

Our reference: 1305-ACE-ZZ-XX-TN-S-0002

17th September 2024

RG Group

Dear Sirs,

The Hale, Tottenham Hale – Condition 10 Drainage Strategy Technical Note

1. Overview of Approved AECOM Drainage Strategy (July 2021)

The AECOM drainage strategy, which was approved in 2021, proposed a traditional attenuation tank system to manage surface water runoff. This design included:

- A 63.3m³ basement-level attenuation tank to capture and store surface water runoff for controlled discharge.
- The surface water drainage was designed to discharge into the existing surface water sewer at an agreed discharge rate of 1l/s for the 1 in 100-year storm event, plus a 40% climate change allowance.
- The location of the surface water sewer connection was not confirmed during the initial approval, and the strategy was based on preliminary assumptions about the drainage network.

The approved strategy aimed to maintain a low surface water discharge rate, aligning with the sustainable drainage principles set out in the London Plan.

2. Proposed Blue Roof Drainage Strategy (2024)

The updated drainage proposal by Apex Consulting Engineers replaces the basement-level attenuation tank with a blue roof system using the Permavoid geocellular modular system. This adjustment is driven by practical issues related to the depth and location of the surface water connection, as identified by Thames Water in their 2024 confirmation of capacity letter. Key features of the proposed blue roof system include:

- Blue roof attenuation cells on the roof, which provide 58.92m³ of storage capacity across multiple roof areas. The storage volume is lower than the AECOM system, but sufficient based on the site's current runoff projections and the updated connection point to the Thames Water sewer.
- Discharge rate at the point of connection is now set at 2l/s, reflecting the permitted rate provided by Thames Water. This is a change from the original 1l/s proposed by AECOM, but the design has been adjusted to ensure the rate remains within permissible upper limits described in CIRIA Guidance for Sustainable Drainage (SuDS). The actual designed discharge rate is 1.73l/s.

- Use of Permavoid 85mm geocellular units, which offer a high compressive strength and can integrate with green roofs for passive irrigation. These units offer 92% void capacity for efficient stormwater storage.
- Distributed system across several roof areas rather than a single basement tank, allowing for flexibility in managing water runoff while maintaining the overall design aesthetics of the building.

3. Justification for the Change

The shift from a basement attenuation tank to a blue roof system is a result of both practical and sustainability considerations:

- **Practical Feasibility:** The original attenuation tank design proposed by AECOM faced implementation challenges due to the depth and location of the confirmed surface water sewer connection. Installing the tank in the basement would have been impractical given the depth and positioning of the sewer system.
- **Revised Discharge Rate:** While the discharge rate has changed from 1l/s to 2l/s, the system fully complies with Thames Water's updated guidance, which permits a 2l/s discharge under current conditions. This also conforms to current CIRIA standards and Sewerage Sector Guidance Appendix C.
- **Sustainability and Design Integration:** The blue roof system offers a more sustainable solution by managing water at source and potentially integrating with green roof technology for passive irrigation. This enhances the biodiversity and environmental sustainability of the building without compromising the roof's functionality or other design elements.
- **No Material Impact on Design:** The blue roof system is integrated into the existing building structure without affecting the building's external appearance or overall design. It supports the original architectural and landscape vision.

4. Summary of Key Differences

- **Storage Capacity:** The AECOM design featured a 63.3m³ attenuation tank in the basement, while the new blue roof system provides 58.92m³ of distributed storage across multiple roof areas.
- **Discharge Rate:** The discharge rate has been changed from 1l/s in the AECOM strategy to 2l/s in the proposed system, following Thames Water's confirmation of sufficient capacity. The actual designed discharge rate is 1.73l/s.
- **Implementation Feasibility:** The blue roof system offers a practical solution that circumvents the challenges posed by the original basement tank design.
- **Sustainability:** The blue roof system aligns more closely with modern sustainable drainage principles by managing water at source and supporting green infrastructure, which the original design did not account for.



Document Title: Tottenham Hale Condition 10
Document No.: 1305-ACE-ZZ-XX-TN-S-0002
Date: 2024/09/17

Conclusion

The proposed blue roof drainage system represents an improvement over the original AECOM strategy by offering a sustainable, practical solution that complies with the updated discharge rate set by Thames Water. The system integrates well with the overall architectural design, enhancing biodiversity and environmental sustainability without impacting the external appearance or functionality of the development. We believe this updated proposal is a non-material change to the approved drainage strategy and remains fully compliant with planning and regulatory requirements.

Yours faithfully

For and on behalf of
APEX CONSULTING ENGINEERS

David Spacey BEng CEng FICE
Regional Director