

RENAISSANCE RESIDENTIAL TOWER – PLANNING CONDITION 9

Project:		Renaissance Project, Manchester		Project No:	L20081	
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Subject: Renaissance Project – Residential Tower – Planning Condition 9 Response – Rev 00

If you do not receive all pages, or some are unclear, please advise immediately

1 INTRODUCTION

The purpose of this memorandum is to provide Manchester City Council (MCC) and the Lead Local Flood Authority (LLFA) with a response to the following planning condition for the Planning Application (132088) for the Residential Tower of the Renaissance Project.

The planning condition text for Condition 9 is as follows:

9) Notwithstanding the details as set out within Condition 2 no development shall take place until surface water drainage works have been implemented in accordance with Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) or any subsequent replacements national standards and details that have been submitted to and approved in writing by the Local Planning Authority. This shall include:

- *Maximised integration of green SuDS components (utilising infiltration or attenuation) if practicable. This shall include consideration of integrating the drainage strategy with the green landscaping design. Assessment demonstrating maximised integration of green SuDS components is required in-line with Manchester City Council's Climate Change Action Plan 2020-25.*
- *Details of surface water attenuation that offers a reduction in surface water runoff rate to greenfield runoff rates.*
- *An existing and proposed impermeable areas drawing to accompany all discharge rate calculations.*
- *Runoff volume in the 1 in 100 year, 6 hours rainfall shall be constrained to a value as close as is reasonable practicable to the greenfield runoff volume for the same event, but never to exceed the runoff volume from the development site prior to redevelopment.*
- *Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for 40% climate change in any part of a building. This shall include surcharged outfall considerations where applicable.*
- *Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site.*
- *Hydraulic calculation of the proposed drainage system;*
- *Construction details of flow control and SuDS elements.*

Where surface water is connected to the River Irwell, agreement in principle from Peel is required. An email of acceptance of proposed flows and/or new connection will suffice.

For sites where proposed development would cause unusual pollution risk to surface water (large car park areas (>50 parking spaces) or industrial estates), evidence of pollution control measures (preferably through SuDS) is required.

Where an application is part of a larger site which already has planning permission it is essential that the new proposal does not compromise the drainage scheme already approved (application ref no's 130446/FO/2021 and 130935/FO/2021)

2 RELEVANT DOCUMENTS

The drainage proposals for the site have been guided by the following national and local guidance:

- “Draft Decision Notice” from MCC (Application Number 132088/FO/2021)
- C1504-20210058 Flood Risk Assessment Rev E, December 2021 produced by SGI LTD;
- Building Regulations 2010 – Approved Document H (Drainage and Waste Disposal); and C753 The SuDS Manual (CIRIA, November 2015);
- Environment Agency Climate Change Allowances 2016;
- National Planning Policy Framework (Department for Communities and Local Government, February 2019);
- Non-Statutory Technical Standards for SuDS (March 2015); and
- Planning Practice Guidance (Department for Communities & Local Government, March 2014).

3 THE EXISTING SITE

The application site boundary covers some 0.35ha and includes the proposed residential tower within the northern part of the application site boundary as well as alterations to the public realm to the south. The site is bounded to the west by the River Irwell, to the north by Victoria Bridge Street, to the east by the Deansgate highway and to the south by Blackfriars Street. Refer to enclosed Plans REN-BGE-C-GEN 050 & 051

The residential tower comprises a part ground and 26 storey and part ground and 13 storey building comprising 300 no. residential apartments with ground floor retail/leisure floorspace with associated landscaping, cycle and vehicle parking, supporting infrastructure and associated works. The public realm alterations will include a riverside walkway and landscaping and the opportunity to provide leisure/food and beverage space.

4 PROPOSED SURFACE WATER DRAINAGE STRATEGY

4.1 PRELIMINARY DESIGN FROM SGI FLOOD RISK ASSESSMENT

An outline strategy of the proposed surface water network was provided in the approved SGI *Flood Risk Assessment Rev E* (FRA). The strategy proposed attenuation-based SuDS in the form of a below ground cellular storage tank with a controlled discharge to the River Irwell.

