calmed area on Gwaenynog Road / past the school, it will provide a clear gateway between the rural and built areas along the A543 and will address the existing straight-line issue for drivers approaching the junction from the west.
- 6.3 The proposed development will change the nature of the area around the junction creating a more residential environment. For this reason and to reduce traffic speeds on the approach to the access, it is proposed to relocate the change in speed limit further to the west on the A543, with additional traffic calming measures introduced. The precise location of the change in speed limit and traffic calming measures are to be discussed and agreed with DCC.
- 6.4 Pedestrian and cycle access will be provided from the same location as the vehicular access. In addition, a 2m wide pedestrian link will be provided within the eastern boundary of the site which will connect onto a new footpath to the north, providing a safe traffic free link to Ysgol Pendref and existing footway provision on Gwaenynog Road. This will be of benefit to both prospective residents of the development and existing pedestrians using Gwaenynog Road.
- 6.5 It has been demonstrated that the development is sustainable with good accessibility to the site provided to those travelling by foot and by bicycle. The proposals will improve pedestrian accessibility and safety on the surrounding highway network.
- 6.6 The personal injury accident data for the most recently available five year period in the vicinity of the site has been reviewed and does not represent a material concern in the context of the proposed development.

- 6.7 The maximum number of vehicular trips arising from the development will be 51 two-way trips during the AM peak hour and 46 two-way trips during the PM peak hour. Volumetrically, this equates to roughly one additional vehicle movement every 1-2 minutes at the site access during the peak hours, which will reduce further when distributed across the local highway network. This increase in traffic is not anticipated to have a material impact on the operation or safety of the local highway network.
- 6.8 Having regard to the above, it is concluded that there is no highway or transport related reason to withhold planning permission for the scheme and the proposed development is therefore recommended for approval.

S|C|P

APPENDIX A

Manual Speed Survey, Denbigh

DATE : TUESDAY 18th MAY 2021

100% of vehicels travelling

LOCATION: A543

ROAD SURFACE: DRY

SINGLE CARRIAGEWAY

DIRECTION : EASTBOUND (TO DENBIGH)				
SPEED (MPH)	CAR	LGV	HGV	BUS
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	1	0	0	0
22	0	0	0	0
23	2	1	0	0
24	1	1	0	0
25	0	2	0	0
26	1	0	0	0
27	2	1	1	0
28	5	2	1	0
29	6	0	0	0
30	6	0	2	0
31	3	0	1	0
32	10	2	0	0
33	10	0	0	0
34	16	2	0	0
35	14	3	0	0
36	15	1	0	0
37	22	3	1	0
38	6	1	0	0
39	8	3	1	0
40	6	0	0	0
41	6	0	0	0
42	2	0	0	0
43	8	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	2	0	0	0
48	1	0	0	0
49	0	0	0	0
50	2	0	0	0
51	1	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
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61	0	0	0	0
62	0	0	0	0
63	0	0	0	0
64	0	0	0	0
65	0	0	0	0
66	0	0	0	0
67	0	0	0	0
68	0	0	0	0
69	0	0	0	0
70	0	0	0	0

SUM OF SPEEDS	5543	719	222	0
SUM OF SQUARES	200953	24097	7164	0
TOTAL VEHICLES	156	22	7	0

DIRECTION : WESTBOUND (TO BYLCHAU)				
SPEED (MPH)	CAR	LGV	HGV	BUS
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	2	0	0	0
21	0	0	0	0
22	1	0	0	0
23	5	1	0	0
24	1	0	0	0
25	5	1	0	0
26	12	0	0	0
27	10	1	1	0
28	12	4	0	0
29	11	2	0	0
30	12	1	1	0
31	13	3	0	0
32	12	1	0	0
33	13	2	0	0
34	12	2	0	0
35	12	0	0	0
36	10	1	1	0
37	2	1	0	0
38	3	1	0	0
39	2	2	0	0
40	0	0	0	0
41	2	0	0	0
42	3	0	0	0
43	0	1	0	0
44	1	0	0	0
45	1	0	0	0
46	0	0	0	0
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64	0	0	0	0
65	0	0	0	0
66	0	0	0	0
67	0	0	0	0
68	0	0	0	0
69	0	0	0	0
70	0	0	0	0

SUM OF SPEEDS	4890	766	93	0
SUM OF SQUARES	155688	24998	2925	0
TOTAL VEHICLES	157	24	3	0

Manual Speed Survey, Denbigh

DATE : TUESDAY 18th MAY 2021

100% of vehicels travelling

LOCATION: GWAENYNNOG ROAD

ROAD SURFACE: DRY

SINGLE CARRIAGEWAY

DIRECTION : SOUTHBOUND				
SPEED (MPH)	CAR	LGV	HGV	BUS
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	3	0	0	0
16	0	0	0	0
17	3	0	0	0
18	3	0	0	0
19	0	0	0	0
20	1	0	0	0
21	0	0	0	0
22	1	0	0	0
23	0	0	0	0
24	1	0	0	0
25	1	0	0	0
26	0	0	0	0
27	1	0	0	0
28	0	0	0	0
29	1	0	0	0
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32	0	0	0	0
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62	0	0	0	0
63	0	0	0	0
64	0	0	0	0
65	0	0	0	0
66	0	0	0	0
67	0	0	0	0
68	0	0	0	0
69	0	0	0	0
70	0	0	0	0
SUM OF SPEEDS	297	0	0	0
SUM OF SQUARES	6169	0	0	0
TOTAL VEHICLES	15	0	0	0

