DOCUMENT TITLE

MCE Response To Request For Further Information for Proposed Development at' The Priory' and 'Leabeg'

CLIENT:
PMVT

PROJECT NO. 5565

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CONTENTS:

1 **Introduction:**

The following are the text from the request for further information for planning condition numbers 1, 3, and 5. Each is followed by McCrae Consulting Engineers response, documents referenced in these responses are either included in the appendices at the end of the report or enclosed with the report.

2 **Planning Condition 1:**

Regarding vehicular access on Kiltipper Rd, it is considered that a proposal for a single access from the site, or retention of only the existing accesses, would be appropriate. The applicant should provide a written rationale for the final proposal regarding vehicular access. The proposal should include sightlines which do not cross neighbouring properties or obstructions within the site. The Roads Dept. has sought the longer sightlines preferred by 'Transport Infrastructure Ireland'. However, noting that the character of this stretch of road is changing, and will soon accommodated bus, the standard of 65m provided in section 4.4.4 of DMURS may be acceptable.

3 **MCE To Planning Condition 1:**

Vehicular access from the site onto the Kiltipper Road is proposed via a single central access from the site, both existing accesses are to be closed. The reason for this is to maximise the possible stopping sight distance (SSD) in both directions along the Kiltipper Road. Attached drawing 5565-MCE-XX-XX-DR-C-0004 PL4 - 'New Entrance / Exit Stopping Sight Distance (SSD)' illustrates the new entrance location and the achievable SSD in each direction along the Kiltipper road. As illustrated on this drawing the maximum SSD to the south-west along the Kiltipper road for a car exiting the site is 52.2m and the maximum SSD to the north-east along the Kiltipper road for a car exiting the site is 56.7m.

In order to ascertain the required SSD for the new entrance/exit we consulted the following two relevant documents:

(i) Design Manual for Urban Roads and Streets (DMURS) (May 2019)

In accordance with cl 4.1.1 and table 4.1 of the Design Manual for Urban Roads and Streets (DMURS) the design speed of the Kiltipper road (a local road on the rural fringe) is 60km/h. As noted on the request for additional information, the character of this stretch of road is changing and will soon accommodated buses. According to cl 4.4.5 of the DMUR the Y distance along the visibility splay should correspond to the SSD for the design speed of the major arm, taken from Table 4.2 in section 4.4.4.

Table 4.2 indicates a S.S.D. distance of 65m (red square on table 4.2 below) for a design speed of 60km/h road on a bus route. This is greater than the achievable SSDs of 52.2m and 56.7m illustrated on drawing 5565-MCE-XX-XX-DR-C-0004 PL4.

SSD STANDARDS

Design Speed (km/h)	SSD Standard (metres)
10	7
20	14
30	23
40	33
50	45
60	59

Forward Visibility

Design Speed (km/h)	SSD Standard (metres)
10	8
20	15
30	24
40	36
50	49
60	65

Forward Visibility on Bus Routes

Table 4.2: Reduced SSD standards for application within cities towns and villages. Reduced forward visibility increases driver caution and reduces vehicle speeds.

As noted by SDCC Roads Division (during recent discussion with Kieran Brady of Fitzgerald Kavanagh Architects) the required SSD for an entrance can be reduced based on the 85th percentile of speed along the road, i.e. if a traffic survey is carried out then the sightlines are set at the appropriate distance for the speed that 85% of road users are recorded doing.

Therefore we commissioned a traffic survey of the Kiltipper road which was carried out by Irish Traffic Surveys Limited on the week of the 07th to the 13th of April 2022. Whilst the full traffic survey is contained in Appendix A of this report the table below summarises the results:

SUMMARY OF IRISH TRAFFIC SURVEY Ltd RESULTS:

