

TECHNICAL NOTE

5 WESTGATE MEWS, WEST END RESIDENTIAL DEVELOPMENT

Client: Macra Land Ltd
Reference: 2026-05-08-6785-TN01

Date: May 2026

Author: EJD **Date:** 27/04/2026
Checked by: SMO **Date:** 07/05/2026
Approved by: ALB **Date:** 08/05/2026

Issue	Status	Date
01	Preliminary	08/05/2026

1 INTRODUCTION

1.1.1 This Technical Note (TN) has been prepared by Bright Plan on behalf of Macra Land Ltd to support appeal proceedings for an application at 5 Westgate Mews, West End (planning ref: F/26/100809).

1.2 Planning Context

1.2.1 Bright Plan prepared a Transport Statement (TS) to support the planning application (document ref: 2025-12-19-6785-TS01), which was reviewed by Hampshire County Council (HCC) (the Local Highway Authority (LHA)), and by Eastleigh Borough Council (EBC) (the Local Planning Authority (LPA)).

1.2.2 HCC's full consultation response is attached at **Appendix A**. HCC raised no objection in principle to the application, however stated the following in relation to the site access:

"Access into the site from the highway is taken from Kenilworth Gardens, which onwards links into the private Westgate Mews via an existing drop kerb, which gives access to 4 dwellings. It is proposed that access into the development will be achieved through an extension to this and as such will remain private and not under the control of HCC as Local Highway Authority. No changes to the highway are proposed.

This access is therefore acceptable in principle, however it would be requested that additional vehicle tracking drawings are provided which show two-way family car movements through the access point between Kenilworth Gardens and Westgate Mews as this looks tight.

Whilst it may be an existing situation, only 4 dwellings currently utilise the access and as such there is little chance of conflicting movements requiring a vehicle to reverse onto the highway to allow another to exit Westgate Mews.

With the increased dwelling numbers however, the potential for such instances would be expected to rise accordingly which would not be welcomed."



1.2.3 EBC's Decision Notice subsequently cited the following reason for refusal:

"2 Access:

It has not been demonstrated that the existing site access via Westgate Mews is sufficiently adequate and suitable for the scale of the development proposed, and that it would not lead to an unacceptable impact upon the amenity and safety of existing Westgate Mews residents and future residents of the proposed development. As such, the application is considered to be contrary to Policies DM1 and DM13 of the Eastleigh Borough Local Plan 2016-2036 and the Council's 'Quality Places' Supplementary Planning Document."

1.2.4 This report provides the vehicle swept path analysis requested by HCC, and addresses the concerns raised by the LHA, such that the reason for refusal can be removed.

2 VEHICLE SWEPT PATH ANALYSIS AND INTER-VISIBILITY

2.1.1 A vehicle swept path analysis has been undertaken demonstrating manoeuvres at the access onto Kenilworth Gardens, as requested by HCC. The brick piers at the end of Westgate Mews are spaced 3.7m apart, and this width continues for 5.0m, before widening to a width of 4.7m. The 3.7m width prevents two-way passing of cars, however two-way passing is achievable on Westgate Mews past this point, as well as on Kenilworth Gardens.

2.1.2 However, inter-visibility between vehicles departing/arriving at the site is clear both in the immediate vicinity of the access, and from points well back on both Kenilworth Gardens and Westgate Mews. As such, drivers are readily able to see another vehicle approaching, meaning drivers can give way where necessary, with no need for an arriving vehicle to reverse on the public highway. **Drawing 2024-6785-006** demonstrates manoeuvres on Kenilworth Gardens and Westgate Mews, as well as inter-visibility between drivers arriving at and departing Westgate Mews.

3 VEHICLE TRIP GENERATION AND INTERACTION AT WESTGATE MEWS ACCESS POINT

3.1.1 HCC's comments state that there is currently "*little chance of conflicting movements requiring a vehicle to reverse onto the highway to allow another to exit Westgate Mews.*", but "*With the increased dwelling numbers however, the potential for such instances would be expected to rise accordingly*".

3.1.2 As set out above, the good inter-visibility between vehicles arriving at and departing Westgate Mews means that drivers would be able to give way, and would not be required to reverse on Kenilworth Gardens. However, to determine the increased likelihood of these interactions taking place, a comparison of the existing and post-development vehicle trip generation is provided, followed by an assessment of the probability of vehicle encountering one another at the access point.