SPEED (MPH)	CAR	LGV	HGV	BUS
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0
60	0	0	0	0
61	0	0	0	0
62	0	0	0	0
63	0	0	0	0
64	0	0	0	0
65	0	0	0	0
66	0	0	0	0
67	0	0	0	0
68	0	0	0	0
69	0	0	0	0
70	0	0	0	0
SUM OF SPEEDS	0	0	0	0
SUM OF SQUARES	0	0	0	0
TOTAL VEHICLES	0	0	0	0

Speed (mph)	Frequency	
x	f	f*x
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	1	21
22	0	0
23	3	69
24	2	48
25	2	50
26	1	26
27	4	108
28	8	224
29	6	174
30	8	240
31	4	124
32	12	384
33	10	330
34	18	612
35	17	595
36	16	576
37	26	962
38	7	266
39	12	468
40	6	240
41	6	246
42	2	84
43	8	344
44	0	0
45	0	0
46	0	0
47	2	94
48	1	48
49	0	0
50	2	100
51	1	51
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	0	0
82	0	0
83	0	0
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	0	0
91	0	0
92	0	0
93	0	0
94	0	0
95	0	0
96	0	0
97	0	0
98	0	0
Total	185	6484

Speed (mph)	Frequency	Class Mark	x - mean	e*f
Band	f	x	e	e*f
6.5-7.4	0	7	786.73	0.00
7.5-8.4	0	8	731.63	0.00
8.5-9.4	0	9	678.53	0.00
9.5-10.4	0	10	627.43	0.00
10.5-11.4	0	11	578.34	0.00
11.5-12.4	0	12	531.24	0.00
12.5-13.4	0	13	486.14	0.00
13.5-14.4	0	14	443.05	0.00
14.5-15.4	0	15	401.95	0.00
15.5-16.4	0	16	362.85	0.00
16.5-17.4	0	17	325.75	0.00
17.5-18.4	0	18	290.66	0.00
18.5-19.4	0	19	257.56	0.00
19.5-20.4	0	20	226.46	0.00
20.5-21.4	1	21	197.36	197.36
21.5-22.4	0	22	170.27	0.00
22.5-23.4	3	23	145.17	435.51
23.5-24.4	2	24	122.07	244.15
24.5-25.4	2	25	100.98	201.95
25.5-26.4	1	26	81.88	81.88
26.5-27.4	4	27	64.78	259.12
27.5-28.4	8	28	49.68	397.47
28.5-29.4	6	29	36.59	219.52
29.5-30.4	8	30	25.49	203.91
30.5-31.4	4	31	16.39	65.57
31.5-32.4	12	32	9.29	111.53
32.5-33.4	10	33	4.20	41.97
33.5-34.4	18	34	1.10	19.79
34.5-35.4	17	35	0.00	0.04
35.5-36.4	16	36	0.91	14.48
36.5-37.4	26	37	3.81	99.00
37.5-38.4	7	38	8.71	60.97
38.5-39.4	12	39	15.61	187.36
39.5-40.4	6	40	24.52	147.10
40.5-41.4	6	41	35.42	212.51
41.5-42.4	2	42	48.32	96.64
42.5-43.4	8	43	63.22	505.79
43.5-44.4	0	44	80.13	0.00
44.5-45.4	0	45	99.03	0.00
45.5-46.4	0	46	119.93	0.00
46.5-47.4	2	47	142.83	285.67
47.5-48.4	1	48	167.74	167.74
48.5-49.4	0	49	194.64	0.00
49.5-50.4	2	50	223.54	447.09
50.5-51.4	1	51	254.45	254.45
51.5-52.4	0	52	287.35	0.00
52.5-53.4	0	53	322.25	0.00
53.5-54.4	0	54	359.15	0.00
54.5-55.4	0	55	398.06	0.00
55.5-56.4	0	56	438.96	0.00
56.5-57.4	0	57	481.86	0.00
57.5-58.4	0	58	526.76	0.00
58.5-59.4	0	59	573.67	0.00
59.5-60.4	0	60	622.57	0.00
60.5-61.4	0	61	673.47	0.00
61.5-62.4	0	62	726.38	0.00
62.5-63.4	0	63	781.28	0.00
63.5-64.4	0	64	838.18	0.00
64.5-65.4	0	65	897.08	0.00
65.5-66.4	0	66	957.99	0.00
66.5-67.4	0	67	1020.89	0.00
67.5-68.4	0	68	1085.79	0.00
68.5-69.4	0	69	1152.69	0.00
69.5-70.4	0	70	1221.60	0.00
70.5-71.4	0	71	1292.50	0.00
71.5-72.4	0	72	1365.40	0.00
72.5-73.4	0	73	1440.31	0.00
73.5-74.4	0	74	1517.21	0.00
74.5-75.4	0	75	1596.11	0.00
75.5-76.4	0	76	1677.01	0.00
76.5-77.4	0	77	1759.92	0.00
77.5-78.4	0	78	1844.82	0.00
78.5-79.4	0	79	1931.72	0.00
79.5-80.4	0	80	2020.62	0.00
80.5-81.4	0	81	2111.53	0.00
81.5-82.4	0	82	2204.43	0.00
82.5-83.4	0	83	2299.33	0.00
83.5-84.4	0	84	2396.23	0.00
84.5-85.4	0	85	2495.14	0.00
85.5-86.4	0	86	2596.04	0.00
86.5-87.4	0	87	2698.94	0.00
87.5-88.4	0	88	2803.85	0.00
88.5-89.4	0	89	2910.75	0.00
89.5-90.4	0	90	3019.65	0.00
90.5-91.4	0	91	3130.55	0.00
91.5-92.4	0	92	3243.46	0.00
92.5-93.4	0	93	3358.36	0.00
93.5-94.4	0	94	3475.26	0.00
94.5-95.4	0	95	3594.16	0.00
95.5-96.4	0	96	3715.07	0.00
96.5-97.4	0	97	3837.97	0.00
97.5-98.4	0	98	3962.87	0.00
Total	185			4958.56

