



Table 5: Sustainable Drainage Techniques

Device	Description	Constraints / Comments	✓/✗
Living roofs (source control)	Provide soft landscaping at roof level which reduces surface water runoff.	No constraints to the principle of living roofs. These could be incorporated subject to feasibility.	✓
Infiltration devices & Soakaways (source control)	Store runoff and allow water to percolate into the ground via natural infiltration.	Ground conditions and the extensive basement preclude the potential for infiltration.	✗
Pervious surfaces (source control)	Storm water is allowed to infiltrate through the surface into a storage layer, from which it can either infiltrate and/or slowly release to sewers.	Ground conditions and the extensive basement preclude the potential for infiltration. The pedestrian walkways would be covered and therefore permeable paving would not be practical within the Westgate Site. However, permeable paving has been considered for surfacing the public highway at Old Greyfriars Street.	✓
Rainwater harvesting (source control)	Reduces the annual average rate of runoff from the site by reusing water for non-potable uses e.g. toilet flushing.	There are no constraints to the incorporation of rainwater harvesting. However, the impact on surface water runoff cannot be quantified as this is dependent on the demand for harvested rainwater.	✓
Swales (permeable conveyance)	Broad shallow channels that convey / store runoff, and allow infiltration (ground conditions permitting).	Ground conditions, the extensive basement and the constrained urban nature of the development preclude the incorporation of swales.	✗
Filter drains & perforated pipes (permeable conveyance)	Trenches filled with granular materials (which are designed to take flows from adjacent impermeable areas) that convey runoff while allowing infiltration.	Ground conditions and the extensive basement preclude the potential for infiltration.	✗
Filter Strips (permeable conveyance)	Wide gently sloping areas of grass or dense vegetation that remove pollutants from run-off from adjacent areas.	Spatial constraints preclude the potential for filter strips.	✗
Infiltration basins (end of pipe treatment)	Depressions in the surface designed to store runoff and allow infiltration.	Ground conditions and the extensive basement preclude the potential for infiltration.	✗
Wet ponds & constructed wetlands (end of pipe treatment)	Provide water quality treatment & temporary storage above the permanent water level.	Spatial constraints and the extensive basement preclude the potential for balancing ponds.	✗
Attenuation Underground (end of pipe treatment)	Oversized pipes or geo-cellular tanks designed to store water below ground level.	Used only when the SuDS listed above cannot be installed with sufficient volumes to restrict to the required rate.	✓

4.14. After due consideration of the constraints, the most viable options for SuDS would be living roofs, rainwater harvesting and attenuation tanks within the Westgate Site itself, with permeable paving potentially utilised on Old Greyfriars Street (public highway).