

Lead Local Flood Authority – London Borough of Camden

Statutory Consultee for all Major Developments (SUDS)

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Scheme Address	Land to west of Royal Mail Sorting office bounded by Phoenix Place, Mount Pleasant, Gough Street & Calthorpe St. Camden WC1
Planning Reference	2018/5448/P
Size of site (as stated on application form)	10,300 m ²
Application type	Condition
Date	26 November 2018
Recommendation:	Condition Maintained. Further information required

[Applicant Response 21 March 2019 – Shown in Blue](#)**Description of Development:**

Details of drainage to partially discharge Condition 9 (SUDS) in relation to Phase 1 of planning permission 2013/3807/P granted on 30th March 2015 by the Greater London Authority (for new buildings of 5-15 storeys, 345 dwellings, 823sqm of flexible retail and community floor-space and associated works (summary)).

Condition 9: Superstructure works on the relevant Section shall not be commenced until a detailed surface water drainage scheme for the site, based on the agreed Flood Risk Assessment (FRA) prepared by Waterman Transport and Development, presented in Appendix 14.1 of the Environmental Statement, dated April 2013, has been submitted to and approved in writing by the Local Planning Authority. The scheme shall subsequently be implemented in accordance with the approved details prior to practical completion, shall be maintained as such thereafter and no change therefrom shall take place without the prior written consent of the Local Planning Authority. The scheme shall include a restriction in run-off and surface water storage on site as outlined in the FRA. The run-off from the site should be reduced to no more than 71 l/s for the 1 in 100-year storm event

This Condition can be discharged on a Section by Section basis

Documents reviewed:

- Mount Pleasant Phase 1 – Rev A: Detail Drainage Design Report, dated 01/11/2018, Terrell Consulting Engineers Ingénieurs Conseils;
- 2829 Mount Pleasant Phase 1 Ground Floor Drainage GA (Drawing No. MP1-TER-ALL-GND-GA-A23-000002 Rev C); and,
- 2829 Mount Pleasant Phase 1 Ground Floor Drainage GA (Drawing No. MP1-TER-ALL-GND-DET-A23-0990003 Rev A)

Comments:

- The applicant is proposing to partially discharge condition 9 for Phase 1 of the development; an area of 5700m² out of a total 10300m². Therefore it has been calculated that this part of the development can discharge up to 46 l/s as a proportion of 71 l/s (as outlined in the condition). We would query this calculation as a figure of 6706 rather than 5700 has been used to calculate the proportion. **The applicant should clarify this.**

Applicant Response – There was a typo in the Detailed Drainage Design Report Rev A. The AECOM Drainage Strategy Report refers to the 6706m² figure. The Detailed Drainage Design Report has been amended (now Rev B) to reflect this and also now includes a Broadway Malyan plan confirming the impermeable areas.

- The applicant proposes to discharge at 46 l/s via the following mechanisms;
 - o 6l/s to the existing sewer connection in Phoenix Place (no room for attenuation in this location so unrestricted flow)
 - o 30 l/s to the existing Thames Water manhole 9209 in Gough Street (26l/s for the Permavoid run off plus 4 l/s for the balcony areas)
 - o 10 l/s to the existing Thames Water manhole MH0108 in Mount Pleasant

It is unclear why the discharge rate from the permavoid storage area cannot be lower than 26 l/s through controlled discharge. **The applicant should clarify this.**

Applicant Response - 26l/s is the lowest possible flow rate that can be delivered from the Permavoid storage area within the site layout/area available. This is because the maximum thickness of Permavoid we can use is 150mm due to the agreed proposed levels and hard landscape build ups. At 26l/s the Head within the Permavoid is at 150mm i.e. the Permavoid is full. Reducing the flow will result in the head increasing and a thicker Permavoid being required to attenuate this flow and as has been mentioned above this is not possible within the site constraints.

- **The drainage layout plan** (*Drawing No. MP1-TER-ALL-GND-GA-A23-000002 Rev C*) provides details of the proposed drainage scheme. To the west of the site, the drainage scheme proposes to intercept surface water runoff from Mount Pleasant and parts of Phoenix Place using below ground attenuation (82.1m³ – with 95% voids) and discharge to the existing combined sewer network on Mount Pleasant at a controlled rate 9.8 l/s (MicroDrainage Calculation sheet) for the 1 in 100 year plus 40% Climate Change storm event. The calculation sheet shows no flooding in the network for the 1 in 100 year plus 40% Climate Change storm event. Further the drainage scheme proposes to restrict discharge to the existing combined sewer network using 70mm diameter orifice plate (*Drawing No. MP1-TER-ALL-GND-DET-A23-0990003 Rev A*).