Survey Details

Date: 18/05/2021
Road / Location: A543, Denbigh
Direction of traffic: Eastbound
Weather: Dry
Surveyor: Traffic Sense
Speed Limit: 30mph

DMRB - TA22/81 Calculations

Mean Speed = $\sum (f \cdot x) / \sum f$ 35.05 mph
Standard deviation = $\sqrt{\sum (e \cdot f) / \sum f}$ 5.19 mph
Dry 85th%ile Design Speed = Mean Speed + Standard Deviation
Wet 85th%ile Design Speed Correction = -2.5mph

Therefore, the 85th%ile Wet Condition = 37.74 mph
or
60.72 kph

Speed (mph)	Frequency	
x	f	f*x
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	2	40
21	0	0
22	1	22
23	6	138
24	1	24
25	6	150
26	12	312
27	12	324
28	16	448
29	13	377
30	14	420
31	16	496
32	13	416
33	15	495
34	14	476
35	12	420
36	12	432
37	3	111
38	4	152
39	4	156
40	0	0
41	2	82
42	3	126
43	1	43
44	1	44
45	1	45
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	0	0
82	0	0
83	0	0
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	0	0
91	0	0
92	0	0
93	0	0
94	0	0
95	0	0
96	0	0
97	0	0
98	0	0
Total	184	5749

Speed (mph)	Frequency	Class Mark	x - mean	e*f
Band	f	x	e	e*f
6.5-7.4	0	7	587.80	0.00
7.5-8.4	0	8	540.31	0.00
8.5-9.4	0	9	494.82	0.00
9.5-10.4	0	10	451.33	0.00
10.5-11.4	0	11	409.84	0.00
11.5-12.4	0	12	370.35	0.00
12.5-13.4	0	13	332.86	0.00
13.5-14.4	0	14	297.38	0.00
14.5-15.4	0	15	263.89	0.00
15.5-16.4	0	16	232.40	0.00
16.5-17.4	0	17	202.91	0.00
17.5-18.4	0	18	175.42	0.00
18.5-19.4	0	19	149.93	0.00
19.5-20.4	2	20	126.44	252.88
20.5-21.4	0	21	104.95	0.00
21.5-22.4	1	22	85.46	85.46
22.5-23.4	6	23	67.97	407.84
23.5-24.4	1	24	52.48	52.48
24.5-25.4	6	25	38.99	233.97
25.5-26.4	12	26	27.51	330.07
26.5-27.4	12	27	18.02	216.20
27.5-28.4	16	28	10.53	168.44
28.5-29.4	13	29	5.04	65.49
29.5-30.4	14	30	1.55	21.69
30.5-31.4	16	31	0.06	0.96
31.5-32.4	13	32	0.57	7.42
32.5-33.4	15	33	3.08	46.22
33.5-34.4	14	34	7.59	106.29
34.5-35.4	12	35	14.10	169.24
35.5-36.4	12	36	22.61	271.37
36.5-37.4	3	37	33.13	99.38
37.5-38.4	4	38	45.64	182.54
38.5-39.4	4	39	60.15	240.59
39.5-40.4	0	40	76.66	0.00
40.5-41.4	2	41	95.17	190.34
41.5-42.4	3	42	115.68	347.04
42.5-43.4	1	43	138.19	138.19
43.5-44.4	1	44	162.70	162.70
44.5-45.4	1	45	189.21	189.21
45.5-46.4	0	46	217.72	0.00
46.5-47.4	0	47	248.23	0.00
47.5-48.4	0	48	280.74	0.00
48.5-49.4	0	49	315.26	0.00
49.5-50.4	0	50	351.77	0.00
50.5-51.4	0	51	390.28	0.00
51.5-52.4	0	52	430.79	0.00
52.5-53.4	0	53	473.30	0.00
53.5-54.4	0	54	517.81	0.00
54.5-55.4	0	55	564.32	0.00
55.5-56.4	0	56	612.83	0.00
56.5-57.4	0	57	663.34	0.00
57.5-58.4	0	58	715.85	0.00
58.5-59.4	0	59	770.36	0.00
59.5-60.4	0	60	826.88	0.00
60.5-61.4	0	61	885.39	0.00
61.5-62.4	0	62	945.90	0.00
62.5-63.4	0	63	1008.41	0.00
63.5-64.4	0	64	1072.92	0.00
64.5-65.4	0	65	1139.43	0.00
65.5-66.4	0	66	1207.94	0.00
66.5-67.4	0	67	1278.45	0.00
67.5-68.4	0	68	1350.96	0.00
68.5-69.4	0	69	1425.47	0.00
69.5-70.4	0	70	1501.98	0.00
70.5-71.4	0	71	1580.49	0.00
71.5-72.4	0	72	1661.01	0.00
72.5-73.4	0	73	1743.52	0.00
73.5-74.4	0	74	1828.03	0.00
74.5-75.4	0	75	1914.54	0.00
75.5-76.4	0	76	2003.05	0.00
76.5-77.4	0	77	2093.56	0.00
77.5-78.4	0	78	2186.07	0.00
78.5-79.4	0	79	2280.58	0.00
79.5-80.4	0	80	2377.09	0.00
80.5-81.4	0	81	2475.60	0.00
81.5-82.4	0	82	2576.11	0.00
82.5-83.4	0	83	2678.63	0.00
83.5-84.4	0	84	2783.14	0.00
84.5-85.4	0	85	2889.65	0.00
85.5-86.4	0	86	2998.16	0.00
86.5-87.4	0	87	3108.67	0.00
87.5-88.4	0	88	3221.18	0.00
88.5-89.4	0	89	3335.69	0.00
89.5-90.4	0	90	3452.20	0.00
90.5-91.4	0	91	3570.71	0.00
91.5-92.4	0	92	3691.22	0.00
92.5-93.4	0	93	3813.73	0.00
93.5-94.4	0	94	3938.24	0.00
94.5-95.4	0	95	4064.76	0.00
95.5-96.4	0	96	4193.27	0.00
96.5-97.4	0	97	4323.78	0.00
97.5-98.4	0	98	4456.29	0.00
Total	184			3985.99