Traffic Travel Direction	Direction A (East)						Direction B (West)					
Day	Max Speed	Min Speed	Mean Speed	VPP 85% Speed	VPP 95% Speed	No. of Vehicles	Max Speed	Min Speed	Mean Speed	VPP 85% Speed	VPP 95% Speed	No. of Vehicles
07/04/2022 (Thur)	51.9	0	33.2	38.88	41.94	715	44.6	14.9	28.3	32.4	35.64	878
08/04/2022 (Fri)	55.6	15.1	33.5	39.2	42.48	814	61.5	9.3	29	32.58	35.28	1229
09/04/2022 (Sat)	52.5	10.5	32.8	38.34	41.58	871	46.8	8.2	27.7	32.22	35.46	932
10/04/2022 (Sun)	60.2	13.2	33.1	38.88	41.4	659	51.9	13.7	28.3	32.4	35.64	719
11/04/2022 (Mon)	47.5	10.8	32.5	37.98	41.07	736	49.8	12.6	28	32.4	35.28	881
12/04/2022 (Tue)	50.5	12.9	32.4	37.8	40.14	752	46.8	11.5	27.9	32.4	35.58	866
13/04/2022 (Wed)	48.1	12.3	32.6	38.34	41.58	858	74.4	11.5	27.8	32.12	34.59	976

Highest Value Recorded

SSD STANDARDS

Design Speed (km/h)	SSD Standard (metres)
10	7
20	14
30	23
40	33
50	45
60	59

Forward Visibility

Design Speed (km/h)	SSD Standard (metres)
10	8
20	15
30	24
40	36
50	49
60	65

Forward Visibility on Bus Routes

Table 4.2: Reduced SSD standards for application within cities towns and villages. Reduced forward visibility increases driver caution and reduces vehicle speeds.

Therefore, according to Table 4.2 in section 4.4.4. of the DUMRS the required SSD for a design speed of 40km/h is 36m (yellow square on table above). This is less than the achievable SSDs of 52.2m and 56.7m illustrated on drawing 5565-MCE-XX-XX-DR-C-0004 PL4.

(i) TII Publication DN-GEO-03060: Geometric Design of Junctions (Priority Junctions, Direct Accesses, Roundabouts, Grade Separated and Compact Grade Separated Junctions). (June 2017).

In accordance with cl 5.6.3.2 and table 5.5 of this document a S.S.D distance of 90m (red square on table below) is required for a road with a design speed of 60km/h. This is greater than the achievable SSDs of 52.2m and 56.7m illustrated on drawing 5565-MCE-XX-XX-DR-C-0004 PL4.

Table 5.5 'y' Visibility distances from the minor road

Design Speed of major road(km/h)	'y' Distance(m)
42	50
50	70
60	90
70	120
85	160
100	215
120	295

However, the required SSD for an entrance can be reduced based on the 85th percentile of traffic survey speed along the road which as noted above was 39.2 km/h. Therefore the required SSD for a design speed of 42km/h is 50m – highlight in yellow above on table 5.5. This is less than the achievable SSDs of 52.2m and 56.7m illustrated on drawing 5565-MCE-XX-XX-DR-C-0004 PL4.

4 Planning Condition 3:

The Roads Dept. has sought design changes to ensure that a fire tender can access the rear of the site. In the event of permission being granted, a Fire Safety Certificate will be required. The applicant is requested to comment on this aspect of the proposal. The applicant should show consideration of this by way of addition information and provide revised plans if necessary. If the applicant is of the view that the layout as proposed would receive a fire safety certificate, no alteration to the plans is necessary

5 MCE Response To Planning Condition 3:

The layout has been revised to facilitate access for a fire tender to the rear of the site. The road way between the two existing houses has been widened and the road in front of Block A has also been widened. The area to the north of Block A has been call up a grasscrete to facilitate a turning area for a fire tender.

Attached is drawing *5565-MCE-XX-XX-DR-C-0005 PL2 - 'Layout Showing Tracking For Fire Tender'* which contains two layouts of the access road to the rear of the site. One layout illustrates the fire tender entering the site and second layout illustrates the fire tender turning and exiting the site.