The preliminary design assumed a single impermeable area catchment of 0.35ha. The post-development runoff generated was to be attenuated within a below ground tank adjacent to the proposed residential tower and discharged to the River Irwell at an approved restricted rate of 5.0l/s. Refer to Figure 1 below.

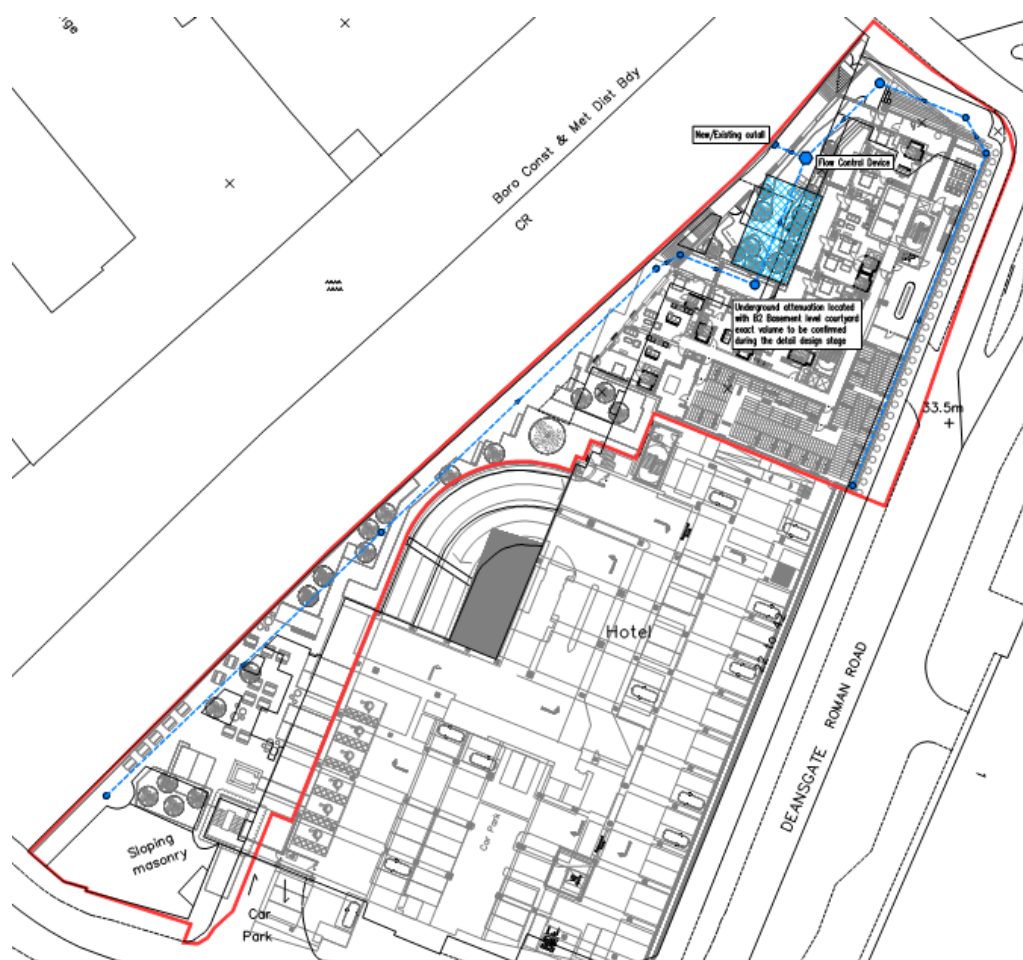


Figure 1: Preliminary Surface Water Drainage Strategy as presented within SGI FRA

4.2 DETAILED SURFACE WATER DRAINAGE PROPOSALS

As part of detailed surface water drainage design works it is proposed to divide the application boundary (0.35ha) into two separate catchments, given the existing topographical constraints. Refer to Figure 2 below. Each catchment will be considered individually.