Survey Details

Date: 18/05/2021
Road / Location: A543, Denbigh
Direction of traffic: Westbound
Weather: Dry
Surveyor: Traffic Sense
Speed Limit: National (60mph)

DMRB - TA22/81 Calculations

Mean Speed = $\sum (f \cdot x) / x$ 31.24 mph
Standard deviation = $\sqrt{\sum (e \cdot f) / \sum (f)}$ 4.67 mph
Dry 85th%ile Design Speed = Mean Speed + Standard Deviation
Wet 85th%ile Design Speed Correction = -2.5mph

Therefore, the 85th%ile Wet Condition = 33.41 mph
or
53.76 kph

Speed (mph)	Frequency	
x	f	f*x
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	3	45
16	0	0
17	3	51
18	3	54
19	0	0
20	1	20
21	0	0
22	1	22
23	0	0
24	1	24
25	1	25
26	0	0
27	1	27
28	0	0
29	1	29
30	0	0
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	0	0
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	0	0
82	0	0
83	0	0
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	0	0
91	0	0
92	0	0
93	0	0
94	0	0
95	0	0
96	0	0
97	0	0
98	0	0
Total	15	297

Speed (mph)	Frequency	Class Mark	x - mean	e*f
Band	f	x	e	e*f
6.5-7.4	0	7	163.84	0.00
7.5-8.4	0	8	139.24	0.00
8.5-9.4	0	9	116.64	0.00
9.5-10.4	0	10	96.04	0.00
10.5-11.4	0	11	77.44	0.00
11.5-12.4	0	12	60.84	0.00
12.5-13.4	0	13	46.24	0.00
13.5-14.4	0	14	33.64	0.00
14.5-15.4	3	15	23.04	69.12
15.5-16.4	0	16	14.44	0.00
16.5-17.4	3	17	7.84	23.52
17.5-18.4	3	18	3.24	9.72
18.5-19.4	0	19	0.64	0.00
19.5-20.4	1	20	0.04	0.04
20.5-21.4	0	21	1.44	0.00
21.5-22.4	1	22	4.84	4.84
22.5-23.4	0	23	10.24	0.00
23.5-24.4	1	24	17.64	17.64
24.5-25.4	1	25	27.04	27.04
25.5-26.4	0	26	38.44	0.00
26.5-27.4	1	27	51.84	51.84
27.5-28.4	0	28	67.24	0.00
28.5-29.4	1	29	84.64	84.64
29.5-30.4	0	30	104.04	0.00
30.5-31.4	0	31	125.44	0.00
31.5-32.4	0	32	148.84	0.00
32.5-33.4	0	33	174.24	0.00
33.5-34.4	0	34	201.64	0.00
34.5-35.4	0	35	231.04	0.00
35.5-36.4	0	36	262.44	0.00
36.5-37.4	0	37	295.84	0.00
37.5-38.4	0	38	331.24	0.00
38.5-39.4	0	39	368.64	0.00
39.5-40.4	0	40	408.04	0.00
40.5-41.4	0	41	449.44	0.00
41.5-42.4	0	42	492.84	0.00
42.5-43.4	0	43	538.24	0.00
43.5-44.4	0	44	585.64	0.00
44.5-45.4	0	45	635.04	0.00
45.5-46.4	0	46	686.44	0.00
46.5-47.4	0	47	739.84	0.00
47.5-48.4	0	48	795.24	0.00
48.5-49.4	0	49	852.64	0.00
49.5-50.4	0	50	912.04	0.00
50.5-51.4	0	51	973.44	0.00
51.5-52.4	0	52	1036.84	0.00
52.5-53.4	0	53	1102.24	0.00
53.5-54.4	0	54	1169.64	0.00
54.5-55.4	0	55	1239.04	0.00
55.5-56.4	0	56	1310.44	0.00
56.5-57.4	0	57	1383.84	0.00
57.5-58.4	0	58	1459.24	0.00
58.5-59.4	0	59	1536.64	0.00
59.5-60.4	0	60	1616.04	0.00
60.5-61.4	0	61	1697.44	0.00
61.5-62.4	0	62	1780.84	0.00
62.5-63.4	0	63	1866.24	0.00
63.5-64.4	0	64	1953.64	0.00
64.5-65.4	0	65	2043.04	0.00
65.5-66.4	0	66	2134.44	0.00
66.5-67.4	0	67	2227.84	0.00
67.5-68.4	0	68	2323.24	0.00