3.2 Vehicle Trip Generation

- 3.2.1 To anticipate the number of vehicle trips generated by the proposed dwellings, a vehicle trip generation assessment was undertaken for the TS (document ref: 2025-12-19-6785-TS01) using the TRICS database. The vehicle trip rates for the AM and PM peak hours established in the TS are set out in **Figure 3.1**.

Trip Rate per Dwelling	AM Peak Hour		PM Peak Hour	
	Arrivals	Departures	Arrivals	Departures
	0.229	0.447	0.288	0.212

Figure 3.1: Vehicle Trip Rates

- 3.2.2 Applying the trip rates to the number existing and proposed dwellings provides an estimate for the number of existing and post-development vehicle trips through the access point, which is shown in **Figure 3.2**.

Trip Generator	AM Peak Hour		PM Peak Hour	
	Arrivals	Departures	Arrivals	Departures
Existing Dwellings (5 Houses)	1	2	1	1
Proposed Dwellings (8 Houses)	2	4	2	2
Post Development (13 Houses)	3	6	4	3

*discrepancies due to rounding

Figure 3.2: Existing and Post-Development Vehicle Trip Generation

- 3.2.3 As shown above, it is expected that the highest number of vehicle trips would be in the AM peak hour, with 3 arrivals and 6 departures. This equates to 1 vehicle arriving every 20 minutes, and 1 vehicle departing every 10 minutes.

3.3 Interactions at Access onto Kenilworth Gardens

- 3.3.1 As set out in **Section 2**, there is good inter-visibility between vehicles arriving and departing, meaning there would be no need for an arriving vehicle to reverse on the public highway. Notwithstanding this point, to anticipate the number of interactions between vehicle arriving at and departing via the access point, a probability assessment has been undertaken.
- 3.3.2 The assessment uses a Monte Carlo simulation model to calculate the probability of vehicles encountering one another at the access point. Based on the established probability, the frequency of vehicles meeting can be quantified.
- 3.3.3 The following robust assumptions have been incorporated into the model:



- i. An 'encounter zone' of 45.0m (20.0m approach zones on either side of 5.0m narrow section). The model records an encounter if vehicle enters the encounter zone while an opposing vehicle is anywhere within the encounter zone. As such, the model records an encounter, even if a vehicle is already past the narrow section (and could therefore pass unobstructed), providing a robust estimate of the number of encounters.
- ii. A vehicle speed of 5mph. The model uses vehicle speed to determine how long a vehicle is within the encounter zone, and could therefore potentially encounter an opposing vehicle. Vehicle speeds would likely be higher, meaning vehicle would spend less time within the encounter zone, so the 5mph used provided another area of robustness.

3.3.4 The assessment focuses on the AM and PM peak hours when the number of vehicle arrivals and departures are highest. The full detailed modelling data and method is attached at **Appendix B**, and a summary of the results is provided in **Figure 3.3**.

Scenario	AM Peak Hour		PM Peak Hour	
	Occurrences	Frequency	Occurrences	Frequency
Existing	0.02 ±0.00	50hrs	0.01 ±0.00	100hrs
Post-Development	0.19 ±0.01	5hrs 15mins 47secs	0.13 ±0.01	7hrs 41mins 32secs

Figure 3.3: Probability Modelling Results Summary

3.3.5 The assessment suggests that in the existing scenario, 0.02 encounters would be expected to occur in the AM peak hour, and 0.01 encounter would be expected to occur in the PM peak hour. These equate to 1 interaction every 50 hours in the AM peak hour, and 1 interaction every 100 hours in the PM peak hour – i.e. on average, no encounters would be expected to occur.

3.3.6 In the post-development scenario, probability and resulting frequency of encounters continues to be extremely low, at 0.19 occurrences in the AM peak hour, and 0.13 occurrences in the PM peak hour. These equate to 1 interaction every 5 hours, 15 minutes, 47 seconds at AM peak hour intensities, and 1 interaction every 7 hours, 41 minutes, 32 seconds PM peak hour intensities. This again demonstrates that on average, no interactions would be expected to occur. The assessment therefore demonstrates that vehicles encountering one another at the site access would be a rare occurrence in a post-development scenario.