Catchment 1

Catchment 1 comprises some 0.20ha and includes the residential tower, below ground vehicle parking areas, residential amenity space and a section of the riverside walkway.

The proposed residential tower within Catchment 1 comprises up to 27-storeys from ground level as taken from Deansgate. Ground level is referred to as RT Level 00. There are two additional storeys below ground level, LGF01 and LGF02. Refer to enclosed drawings REN-BGE-S-RT-182 [General Elevations – Sheet 3], REN-BGE-S-RT-041 [Isometrics – Sheet 2] by BG&E. LGF01 will comprise residential apartments, leisure uses, a proposed cycle store within the building footprint as well as private amenity space constructed upon a podium deck. LGF02 comprises residents' car parking and plant areas. The finished floor level of the LGF02 car park is 25.26m AOD and the finished floor level of the plant

areas are 25.285m AOD. Refer to General Arrangement Drawings by Jon Matthews Architects for LGF01 and LGF02 enclosed, Drawing Reference 150_B2_02_2298 and 150_B2_02_2299.

Catchment 2

Catchment 2 comprises some 0.15ha and includes the areas within the public realm including riverside walkway. This area is at the equivalent level of LGF02 of Catchment 1.

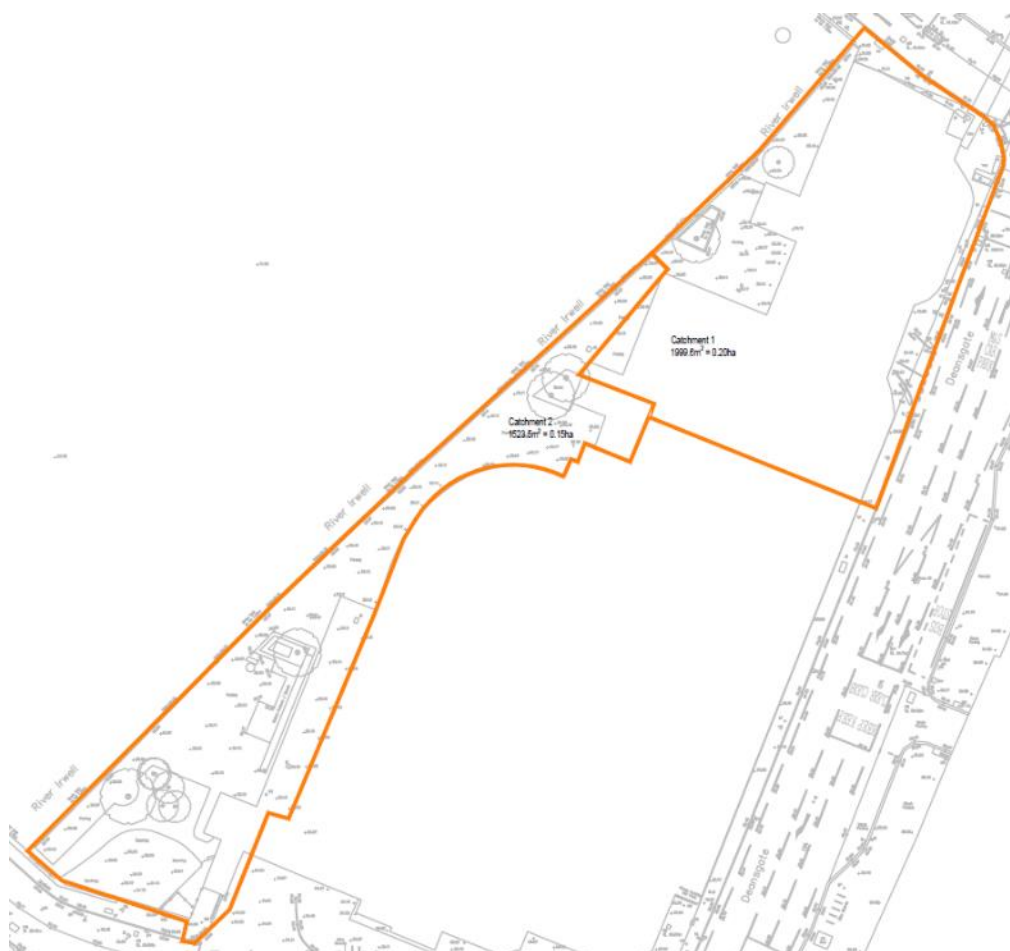


Figure 2: Proposed Drainage Catchments

4.3 CATCHMENT 1 – PROPOSED DESIGN

Catchment 1 comprises some 0.20ha. Under the existing situation 0.188ha area is impermeable with 0.012ha of permeable surfacing. The proposed development will comprise some 0.20ha of impermeable surfacing in the form of a proposed residential tower and associated hardstanding. Refer to Figures 3 and 4 below and Drawing REN-BGE-C-GEN-021 - 023 enclosed. This is an increase in impermeable surfacing compared to the existing development within Catchment 1. In order to mitigate flood risk arising from post development runoff, and to provide betterment in flows which will reduce flood risk to the locality, adequate control measures will be provided within the site in accordance with sustainable drainage principles.

For calculations purposes it is assumed that the entirety of Catchment 1 is impermeable. However, in reality the proposed amenity space provided upon the podium of LGF01 of some 0.03ha will act as a source control feature for rainfall upon this area, providing interception storage as well as opportunities for evapotranspiration. Therefore, the calculations presented below are considered conservative.