- To the south of the site the drainage scheme proposes to intercept surface runoff using below ground attenuation (13.68m³ – with 95% voids) and provide above ground attenuation using Permavoid storage. However,
 - o the MicroDrainage calculations provided in Appendix B in demonstration of the hydraulic performance of the below ground storage units to south appears to be incomplete as there are no outputs provided to verify the performance of the drainage scheme for a 1 in 100 year plus 40% Climate Change event. **The applicant should clarify this**

Applicant Response – The MicroDrainage Calculations do show the performance of the drainage scheme for a 1 in 100 year plus 40% Climate Change event. The

revised calculations in the amended Detailed Drainage Design Report Rev B now highlight this.

- Furthermore, no calculations or standard detail drawing have been provided to verify the hydraulic performance of the Permavoid storage. **The applicant should clarify this**

Applicant Response - Full XP Drainage (MicroDrainage sister software) calculations have been undertaken by the Permavoid Designer and are now submitted as part of the evidence together with a layout plan and details showing the Permavoid attenuation system.

- The invert levels shown on the drainage layout plan for the drainage network discharging to the existing combined sewer network on Gough Street are not in line with the invert levels in the MicroDrainage calculation sheet. **The applicant should clarify this**
Applicant Response – the invert levels on the drainage layout plan and the MicroDrainage calculation sheet have now been coordinated and read the same.
- To the North of the site, the drainage scheme proposes to intercept surface water runoff from the external balconies and discharge to the sewer network via the existing connection. No calculations have been provided to verify the proposed surface water discharge rate of 6 l/s. **The applicant should clarify this**
Applicant Response – Calculations for the Phoenix Place drainage proposals (no attenuation) have now been included in the Detailed Drainage Design Report Rev B.
- The drainage layout plan (*Drawing No. MP1-TER-ALL-GND-GA-A23-000002 Rev C*) does not show how the Permaviod system will be connected to the below ground attenuation units and state “*route through building from Permavoid discharge in abeyance until receipt of design information from the Permavoid Specialist*”. **The applicant should clarify this**
Applicant Response – The drainage layout plan has now been amended to show the Permavoid system connection to the below ground drainage network.

Recommendation: Condition Maintained. Further information required

- Applicant to provide further clarification on calculation of 46 l/s for overall discharge from Phase 1
- Applicant to provide complete calculations to verify the proposed drainage network discharging to the sewer network on Gough Street.
- Applicant to clarify the invert levels for drainage network to the south of the site as the invert levels used in the supporting calculations differ to the invert levels provided on the drainage layout Drawing No. MP1-TER-ALL-GND-GA-A23-000002 Rev C.
- Applicant to provide calculations to verify the hydraulic performance of the Permavoid storage including justification for the proposed discharge rate of 26 l/s and why it cannot be lower.
- Applicant should indicate on the drainage layout plan how the Permavod storage will be connected to the attenuation storage.

Revised Information now submitted

- Mount Pleasant Phase1: Detail Drainage Design Report, (Report No. MP1-TER-ALL-GND-REP-A23-900013 Rev B) dated 25/02/2019, Terrell Consulting Engineers;

- 2829 Mount Pleasant Phase 1 Ground Floor Drainage GA (Drawing No. MP1-TER-ALL-GND-GA-A23-000002 Rev H), Terrell Consulting Engineers;
- 2829 Mount Pleasant Phase 1 Ground Floor Drainage Details (Drawing No. MP1-TER-ALL-GND-DET-A23-0990003 Rev C) , Terrell Consulting Engineers;
- Permavoid Sustainable Drainage Layout Plan (Drawing No. MP1-EPG-ALL-POD-GA-A23-700001 Rev A), Environmental Protection Group
- Permavoid Sustainable Drainage Sections and Typical Details (Drawing No. MP1-EPG-ALL-POD-SEC-A23-700100 Rev A), Environmental Protection Group
- Permavoid Hydraulic Calculations, (Report No. MP1-EPG-ALL-POD-CAL-A23-710000 Rev A) Environmental Protection Group