68.5-69.4	0	69	2420.64	0.00
69.5-70.4	0	70	2520.04	0.00
70.5-71.4	0	71	2621.44	0.00
71.5-72.4	0	72	2724.84	0.00
72.5-73.4	0	73	2830.24	0.00
73.5-74.4	0	74	2937.64	0.00
74.5-75.4	0	75	3047.04	0.00
75.5-76.4	0	76	3158.44	0.00
76.5-77.4	0	77	3271.84	0.00
77.5-78.4	0	78	3387.24	0.00
78.5-79.4	0	79	3504.64	0.00
79.5-80.4	0	80	3624.04	0.00
80.5-81.4	0	81	3745.44	0.00
81.5-82.4	0	82	3868.84	0.00
82.5-83.4	0	83	3994.24	0.00
83.5-84.4	0	84	4121.64	0.00
84.5-85.4	0	85	4251.04	0.00
85.5-86.4	0	86	4382.44	0.00
86.5-87.4	0	87	4515.84	0.00
87.5-88.4	0	88	4651.24	0.00
88.5-89.4	0	89	4788.64	0.00
89.5-90.4	0	90	4928.04	0.00
90.5-91.4	0	91	5069.44	0.00
91.5-92.4	0	92	5212.84	0.00
92.5-93.4	0	93	5358.24	0.00
93.5-94.4	0	94	5505.64	0.00
94.5-95.4	0	95	5655.04	0.00
95.5-96.4	0	96	5806.44	0.00
96.5-97.4	0	97	5959.84	0.00
97.5-98.4	0	98	6115.24	0.00
Total	15			288.40

Survey Details

Date: 18/05/2021
Road / Location: Gwaenynog Rd
Direction of traffic: Southbound
Weather: Dry
Surveyor: Traffic Sense
Speed Limit: 30mph

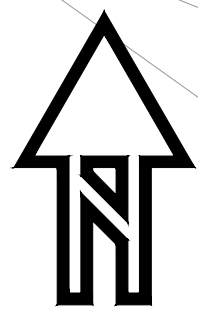
DMRB - TA22/81 Calculations

Mean Speed = $\sum (f \cdot x) / \sum f$ 19.80 mph
Standard deviation = $\sqrt{\sum (e \cdot f) / \sum f}$ 4.54 mph
Dry 85th%ile Design Speed = Mean Speed + Standard Deviation
Wet 85th%ile Design Speed Correction = -2.5mph

Therefore, the 85th%ile Wet Condition = 21.84 mph
or
35.14 kph

S|C|P

APPENDIX B



SCHEDULE OF ACCOMMODATION				
HOUSETYPE	DESCRIPTION	SQFT	NUMBER	PERCENTAGE
2P1B (Affordable)	1 Bed, Walk up flat - Ground Floor	529 SQFT	2	1.82
2P1B (Affordable)	1 Bed, Walk up flat - First Floor	608 SQFT	2	1.82
4P2B (Affordable)	2 Bed, 2 Storey, End/Mid-Terrace	800 SQFT	14	12.73
5P3B (Affordable)	3 Bed, 2 Storey, End-Terrace	999 SQFT	2	1.82
6P4B (Affordable)	4 Bed, 2 Storey, Semi-Detached	1182 SQFT	2	1.82
Oakley	2 Bed, 2 Storey, Mid-Terrace	705 SQFT	14	12.73
Highfield	3 Bed, 2 Storey, End-Terrace	821 SQFT	14	12.73
Marlow Detached	3 Bed, 2 Storey	987 SQFT	14	12.73
Henley	3 Bed, 2 Storey	1040 SQFT	5	4.55
Starrford	3 Bed, 2 Storey	1055 SQFT	15	13.64
Brookway	4 Bed, 2 Storey	1170 SQFT	12	10.91
Beaumont	4 Bed, 2 Storey	1234 SQFT	9	8.18
Ventworth	4 Bed, 2 Storey	1344 SQFT	5	4.55
TOTAL		107831 SQFT	110	
Gross Site Area		7.01 Acres	2.84 Hectares	
Existing Landscape/Buffers		0.16 Acres	0.06 Hectares	
Undevelopable: Site Access, Drainage easements & SSR		0.15 Acres	0.06 Hectares	
NETT SITE AREA:		6.7 ACRES	2.71 HECTARES	
Gross Density:		15.69 Units/Acre	38.78 Units/Hectare	
NETT DENSITY:		16.42 UNITS/ACRE	40.57 UNITS/HECTARE	
Gross Footage:		15288.33 SQFT/Acre	3505.09 SQM/Hectare	
NETT FOOTAGE:		15974.78 SQFT/ACRE	3687.27 SQM/HECTARE	