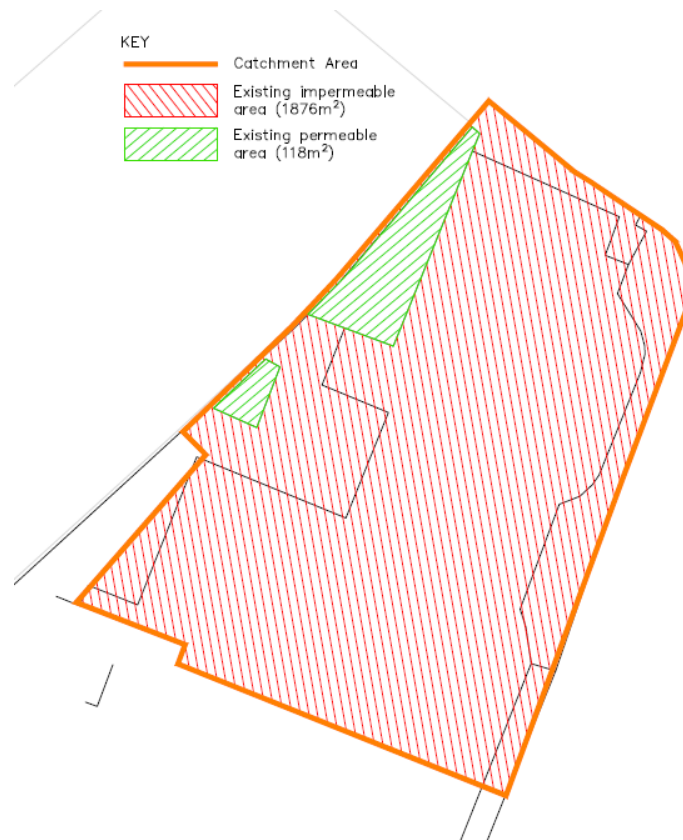


Figure 3: Catchment 1 – Existing Surfacing

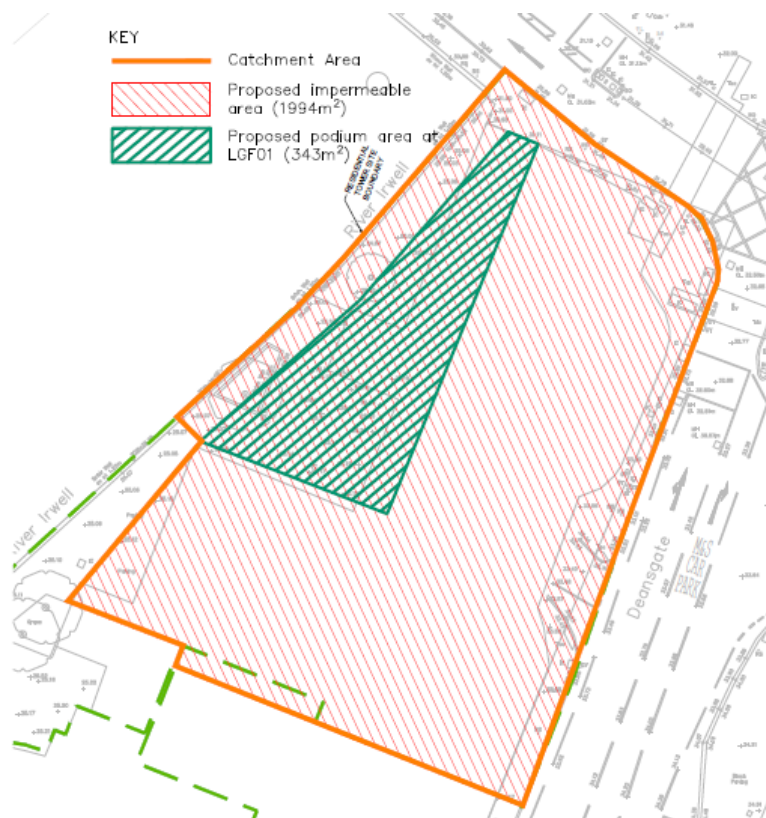


Figure 4: Catchment 1 – Proposed Surfacing

Proposed Discharge Rate

The site is brownfield and discharges runoff at an uncontrolled rate to the River Irwell directly via a combination of pipework and drainage outlets through the river wall. The equivalent 1:100 year greenfield runoff rate for 0.20ha is calculated to be 2.3l/s. It is proposed to limit outflow from the proposed surface water drainage system to the 1:100 year greenfield rate for all events up to and including the 1:100 year + 40% climate change event. Refer to the enclosed calculations.

Proposed Outfall

Runoff will be discharged to the River Irwell via a new outfall subject to the relevant permissions from Peel. Liaison with Peel is ongoing.

A surcharged outfall has not been considered in this instance. The SGI FRA advised that the site would be at risk of flooding from the River Irwell during the 1:100 year event due to overtopping of the river wall and as such flooding would occur at the basement car park level. Therefore, given the potential impact of fluvial flooding upon the development site it is not beneficial to increase the size of the proposed SuDS system to prevent the flooding of the basement car park during surcharging of the River Irwell.

Proposed SuDS

Post development runoff will discharge to a below ground cellular storage tank with a high void ratio beneath the basement car park. Calculations indicate that some 129m³ of storage is required to attenuate surface water for all events up to and including the 1:100 year+ 40% climate change event without flooding. Calculations have been undertaken using MicroDrainage Software. Refer to enclosed Calculations.

Outflow from the proposed surface water drainage system will be restricted to 2.3l/s via the use of a Hydrobrake flow control device and as such will provide significant betterment over the existing uncontrolled regime. Refer to enclosed Plans REN-BGE-C-GEN 051 – 054 for the Proposed Drainage Layout and Details for Catchment 1.

Runoff Volume Calculation

The Greenfield Runoff Volume for Catchment 1 has been calculated as 36.5m³ in accordance with the greenfield calculator within MicroDrainage. However, the site is previously developed. Runoff volume calculations using MicroDrainage for Catchment 1 indicate that under the pre-development scenario, some 0.188ha of impermeable surfacing will result in 111.4m³ of runoff being generated during the 1:100 year, 6-hour duration storm. During the equivalent storm for the post-development scenario for Catchment 1, considering an impermeable area of 0.20ha, some 119.1m³ runoff volume is generated. The development will therefore result in an additional volume of some 7.7m³.