4 SUMMARY

4.1.1 A vehicle swept path analysis has been undertaken demonstrating two-way passing on Westgate Mews and Kenilworth Gardens. Whilst two-way passing is not achievable for a 5.0m section through the access, an assessment of the vehicle trip generation demonstrates a very low likelihood of vehicles encountering one another at the access point.



- 4.1.2 In the rare event that vehicles do approach simultaneously, there is good inter-visibility between Westgate Mews and Kenilworth Gardens, meaning drivers would be able to give-way, and there would be no need for vehicles to reverse on either Kenilworth Gardens or Westgate Mews.



DRAWINGS

2024-6785-006

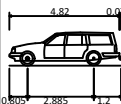
Estate Cars Passing & Inter-visibility

1. This drawing is to be read in conjunction with all other Bright Plan drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
2. Bright Plan accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
3. Road markings are indicative, based on aerial imagery when not provided within a topographical survey. Bright Plan accepts no responsibility for discrepancies in aerial imagery.
4. All dimensions are to be taken from the ground to the top of the structure, unless otherwise stated. All dimensions are in metres unless otherwise stated and all levels are in metres from the topographic survey datum.
5. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain.

Application Boundary

Vehicle Intervisibility

- Swept Path-
 - Wheel Track
 - Over Swing



HCC Standard Car	
Overall Length	4.890m
Overall Width	1.940m
Overall Body Height	1.452m
Min Body Ground Clearance	0.217m
Max Track Width	1.817m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	4.950m

-	Original Issue	16/04/2020
Rev.	Amendments	Date



B R I G H T P L A N
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Drawing Status Final