- Key:
- Site Boundary
 - 1.8m high boundary fence
 - 1.8m high screen wall / fence
 - Private Drive
 - Indicative Landscaping
 - Number of parking spaces proposed to Semi-Detached and Detached Dwellings in accordance with Local Authority's Parking Standards
 - Parking space allocation to Frontage Parking Dwellings
 - Knee rails to parking bays to Terraced Housetypes
 - Existing retained hedges/landscaping
 - Proposed Surface Water Drainage Connection and 6.0m Easement
 - Proposed Water main diversion and 6.0m Easement

Rev:	Description:	Date:
A	Plot numbers reduced, drainage basin shown.	10.03.21
B	Drainage basin removed.	26.03.21
C	Plots 28 - 35 repositioned.	07.04.21
D	Plots 8, 11, 13, 34, 35, 96 & 99 amended.	08.04.21
E	Internal design review	13.05.21
F	Access Amended & amended to suit drainage design	20.05.21
G	Access amended & housetypes updated	10.06.21
H	Numbers increased to 110	13.07.21



Castle Green,
Unit 20,
St. Asaph Business Park,
Denbighshire. LL17 0LJ.
Tel. 01745 536677

Site: Land Adj. Pendref School, Denbigh

Title: Proposed Site Plan

Scale: 1:500@A1

Date: 23.02.21

Ref: PEN-DEN-SP01

Rev: H

S|C|P

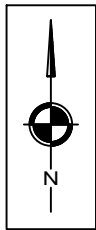
APPENDIX C



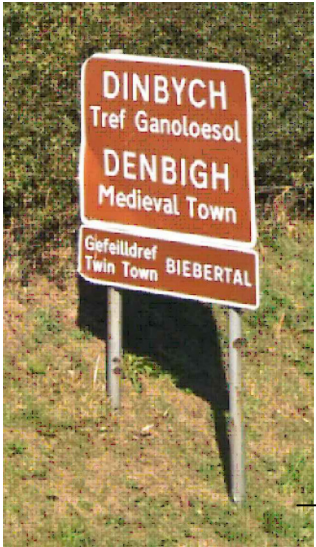
Client	CASTLE GREEN HOMES	Drawing Title	PROPOSED ACCESS ARRANGEMENT	Scale	1:500 @ A3	By	BA	Rev		Description	Date	By	Drawing No.		
Project Title	GWAENYNOG ROAD, DENBIGH			Date	19.05.2021	Checked	PT	A	—	UPDATED ACCESS ARRANGEMENT	21.07.21	LB		SCP/210363/SK01	
						—	—	—	—	—	—	—			
				Approved/ Unapproved	-	Status	PLANNING	—	—	—	—	—	—	Revision	A
								—	—	—	—	—	—		

S|C|P

APPENDIX D



EXISTING SIGN. TO BE
RETAINED



POTENTIAL RELOCATION OF SPEED
LIMIT CHANGE FURTHER WEST BY
AROUND 160m. POTENTIAL TO UPGRADE
THE HI-VIS SIGNAGE IN THE PROCESS
AS SHOWN BELOW OR SIMILAR



EXISTING ADVANCE HI-VIS
SPEED LIMIT CHANGE SIGNS.
TO BE MODIFIED TO READ 100
YARDS (LLATH)



EXISTING "SLOW" & "ARAF"
TEXT & BUFF COLOURED / TEXTURED
SURFACING TO BE REMOVED

ADDITIONAL "SLOW" & "ARAF" TEXT
TO BE PLACED ON BUFF COLOURED
/ TEXTURED SURFACING

DRAGON TEETH MARKINGS - 30MPH
ROUNDEL AND BUFF COLOURED /
TEXTURED SURFACING

Lay-by

A 543

136.6m

Lay-by

149.7m

A 543

44

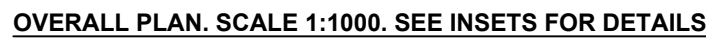
GP

Existing line of
water main

Existing line of
water main

S|C|P

APPENDIX E



INSET 1 - LARGE REFUSE VEHICLE - LEFT IN - RIGHT OUT. SCALE



INSET 2 - LARGE REFUSE VEHICLE - LEFT OUT - RIGHT IN. SCALE



INSET 3 - LARGE REFUSE VEHICLE TURNING ON SITE. SCALE 1:250



INSET 4 - LARGE REFUSE VEHICLE TURNING ON SITE. SCALE 1:250

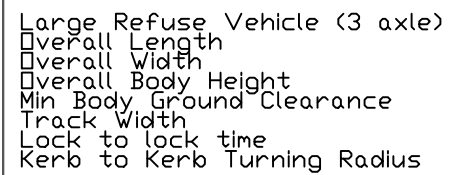


INSET 5 - LARGE REFUSE VEHICLE TURNING ON SITE. SCALE 1:250



INSET 6 - LARGE REFUSE VEHICLE TURNING ON SITE. SCALE 1:250

DESIGN VEHICLE PROFILES



Large Refuse Vehicle (3 axle)	
Overall Length	9.860m
Overall Width	2.450m
Overall Body Height	3.814m
Min Body Ground Clearance	0.366m
Track Width	2.450m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m