In accordance with the Non-Statutory Technical Standards for SuDS Part S5 it is not practicable to reduce the runoff volume generated to greenfield runoff rates. Given the site constraints, nor is it reasonably practicable to constrain the volume of runoff to the pre-development volume. Therefore, in accordance with Part S6, the additional runoff volume is to be contained within the proposed cellular storage and discharged offsite at a maximum rate of 2.3l/s. Refer to Catchment 1 Runoff Volume Calculations enclosed.

Design Exceedance

Flooding may occur within the LGF02 Car Park and residential tower plant areas during exceedance events such as:

- Rainfall events in excess of the 1:100 year + 40% climate change event;
- Surcharging of the proposed outfall location to the River Irwell; or
- Flow control blockage.

Flooding will pond within the basement car park until a time when capacity again becomes available within the proposed surface water drainage network. Existing drainage outlets within the river wall, refer to enclosed Drawing AAP/20/001 [Renaissance Hotel River Wall Inspection] by Northern Divers (Engineering Ltd), will allow for some

discharge of floodwaters to the River Irwell, subject to the water level being low enough to permit flow back into the river from the site.

Notwithstanding this, exceedance flooding within the LGF02 Car Park will not impact either the proposed residential apartments, which are located at LGF01 level and above, or existing buildings beyond the site boundary. A plan detailing the procedures which should be undertaken in the event of a fluvial flood event inundating LGF02 to ensure both the car park and plant areas can be quickly brought back into use to serve the development will be submitted as part of the discharge of Condition 41 in due course.

The flow control manhole will include a high level overflow that will operate in the event of flow control blockage. The overflow will be set at a level that is above the calculated peak water level in the manhole and will only operate if water levels rise above this peak level.

4.4 CATCHMENT 2 – PROPOSED DESIGN

Catchment 2 comprises 0.15ha. Existing runoff from Catchment 2 is discharged via numerous regularly spaced drainage outlets through the river wall. Refer to enclosed Drawing AAP/20/001 [Renaissance Hotel River Wall Inspection] by Northern Divers (Engineering Ltd). Under the existing situation 0.131ha area is impermeable with 0.021ha of permeable surfacing. The proposed development will comprise some 0.124ha of impermeable surfacing and some 0.028ha permeable landscaped area. Refer to Figures 5 and 6 below and enclosed Plans REN-BGE-C-GEN-021 - 023.