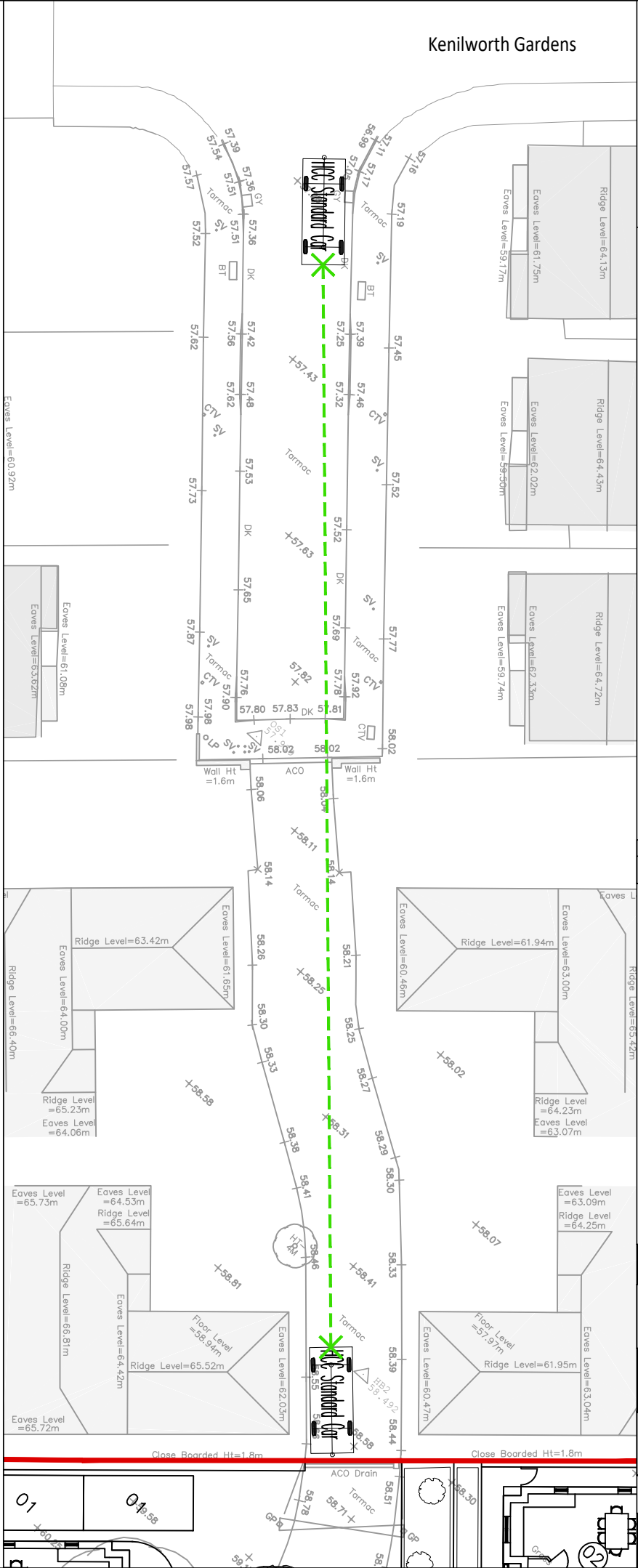
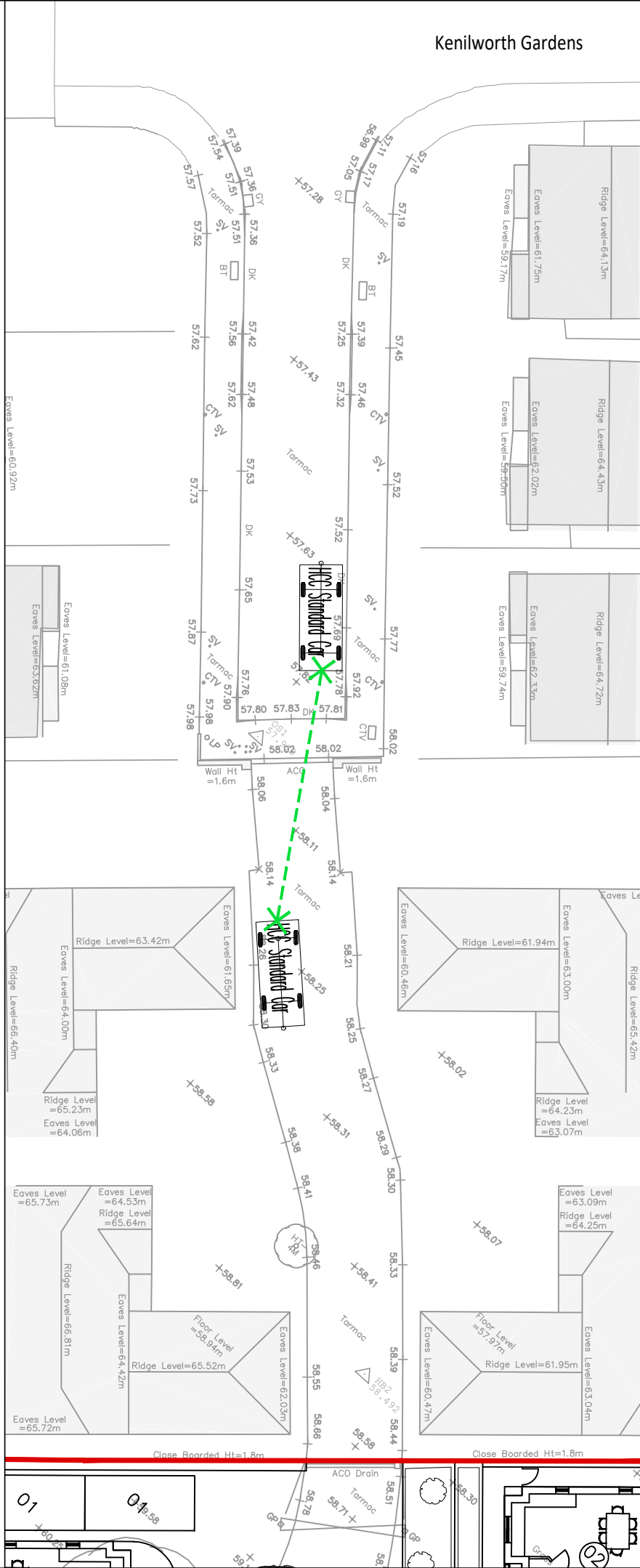
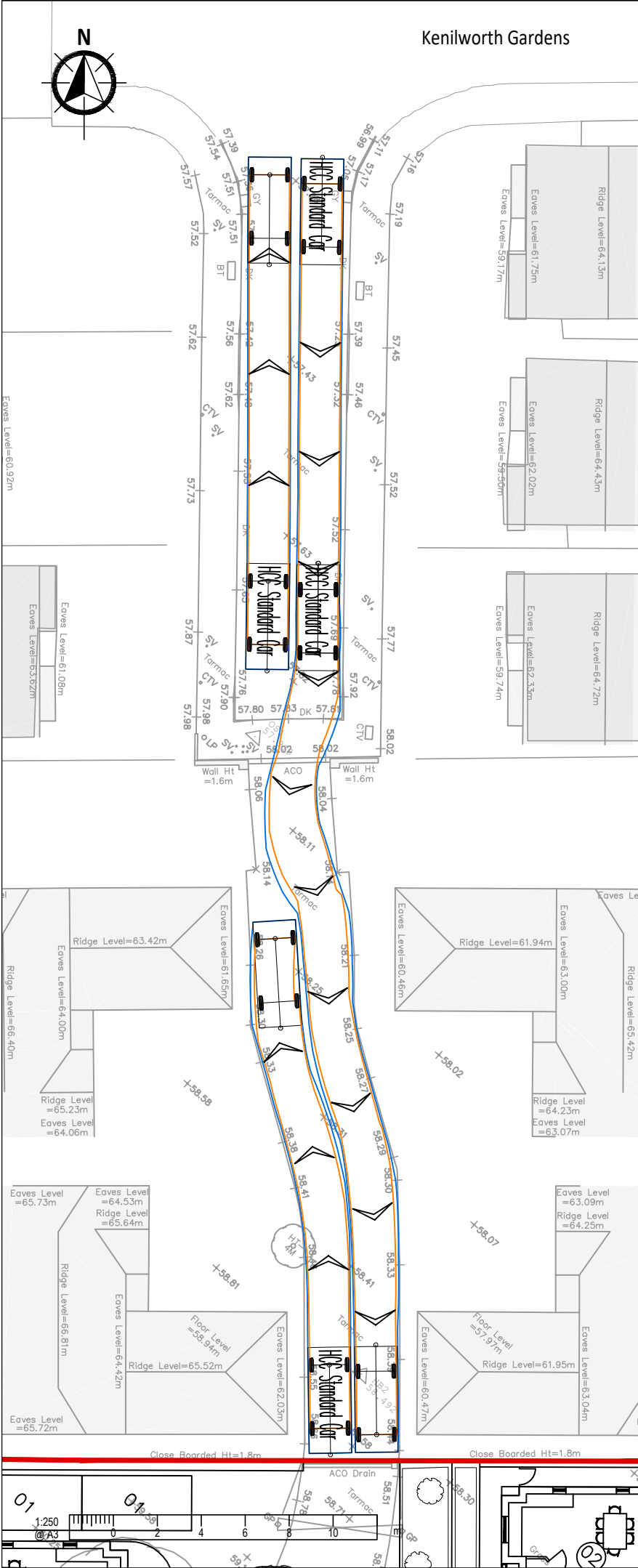
Client **Macra Ltd.**

