MHA STRUCTURAL DESIGN

22064/No. 81 Belsize Park Gardens, NW3 4NJ

December 2023/ Technical Note in Response to Flood Officer's comments

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Introduction

1. This technical note has been prepared in response to comments raised by the Flood officer in relation to the proposed development at 81 Belsize Park Gardens.
2. The flood officer's comments were in response to the Flood Risk Assessment and Drainage strategy report (Reference no. 22064-MHA-WS-XX-RP-C-100-P3_Flood Risk Assessment Report).
3. The technical note provides responses to these comments.

Response to Comments

1. "*The applicant has not provided sufficient information on why small-scale rainwater harvesting methods such as water butts can't be considered to demonstrate that the drainage hierarchy has been sufficiently considered to comply with London Plan Policy SI 13.*"

   Response:

   As it was highlighted in the flood risk assessment the site is already developed and the proposal is to change the current use of the building from Class E to F1. Therefore, there will be no significant redevelopment.

   Currently, all RWP along the external means of escape route of the building run into the ground. Therefore, any rainwater harvesting method will impact the width of the escape route. Regarding the two RWP along the frontage of the building, any rainwater harvesting system would have an impact on the planted beds and underground foundations.

2. "*The applicant proposes a green roof with a suggested substrate depth of between 20-40mm which is not the minimum required depth of 150mm.*"

   Response:

   The substrate depth has been revised to 150mm. This update has been captured within the revised proposed drainage strategy plan.

3. "*The proposed runoff rate from the site is greater than greenfield runoff rates and has not been agreed with the LLFA which does not comply with Defra Non-Statutory Technical Standards for Sustainable Drainage Systems S3 nor London Plan Policy SI 13.*"

   Response:

   The proposed runoff rates should be no higher than the existing rates as no changes are proposed to the impermeable area specifically the roof area, as the development proposes a change the use of the building from Class E to F1.

   However, in accordance with good practice, SuDS have been proposed to assist with the reduction of the existing runoff rates and provide a betterment wherever possible. The proposed runoff rates have been calculated to provide a betterment up to circa 50% in reduction from the existing rates. Please see table summary below.

Return Period	Existing Runoff Rate (l/s)	Proposed Runoff Rate (l/s)	Betterment (%)
1Year	8.9	4.3	51.6% Reduction
30 Year +35%CC	16.2	11.5	29.0% Reduction
100 Year +40%CC	18.5	12.9	30.2% Reduction

Table 1. Existing vs Proposed runoff rates

4. "*The greenfield and existing runoff rates evidence of calculation has not been provided. These need to be provided to demonstrate the method and calculation used to determine these.*"

   Response:

   The Greenfield runoff rates have been calculated in accordance with the Rainfall run-off management for urban developments issued by FCERM and the EA published in February 2021 and with the CIRIA SuDS Manual. The method of calculations used is the IH124 and the results have been presented in Table 2 below.

   The Existing runoff rates have been calculated in accordance with the CIRIA SuDS Manual (Section 24.5) by creating simulation of the existing network using InfoDrainage. The results are appended to this technical note.

   It is worth noting that the proposal is to change the use of the building. No change to hardstanding areas are proposed. Therefore, the existing runoff rates can be maintained. However, to adhere to the industry best practice and guidance a reduction to the existing runoff rate wherever possible should be sought (See Table 1 above).

Return Period	Greenfield Runoff Rate (l/s)	Existing Runoff Rate (l/s)
Q_{bar}	0.3	N/A
1 Year	0.3	8.9
30 Year	0.7	16.2
100 Year	1.0	18.5

Table 2. Greenfield & Existing Runoff Rates

5. "*The applicant has not provided the greenfield runoff volume nor the existing runoff volume which are required to confirm that the proposed runoff volume is as close as practicable to greenfield volume to comply with Defra Non- Statutory Technical Standards for Sustainable Drainage Systems S5.*"

   Response:

   The greenfield, existing and proposed runoff volumes have been calculated using the FSR method for the greenfield runoff volume and the simulation analysis for both the existing and proposed. These are presented in Table 3 below.

   It can be seen the proposed runoff volume has provided a 21% reduction from the existing runoff volume. This is very positive considering that the development proposal is the change of use of the building without any major redevelopment.

   The greenfield runoff volume calculations can be found in page 9 of the 22064-MHA-XX-CAL-C-101_Proposed Drainage Simulation analysis report. The existing & proposed runoff volume can be found in page 2 of both the 22064-MHA-XX-CAL-C-102_Proposed Runoff Volume and 22064-MHA-XX-CAL-C-103_Existing Runoff Volume report.

Greenfield Runoff Volume (m3)	Existing Runoff Volume (m3)	Proposed Runoff Volume (m3)
11.8	50.8	40.1

Table 3. Runoff Volume for the 1 in 100 Year Return Period 360 minutes event

6. *"The applicant has provided a different number, and a different area, of green roofing in the report and in the calculations. The total number and area of the green roofs should be clarified such that the volume of storage they will provide can be confirmed and compliance with Defra Non-Statutory Technical Standards for Sustainable Drainage Systems S5 and S6 can be confirmed."*

   Response:

   The green roof area in the network simulation analysis has been updated to match the green roof area proposed in the drainage strategy (circa 280m2).

7. *"The catchment area used in the drainage calculations for the site is 540m2 whilst the total site area is stated as 723m2 in the Flood Risk Assessment and as 819m2 in the Application Form which means that compliance with Defra Non-Statutory Technical Standards for Sustainable Drainage Systems S7 and S8 cannot be confirmed for the full site area. The applicant should clarify the total site area and use this in the drainage calculations to demonstrate that the storage features are sufficient to provide no flooding on site for the total area being drained."*

   Response:

   The site area on the application form (819 sqm) includes a strip of land in the neighbouring property's garden (No. 83). This land is outside of the applicant's ownership and no works are proposed on this land, except for works to trees (tree pruning) and the temporary siting of scaffolding to facilitate the development.

   In addition, at the front of the site, there is a small triangle of land that currently forms part of the forecourt of No. 81 but the Land Registry title shows this as within No. 83s ownership.

   The intention as part of this application is to make good this area and hand the land back to No. 83. As this land falls outside of the applicant's ownership, it is not appropriate to include it in the drainage strategy. As such, the site area that falls within the applicant's ownership is used for the drainage strategy (723 sqm).

   This application site area is explained further on page 36 of the submitted Design and Access Statement and at paragraphs 2.9- 2.12 of the submitted Planning Statement.

   The Drainage simulation analysis model has been revised to reflect the 723sqm catchment area and relevant green roof and permeable paving areas.

8. *"The applicant has not stated the owner of the maintenance tasks for the drainage features."*

   Response:

   The Fine Arts College will be responsible for the maintenance of the drainage features.

Conclusion

1. The proposal is to change the use of the building from Class E to Class F1 with no significant redevelopment. Existing roof area will remain unchanged.
2. SuDS features such as green roofs, permeable paving and rainwater garden have been proposed and all other options have been explored and exhausted.
3. The key constrain of the SuDS provision is the current limited space to provide any further SuDS features and the underground foundations.
4. The impermeable area has been reduced with the introduction of the green roofs and rainwater garden which has provided a betterment to the existing drainage. This is evident with the reduction of the existing runoff rate & volumes.
5. It appears that there is sufficient evidence and clarifications for the Flood Officer's holding objection to be removed.