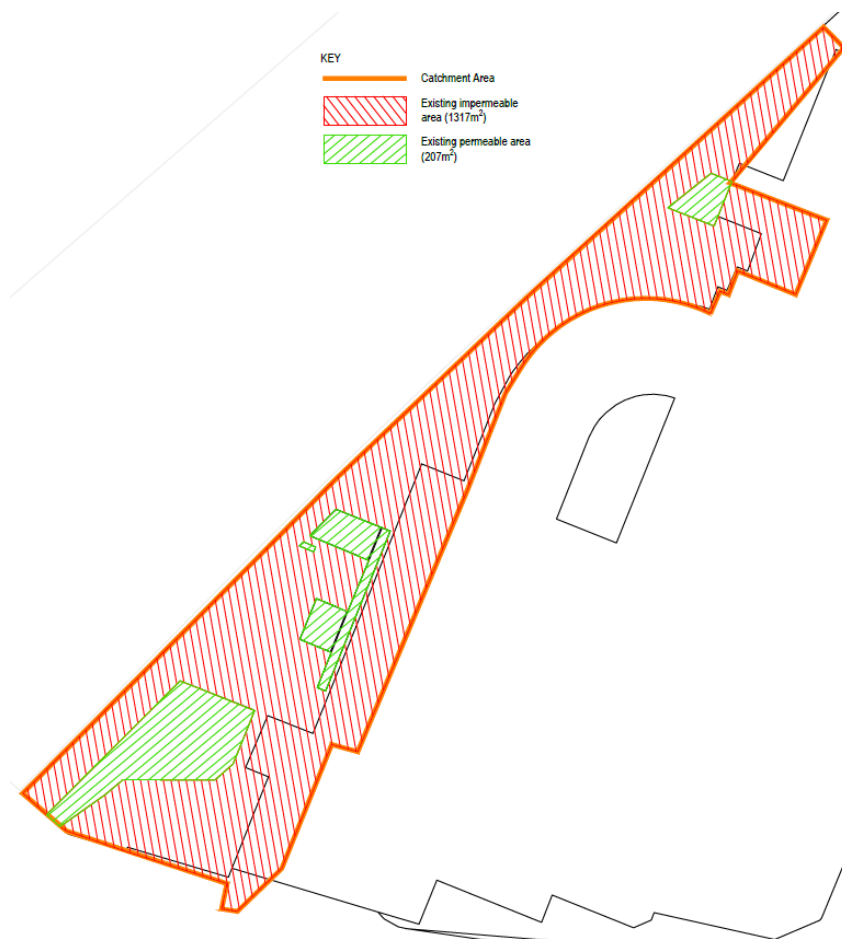


Figure 5: Catchment 2 – Existing Surfacing



Figure 6: Catchment 2 – Proposed Surfacing

Under the post-development scenario there will therefore be a decrease in impermeable surfacing in Catchment 2. The existing area of public realm within Catchment 2 discharges at an uncontrolled rate to the River Irwell. The introduction of permeable surfacing across Catchment 2 will decrease the rate and volume of runoff generated from this catchment compared to the existing situation. As such, formal SuDS components are not proposed. However, during detailing of the permeable landscaping, the use of tree pits or bioretention planters could be considered as source control features which will provide interception storage as well as evapotranspiration benefits. Details will be submitted as part of the discharge of Planning Condition 8 in due course.

5 POLLUTION CONTROL MEASURES

Some 34 No. car parking spaces are proposed Catchment 1 within the basement (level LGF02). Car parking spaces are either beneath the footprint of the residential tower or the residential amenity space.

In accordance with the requirements of Condition 9 as there are fewer than 50 proposed car park spaces and these are enclosed, no specific pollution control measures are required.

6 ENCLOSURES LIST

REN-BGE-C-GEN-005	[General Notes]
REN-BGE-C-GEN-021	[Existing External Works Landscaping Plan]
REN-BGE-C-GEN-022	[Existing External Works Landscaping Details]
REN-BGE-C-GEN-023	[External Works Proposed Landscaping Plan]
REN-BGE-C-GEN-050	[Proposed Drainage – Basement Level Southern Plan]
REN-BGE-C-GEN-051	[Proposed Drainage – Basement Level Northern Plan]
REN-BGE-C-GEN-052	[Proposed Drainage – Basement Level – Drainage Details Sheet 1]
REN-BGE-C-GEN-053	[Proposed Drainage – Basement Level – Drainage Details Sheet 2]
REN-BGE-C-GEN-054	[Proposed Drainage – Basement Level – Drainage Details Sheet 3]
REN-BGE-S-RT-041	[Isometrics - Sheet 2]
REN-BGE-S-RT-182	[General Elevations – Sheet 3]
150_B2_02_2298	[Proposed Level -01 General Arrangement Plan] by Jon Matthews Architects
150_B2_02_2299	[Proposed Level -02 General Arrangement Plan] by Jon Matthews Architects
AAP/20/001	[Renaissance Hotel River Wall Inspection] by Northern Divers (Engineering Ltd)

Catchment 1 Calculations:

- Greenfield Runoff Volume
- Existing Development Runoff Volume
- Post Development Runoff Volume
- Surface Water Attenuation Calculations