REVISIONS

REV	DESCRIPTION	DATE	BY
A	UPDATED SITE LAYOUT UNDERLAID	22.07.21	LB

S | C | P

Transportation Planning : Infrastructure Design

Colwyn Chambers, 19 York Street, Manchester, M2 3BA. Tel 0161 832 4400,
www.scptransport.co.uk, Email info@scptransport.co.uk

Client Name:	
--------------	--

Project Title:

GWAENYNOG ROAD, DENBIGH

Drawing Title

SWEPT PATH ANALYSIS

Date:	21.05.2021	Drawn By:	BA
Scale:	AS STATED @ A2	Checked:	PT
Status:	PLANNING	Approved/ Unapproved:	-

Drawing No.

SCP/210363/ATR01

Rev. A

S|C|P

APPENDIX F

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

MULTI-MODAL TOTAL VEHICLESSelected regions and areas:

02 SOUTH EAST	
ES EAST SUSSEX	2 days
HF HERTFORDSHIRE	1 days
KC KENT	1 days
SC SURREY	1 days
WS WEST SUSSEX	4 days
04 EAST ANGLIA	
NF NORFOLK	1 days
06 WEST MIDLANDS	
SH SHROPSHIRE	1 days
07 YORKSHIRE & NORTH LINCOLNSHIRE	
NY NORTH YORKSHIRE	1 days
09 NORTH	
DH DURHAM	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 54 to 197 (units:)
 Range Selected by User: 50 to 200 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 08/10/20

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	3 days
Thursday	5 days
Friday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	13 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town	13
--------------	----

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	12
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:Use Class:

C3 13 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,000 or Less	1 days
5,001 to 10,000	4 days
10,001 to 15,000	4 days
15,001 to 20,000	3 days
20,001 to 25,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	2 days
25,001 to 50,000	2 days
75,001 to 100,000	3 days
100,001 to 125,000	1 days
125,001 to 250,000	5 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	11 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	6 days
No	7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 13 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	DH-03-A-03	SEMI-DETACHED & TERRACED	DURHAM
	PILGRIMS WAY DURHAM		
	Edge of Town Residential Zone Total No of Dwellings:	57	
	Survey date: FRIDAY	19/10/18	Survey Type: MANUAL
2	ES-03-A-04	MIXED HOUSES & FLATS	EAST SUSSEX
	NEW LYDD ROAD CAMBER		
	Edge of Town Residential Zone Total No of Dwellings:	134	
	Survey date: FRIDAY	15/07/18	Survey Type: MANUAL
3	ES-03-A-05	MIXED HOUSES & FLATS	EAST SUSSEX
	RATTLE ROAD NEAR EASTBOURNE STONE CROSS		
	Edge of Town Residential Zone Total No of Dwellings:	99	
	Survey date: WEDNESDAY	05/06/19	Survey Type: MANUAL
4	HF-03-A-03	MIXED HOUSES	HERTFORDSHIRE
	HARE STREET ROAD BUNTINGFORD		
	Edge of Town Residential Zone Total No of Dwellings:	160	
	Survey date: MONDAY	08/07/19	Survey Type: MANUAL
5	KC-03-A-04	SEMI-DETACHED & TERRACED	KENT
	KILN BARN ROAD AYLESFORD DITTON		
	Edge of Town Residential Zone Total No of Dwellings:	110	
	Survey date: FRIDAY	22/09/17	Survey Type: MANUAL
6	NF-03-A-04	MIXED HOUSES	NORFOLK
	NORTH WALSHAM ROAD NORTH WALSHAM		
	Edge of Town Residential Zone Total No of Dwellings:	70	
	Survey date: WEDNESDAY	18/09/19	Survey Type: MANUAL
7	NY-03-A-10	HOUSES AND FLATS	NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD RIPON		
	Edge of Town No Sub Category Total No of Dwellings:	71	
	Survey date: TUESDAY	17/09/13	Survey Type: MANUAL
8	SC-03-A-04	DETACHED & TERRACED	SURREY
	HIGH ROAD BYFLEET		
	Edge of Town Residential Zone Total No of Dwellings:	71	
	Survey date: THURSDAY	23/01/14	Survey Type: MANUAL
9	SH-03-A-05	SEMI-DETACHED/TERRACED	SHROPSHIRE
	SANDCROFT TELFORD SUTTON HILL		
	Edge of Town Residential Zone Total No of Dwellings:	54	
	Survey date: THURSDAY	24/10/13	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