Project	Westgate Mews
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Drawing Title

Estate Cars Passing & Inter-visibility

Scale 1:250	Date Apr 26	Drawn by EMH	Checked by SMO
Drawing No. 2024-6785-006			Rev. -





APPENDICES



Appendix A HCC Highways Consultation Response

Universal Services
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Telephone 0300 555 1375
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Eastleigh Borough Council
Eastleigh House
Upper Market Street
Eastleigh
SO50 9YN

Enquiries to	Matt Grantham	My reference	059412
Direct Line	N/A	Your reference	F/26/100809
Date	16 February 2026	Email	eastleighdc@hants.gov.uk

For attention of Mr Osmond

Dear Sirs

Re: F/26/100809 At The Orchard, 5 Westgate Mews, Kenilworth Gardens, Southampton, SO30 3RE

Construction of 8No. detached dwellings with associated amenity space, parking and landscaping

In regard to application F/26/100809, having reviewed the information contained within the application pack, whilst there would be no objection in principle to the application from a highway perspective (subject to conditions), additional information is required prior to a formal response being issued.

ACCESS:

Access into the site from the highway is taken from Kenilworth Gardens, which onwards links into the private Westgate Mews via an existing drop kerb, which gives access to 4 dwellings. It is proposed that access into the development will be achieved through an extension to this and as such will remain private and not under the control of HCC as Local Highway Authority. No changes to the highway are proposed.

This access is therefore acceptable in principle, however it would be requested that additional vehicle tracking drawings are provided which show two-way family car movements through the access point between Kenilworth Gardens and Westgate Mews as this looks tight.