6 Planning Condition 5:

(a) *The proposed surface water attenuation of 81m^3 is undersized by approximately a factor of 1.6 for a 1 in 30 year storm event and undersized by approximately a factor of 2.3 for a 1 in 100 year storm event. The applicant is requested to submit a revised report showing surface water attenuation calculations for the proposed development. The report should include the site area in hectares and areas of different surface types such as buildings, permeable paving, green areas in m2 and their respective run off coefficients. Attenuation should be provided by SuDS (Sustainable Drainage Systems) where possible and where this is insufficient then attenuation can be provided by an arched type system. A concrete tank is not acceptable for the attenuation due to maintenance issues. Example of SuDS include and not limited to:*

- *Green roofs*
- *Swales*
- *Permeable paving*
- *Rain gardens*
- *Planter boxes*
- *Grasscrete*

The report should include details of site specific rainfall data from Met Eireann. SAAR (Standard Annual Average Rainfall) value, Qbar litres/second/hectare and soil value

(b) *The applicant is requested to submit a drawing showing a revised surface water layout of proposed development. Show types and size (capacity in m3) of attenuation systems proposed*
(c) *The Environment Services Dept. has also recommended the use of water butts.*

7 MCE Response To Planning Condition 5(a):

The condition indicates that the proposed surface water attenuation of 81m^3 is undersized by approximately a factor of 2.3 for a 1 in 100 year storm event which would mean a tank size of 187m^3. However subsequent correspondence with Ronan Toft of the SDCC Drainage Division has agree that this figure can be reduced to 167m^3 – email 28/02/2022.

Appendix B of this report contained surface water attenuation calculations for the proposed development carried out using the latest Microsoft Drainage software. These calculations were based on the following information:

- Area contributing to attenuation tank: 2250.47m^2 - Refer to Table 7.1 Appendix C which details the site area in hectares and the areas of the different surface types i.e. roofs, impermeable surfaces, permeable paving, and grassed areas in m^2 along with their respective run off coefficients.
- Soil Index 0.37 - Soil Index 3 - From Infiltration Test Description of soil "Firm light brown sandy slightly gravelly silty CLAY with medium cobble and low boulder content." Soil Index assumed to be 3 as per Table D1 in GDSDS.
- Outflow: 2 l/s- Refer to Table 7.2 Appendix C which details the calculation of Q/bar and the allowable outflow.
- SAAR: 739mm – SAAR value taken from Table 7.3 Appendix C.
- M5-60: 21 - Refer to Table 7.4 Appendix C which details calculation of M5-60.
- r: 0.250, - Refer to Table 7.4 Appendix C which details calculation of `r'.
- Return Periods: 100 years
- Climate Change Allowance in Volume Calculation: 20%

Whilst the Micro Drainage calculations (in Appendix B) show a maximum attenuation volume requirement of 134.0m^3 the attenuation tank on the enclosed drawing 5565-MCE-XX-XX-DR-C-0002 PL4 has been sized to facilitate a minimum volume of 167m^3 as agreed with Ronan.

The attenuation tank will be formed with M3500 Stormtech chamber arches. Whilst the infiltration testing on the site indicated that the soil on the site was unsuitable for infiltration the attenuation tank will be wrapped in a permeable membrane to facilitate some extent of infiltration into the surrounding soil. Refer to drawing 5565-MCE-XX-XX-DR-C-0002 PL4 and Appendix D for preliminary details of the attenuation tank.

SuDS measures employed on the site, refer to drawing 5565-MCE-XX-XX-DR-C-0002 PL4 enclosed with this report:

- Swale
- Permeable paving
- Planter boxes
- Grasscrete
- Water Butts

8 MCE Response To Planning Condition 5(b):

Enclosed with this report is drawing 5565-MCE-XX-XX-DR-C-0002 PL4 showing the surface water layout of proposed development. The attenuation will be formed with M3500 Stormtech chamber arches and have a capacity of 187m^3 as agreed with Ronan. Refer to Appendix D for preliminary details of the Stormtech attenuation tank.

9 MCE Response To Planning Condition 5(c):

Enclosed with this report is drawing 5565-MCE-XX-XX-DR-C-0002 PL4 showing the surface water layout of proposed development. Water butts have been indicated to the rear of each unit on this drawing.

I hope we have correctly interpreted your requirements but if there are any issues requiring clarification, please contact the undersigned to discuss.

Norman Irvine
Chartered Engineer
For McCrae Consulting Engineers