TECHNICAL NOTE

MCC - Proposed Park Development

SUBJECT
Collective Approach to Slowing Discharge into the Public Combined Sewer & Sustainable Drainage Features

PROJECT NO.
5224911

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Client signoff

Client	Manchester City Council		
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The drainage strategies for both the proposed public park and the adjacent office campus development (141607/FO/2024) have been developed holistically to ensure a sustainable surface water management approach across both sites.

- Surface water discharge into the public combined sewer will be limited to a controlled greenfield runoff rate (QMED Urban 14.8 l/s), providing significant betterment over existing conditions.
- It has been confirmed through the GPRS and CCTV Survey that there are no active Flow Control Devices or Attenuation Systems – Using the Modified Rational Method an overall park site discharge (utilising the hardstanding area) into the combined sewer has been calculated as 137l/s. Current LLFA Policy is to look to reduce the discharge rate down to Greenfield Runoff, we have calculated this out using FEH Equations and Manchester City Centre Rainfall Catchment Data, the results are that the discharge rate would be reduced for the Park site to 14.8l/s which is a 90% betterment to current discharge arrangements.
- The SuDS strategy across both sites includes:
    - Permeable paving to promote “at source” treatment and assist with attenuation volumes.
    - Filter drains with perforated pipes will run around the edges of all softworks and areas of planting and turf. These will all be connected through surface water pipes that run underground.
    - Subsurface storage tanks for controlled water attenuation before discharge.
    - Hydro-Brake® flow control devices to regulate peak discharge and prevent sewer overloading.

Evidence of Thorough Drainage Hierarchy Investigation

The drainage strategy aligns with the Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS) and has been thoroughly investigated as follows:

- Primary Approach (Shooters Brook): As a culverted watercourse within the site, Shooters Brook has been prioritised as the primary discharge point, in line with SuDS principles. However, upon investigation it has not been confirmed if the existing Shooter’s Brook culvert is active and can be utilised as a discharge option. Further non-intrusive surveys are currently being instructed and currently underway to confirm its viability for direct discharge as soon as reasonably practicable (Estimated February / March 2025).
- Alternative Strategies Explored:
    - Discharge to Shooters Brook (preferred, pending confirmation of viability).
    - Discharge to a local watercourse/canal (not feasible due to invert level constraints and legal issues with below-ground infrastructure).
    - Infiltration-based drainage (ruled out due to the contaminated ground conditions confirmed in site investigations).
    - Discharge to the public combined sewer (fallback strategy as currently shown on the planning drawings, at a significant reduced and controlled rate).

This structured approach complies with the drainage hierarchy by prioritising natural watercourses before resorting to sewer connections and at this point the existing culvert has not been confirmed as suitable.

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Position on Shooters Brook & CCTV Surveys Undertaken

- Shooters Brook has been identified within the site, with historical data and United Utilities' records confirming its presence.
- Three separate CCTV surveys have been attempted to assess its condition and flow activity. However, full access has been challenging.
- Further intrusive investigative works, including dye testing and ground penetration radar, are planned to establish:
    - Whether Shooters Brook remains active or abandoned.
    - The capacity and structural integrity of the culvert.
    - Potential connection points for site discharge.

These investigations will be secured via a planning condition and conducted as part of any enabling works.

Detailed Drainage Plan

The drainage strategy is supported by a comprehensive site survey and drainage layout, this can be viewed on AtkinsRéalis drawing 5224911-ATK-XX-DR-CE-711001 addressing key technical considerations:

- Proven Sewer Location & Site Survey Details:
    - A detailed site survey has confirmed the precise route of the combined sewer at the northern end of the site.
    - A 3-metre easement has been incorporated, ensuring compliance with asset protection requirements.
    - The existing boundary wall within the easement will be retained as a non-intrusive structure.
- Overland Flow, Exceedance Paths & Site Levels:
    - Overland flow paths have been designed to direct water towards designated drainage infrastructure, minimising flood risks.
        - Refer to AtkinsRéalis Drawing 5224911-ATK-XX-DR-CE-411005 for Pre-Development Overland Flows.
        - Refer to AtkinsRéalis Drawing 5224911-ATK-XX-DR-CE-411006 for Post-Development Overland Flows.
    - Manhole level changes and drainage gradients have been assessed to prevent pooling or excessive pressure on the existing sewer network.
        - As part of this proposal the Cover Level of the Manholes are being lifted from the current 47.00m and 45.85m to 50.10m and 49.77m respectively.
        - This increased the depth to invert from 7.62m to 11.54m, the concrete pipework has been structurally assessed with the additional soil load with no adverse impact.

        - Refer to AtkinsRéalis Drawing 5224911-ATK-XX-DR-CE-411002 for Cut and Fill Layout which has overlaid the precise location of the existing Combined Sewer and 2no United Utilities Access Chambers.
    - The proposed ground level changes have been structurally assessed to ensure no adverse impact on Shooters Brook or existing utilities.
        - Refer to AtkinsRéalis Drawing 5224911-ATK-XX-DR-CE-411001 for Proposed Levels Layout with Contours.

Next Steps

- Further surveys on Shooters Brook will be completed and shared with United Utilities and LLFA.
- A finalised Drainage Strategy incorporating updated findings will be submitted for review and approval.
- We remain committed to ongoing collaboration with United Utilities and the LLFA to ensure the most sustainable and compliant drainage solution is achieved.

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