Whilst it may be an existing situation, only 4 dwellings currently utilise the access and as such there is little chance of conflicting movements requiring a vehicle to reverse onto the highway to allow another to exit Westgate Mews.

Director of Universal Services
Patrick Blogg

With the increased dwelling numbers however, the potential for such instances would be expected to rise accordingly which would not be welcomed.

INTERNAL SITE LAYOUT:

Internally, considered to be from the very start of Westgate Mews, the site will remain private and as such of no specific concern to HCC Highways as it falls outside of our jurisdiction.

However, an initial review of the internal layout has been undertaken and the following points are made which the Case Officer may wish to consider.

- Two-way family vehicle movements look to be achievable throughout the site (bar the section outlined above), though it is tight and there may be need for resident give and take at points;
- Refuse and emergency vehicle tracking has been supplied, which shows that the single vehicle movement around site is achievable. However, it does look tight, and any conflict such as an oncoming vehicle or a vehicle parked outside of a designated parking bay is likely to cause obstruction. This could prevent such vehicles from achieving full access resulting in missed bin collections, or potentially not being able to turn at the designated turning head.

As such, it would be recommended that the EBC Direct Services Team and Hampshire Fire and Rescue are consulted if they have not been already.

Onwards, it would be recommended that an on-site Management Plan is also set up to prevent such parking from occurring through private parking restrictions informed via the vehicle tracking drawings.

- Pedestrian and cycle movements will be catered for via shared surfaces, and this is acceptable in this case were vehicle flows and speeds would be anticipated to be relatively low.
- In terms of parking, the layout would appear acceptable, as would the quantum for resident parking specifically. However, for visitor parking only 1 space is proposed which appears potentially low for 8 dwellings, particularly given the lack of informal non-obstructive parking locations which could affect refuse and emergency vehicle movements as outlined above. The Case Officer may wish to consider this against the EBC Parking Standards.

If the additional information can be provided, then a review can be undertaken accordingly, and a formal recommendation provided.

CONDITIONS:

CONSTRUCTION SITE MANAGEMENT PLAN REQUIRED

No development shall start on site until a construction site management plan has been submitted to and approved in writing by the Planning Authority, which shall include:

- (a) A programme of and phasing of demolition (if any) and construction work;
- (b) The provision of long term facilities for contractor parking;
- (c) The arrangements for deliveries associated with all construction works;
- (d) Access and egress for plant and machinery;
- (e) Protection of pedestrian routes during construction;
- (f) Location of temporary site buildings, compounds, construction material, and plant storage areas;
- (g) Details of the methodology for ensuring dirt is not transferred onto the highway from the site (i.e. wheel washers), and onwards mitigation should this fail, such as the employment of mechanical road sweepers, and the subsequent refresh of street lining (as and when required) should this be damaged during the process.

Demolition and construction work shall only take place in accordance with the approved method statement.

Reason - In order that the Planning Authority can properly consider the effect of the works on the amenity of the locality.

Yours faithfully,

Matt Grantham
Principal Transport Planner - Highway Development Planning
Universal Services



Appendix B

Encounter Assessment

Westgate Mews, West End

Encounter Simulations

1. Interaction Simulations

This document details the workings and assumptions made for the code which simulates encounters between vehicle arriving at and departing from Westgate Mews.

1.1 Variable Definitions

Number of vehicles departing Westgate Mews: $N_{veh,d}$

Number of vehicles arriving at Westgate Mews: $N_{veh,a}$

Number label for either of the above: N_i

Mean speed of vehicles departing Westgate Mews: $u_{veh,d}$

Mean speed of vehicles arriving at Westgate Mews: $u_{veh,a}$

Mean speed label for any of the above: u_i

Length of encounter zone: L .

Time segment for assessment: T

Random number between 0 and 1: R

1.2 Simulation Setup

Assumption: The recorded number of vehicles (and their mean speed) over time T is representative of the typical traffic during that time of day.

The probability that any vehicle N_i (where N_i is any of $N_{veh,d}$, $N_{veh,a}$) enters the encounter zone at any given time is given by

$$P_i = \frac{N_i}{T}$$

Therefore, the number of vehicles that are likely to enter the encounter zone over some arbitrary time Δt is given by $P_i \Delta t$.

Assumption: A maximum of one vehicle can enter the encounter zone from a certain direction per second.