10	WS-03-A-04	MIXED HOUSES	WEST SUSSEX
	HILLS FARM LANE		
	HORSHAM		
	BROADBRIDGE HEATH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	151	
	Survey date: THURSDAY	11/12/14	Survey Type: MANUAL
11	WS-03-A-08	MIXED HOUSES	WEST SUSSEX
	ROUNDSTONE LANE		
	ANGMERING		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	180	
	Survey date: THURSDAY	19/04/18	Survey Type: MANUAL
12	WS-03-A-09	MIXED HOUSES & FLATS	WEST SUSSEX
	LITTLEHAMPTON ROAD		
	WORTHING		
	WEST DURRINGTON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	197	
	Survey date: THURSDAY	05/07/18	Survey Type: MANUAL
13	WS-03-A-10	MIXED HOUSES	WEST SUSSEX
	TODDINGTON LANE		
	LITTLEHAMPTON		
	WICK		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	79	
	Survey date: WEDNESDAY	07/11/18	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

Trip Rates for Key Periods		Trips per 1 dwells DWELLS	
Period	Inbound	Outbound	Total
0800-0900	0.117	0.333	0.450
1700-1800	0.284	0.133	0.417

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	110	0.071	13	110	0.298	13	110	0.369
08:00 - 09:00	13	110	0.117	13	110	0.333	13	110	0.450
09:00 - 10:00	13	110	0.158	13	110	0.177	13	110	0.335
10:00 - 11:00	13	110	0.140	13	110	0.190	13	110	0.330
11:00 - 12:00	13	110	0.142	13	110	0.152	13	110	0.294
12:00 - 13:00	13	110	0.156	13	110	0.141	13	110	0.297
13:00 - 14:00	13	110	0.181	13	110	0.169	13	110	0.350
14:00 - 15:00	13	110	0.163	13	110	0.202	13	110	0.365
15:00 - 16:00	13	110	0.265	13	110	0.172	13	110	0.437
16:00 - 17:00	13	110	0.260	13	110	0.151	13	110	0.411
17:00 - 18:00	13	110	0.284	13	110	0.133	13	110	0.417
18:00 - 19:00	13	110	0.281	13	110	0.154	13	110	0.435
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.218			2.272			4.490

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

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The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected: 54 - 197 (units:)
 Survey date range: 01/01/13 - 08/10/20
 Number of weekdays (Monday-Friday): 13
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

OFF-LINE VERSION SCP York street Manchester

Licence No: 726001

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	110	0.008	13	110	0.007	13	110	0.015
08:00 - 09:00	13	110	0.013	13	110	0.023	13	110	0.036
09:00 - 10:00	13	110	0.001	13	110	0.004	13	110	0.005
10:00 - 11:00	13	110	0.003	13	110	0.007	13	110	0.010
11:00 - 12:00	13	110	0.004	13	110	0.006	13	110	0.010
12:00 - 13:00	13	110	0.006	13	110	0.007	13	110	0.013
13:00 - 14:00	13	110	0.004	13	110	0.001	13	110	0.005
14:00 - 15:00	13	110	0.006	13	110	0.003	13	110	0.009
15:00 - 16:00	13	110	0.007	13	110	0.007	13	110	0.014
16:00 - 17:00	13	110	0.010	13	110	0.010	13	110	0.020
17:00 - 18:00	13	110	0.019	13	110	0.009	13	110	0.028
18:00 - 19:00	13	110	0.015	13	110	0.012	13	110	0.027
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.096			0.096			0.192

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANS**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	110	0.020	13	110	0.036	13	110	0.056
08:00 - 09:00	13	110	0.050	13	110	0.092	13	110	0.142
09:00 - 10:00	13	110	0.054	13	110	0.050	13	110	0.104
10:00 - 11:00	13	110	0.045	13	110	0.052	13	110	0.097
11:00 - 12:00	13	110	0.032	13	110	0.040	13	110	0.072
12:00 - 13:00	13	110	0.047	13	110	0.040	13	110	0.087
13:00 - 14:00	13	110	0.036	13	110	0.036	13	110	0.072
14:00 - 15:00	13	110	0.036	13	110	0.040	13	110	0.076
15:00 - 16:00	13	110	0.091	13	110	0.066	13	110	0.157
16:00 - 17:00	13	110	0.061	13	110	0.047	13	110	0.108
17:00 - 18:00	13	110	0.063	13	110	0.030	13	110	0.093
18:00 - 19:00	13	110	0.051	13	110	0.045	13	110	0.096
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.586			0.574			1.160

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

OFF-LINE VERSION SCP York street Manchester

Licence No: 726001

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: **1 DWELLS**

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	110	0.003	13	110	0.020	13	110	0.023
08:00 - 09:00	13	110	0.002	13	110	0.042	13	110	0.044
09:00 - 10:00	13	110	0.004	13	110	0.017	13	110	0.021
10:00 - 11:00	13	110	0.008	13	110	0.007	13	110	0.015
11:00 - 12:00	13	110	0.006	13	110	0.008	13	110	0.014
12:00 - 13:00	13	110	0.009	13	110	0.010	13	110	0.019
13:00 - 14:00	13	110	0.006	13	110	0.005	13	110	0.011
14:00 - 15:00	13	110	0.008	13	110	0.004	13	110	0.012
15:00 - 16:00	13	110	0.026	13	110	0.010	13	110	0.036
16:00 - 17:00	13	110	0.018	13	110	0.004	13	110	0.022
17:00 - 18:00	13	110	0.013	13	110	0.005	13	110	0.018
18:00 - 19:00	13	110	0.020	13	110	0.003	13	110	0.023
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.123			0.135			0.258

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.