Given the above assumptions, $P_i \Delta t$ (where $\Delta t = 1$) is less than 1. Therefore, for each second of the simulation we can generate a new random number R . If $R \leq P_i \Delta t$, then the vehicle is added to the simulation in the designated direction. For each vehicle entering the encounter zone, a start time (t_{start}) and end time (t_{end}) is assigned. The relation between these quantities is

$$t_i^{end} = t_i^{start} + \frac{L}{u_i}$$

Assumption: Each vehicle is assumed to travel the whole length of the encounter zone.

1.3 Interactions

Based on the above assumptions, a vehicle departing Westgate Mews with start time $t_{veh,d}^{start}$ and end time $t_{veh,d}^{end}$ will encounter an arriving car if the arriving car enters the encounter zone whilst the departing car is in the encounter zone. I.E. if:

$$t_{veh,d}^{start} \leq t_{veh,a}^{start} \leq t_{veh,d}^{end}$$

The cars will also encounter each other if the departing car enters the encounter zone once the arriving car is already on it. I.E. if:

$$t_{veh,a}^{start} \leq t_{veh,d}^{start} \leq t_{veh,a}^{end}$$

1.4 Simulation Outputs

The simulation outputs the number of encounters, and also outputs the number of vehicles entering the encounter zone to ensure the simulations are consistent with the input data.

For each simulation, the number of interactions for each category is summed. However, any given simulation will have statistical fluctuations.

Assumption: The simulation output obeys *The Law of Large Numbers*, whereby the mean of the output variables will converge to the actual quantities if averaged over a large enough number of simulations.

The simulation is therefore run multiple times to compute the mean of the encounters. It is also useful to show an uncertainty measure for each output statistic.

Assumption: The simulation output obeys *The Central Limit Theorem*, whereby the variables, when summed, form a normal distribution with standard deviation σ . σ can be calculated by taking the square root of the variance of the output variable.

Assumption: The uncertainty of a simulation output variable is given by $U = \frac{\sigma}{\sqrt{N}}$ where N is the total number of simulations.

I.e, where an output variable (A) is expected to have a value of E_A , the simulation outputs the value as $M_A + U_A$, where M_A is the mean value of A in the simulations and U_A is the uncertainty of the mean value. According to the central limit and the 68-95-99.7 rule, the expected value should satisfy:

- $M_A - U_A \leq E_A \leq M_A + U_A$ 68% of the time,
- $M_A - 2U_A \leq E_A \leq M_A + 2U_A$ 95% of the time,
- $M_A - 3U_A \leq E_A \leq M_A + 3U_A$ 99.7% of the time.

Generally, one should only be concerned by results more than $3U_A$ from the expected values as there is a low probability (0.3%) of this occurring.

Therefore, if the number of vehicles departing the site ($N_{veh,s}$) = 24 and the simulation gives $M_{veh,s} \pm U_{veh,s} = 23.98 \pm 0.03$, the result is clearly consistent as the expected value lies directly within the uncertainty bounds of the simulated mean value. However, $M_{veh,s} \pm U_{veh,s} = 23.95 \pm 0.02$ is still statistically consistent (within 3-uncertainty), unless this type of result happens very frequently (more than $\sim 4\%$ of the time) which would be a sign of an inconsistency or bias in the simulation model.

1.5 Additional Note

Values of simulation results are shown to a precision of 2 decimal places. Therefore, if a result has an uncertainty of ± 0.00 , for example, it does not necessarily mean that the uncertainty is zero.

1.6 Simulation Results

Given below are the simulation results (averaged over 100,000 simulations) which show the effects of post-development traffic.

- Encounter Zone Length: 45m
- Simulation Time: 1 hour
- Vehicle Speed: 5mph
- 1,000 simulations used for mean and uncertainty values

	AM Peak Hour		PM Peak Hour	
	Existing	Post-Development	Existing	Post-Development
Departures	2	6	1	3
Arrivals	1	3	1	4
Simulated Mean Departures	2.05 ± 0.05	6.06 ± 0.08	0.94 ± 0.03	3.02 ± 0.06
Simulated Mean Arrivals	1.04 ± 0.03	3.01 ± 0.05	1.00 ± 0.03	4.00 ± 0.06
Simulated Mean Encounters	0.02 ± 0.00	0.19 ± 0.01	0.01 ± 0.00	0.13 ± 0.01