



PROPOSED DRAINAGE TECHNICAL NOTE
PROPOSED BROWNFIELD DEVELOPMENT
FORMER GAIETY CINEMA, CITY ROAD
CARDIFF, WALES

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Drainage Technical Note

Prepared By:

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Project	Former Gaiety Cinema, Cardiff	Project Ref:	ES24.007
Client	Draycott Group		
Prepared by	Ryan Austin		
Checked by	Ryan Austin		

Revision Log

Rev	Explanation	Date	Prepared by	Checked by
A	Initial Issue (For PAC)	16/09/2024	RA	RA

1.0 Introduction

- 1.1 This site-specific Drainage Technical Note has been prepared on behalf of Draycott Group by Expedite Engineering Services Ltd to initially support the PAC submission prior to planning and SAB submissions for the proposed redevelopment of the former Gaiety Cinema on City Road, Cardiff.
- 1.2 The existing site (outlined in red in Figure 1 below) is located off City Road near Cardiff city centre.

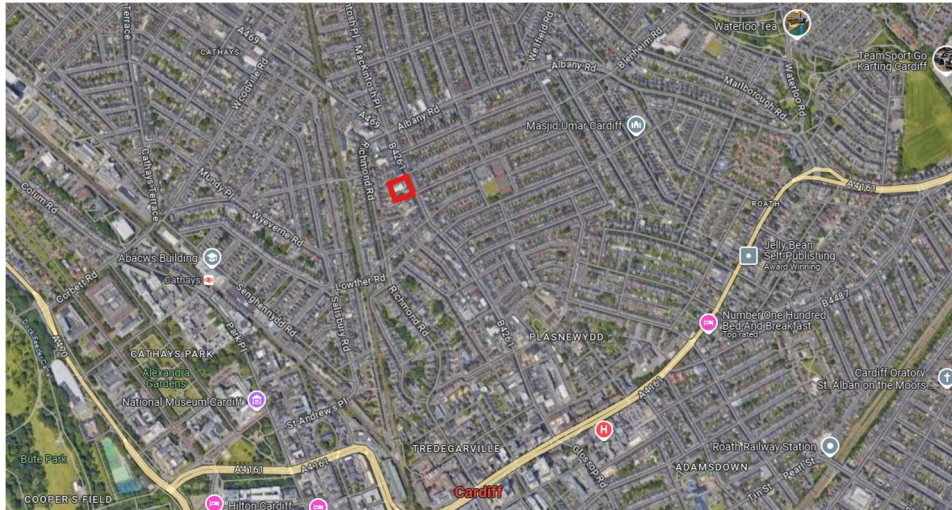


Figure 1 – Site Location Plan

Imagery © 2024 Google, Map data © 2024 Google

- 1.3 A copy of the proposed site drainage drawing is included in **Appendix A**.

2.0 Proposed Surface Water Drainage Strategy

Welsh Government SuDS requirements

- 2.1 The proposed scheme meets the requirements laid out in the Welsh Government's document 'Statutory Standards for Sustainable Drainage Systems'.
- 2.2 **S1).** The standards give a five-level priority list for the destination of surface runoff, which is as follows:

1. Surface water runoff is collected for use;

The scheme involves bioretention features at the ground level, which will allow these landscaped areas to utilise rainwater which flows off the proposed elevated roof areas and impermeable surfaces adjoining.

2. Surface water runoff is infiltrated into the ground;

A site investigation has yet to be carried out, however, due to the compact nature of the site soakaways are unfeasible due to the proximity of structures and highways, additionally, the existing building currently discharges its surface water into a local combined water sewer. Should infiltration be proven through testing the tanked permeable paving will be revised to a non tanked system where it sits 5m or more from a foundation and allowed to infiltrate.

3. Surface water runoff is discharged to a surface water body;

The closest surface water body has not yet been determined, however with the local built environment served entirely by a public combined sewer a connection to a water body is considered unfeasible.

4. Surface water runoff is discharged to a surface water sewer, highway drain, or another drainage system;

The mapping provided by Welsh Water indicates no surface water sewers within the area, see **Appendix C**.

5. Surface water runoff is discharged to a combined sewer.

In the absence of infiltration and a surface water sewer, and given that the existing site discharges the surface water runoff into the existing combined sewer, this will remain as the method of discharging the surface water.

2.3 **S2).** In addition to the above hierarchy, the standard also gives a set of principles for SuDS schemes. For surface water hydraulic control, these are as follows:

- To manage water on or close to the surface and as close to the source of the runoff as possible, bioretention features and permeable paving will manage surface water as closely as practicable.
- Interception of the first 5mm will be met by bioretention features and permeable paving.
- Cardiff Council regulations imposed due to ongoing maintenance and risk of blockage, runoff from the site will be limited to 2.5l/s for all events up to the Q100 + 40% Climate Change event, detailed calculations are yet to be produced, however, it is intended to reduce the existing external hard-paved areas and introduce both green roofs where appropriate and raingardens on each side of the proposed building, which along with a tanked porous paving system will help to reduce runoff significantly in comparison to the 100% impermeable and positively drained system which freely discharges into the public combined sewer.
- Attenuation will be provided within a green roof over the cycle store, rain gardens and tanked permeable paving passing through a flow control.
- The drainage network will be subject to routine maintenance so the risk of failure would be very low. The onsite maintenance team would be able to quickly identify flows overtopping the network in the event of a failure and could therefore schedule repairs/maintenance.

2.4 **S3).** Water quality will be managed on-site as follows:

- Interception of the first 5mm will be met by the provision of bioretention features and permeable paving.
- The pollution hazard level on the site does not exceed “Low” under the Simple Index Approach set out below.

Minimum water quality management requirements for discharges to receiving surface waters and groundwater			
Land use	Pollution Hazard Level	Requirements for discharge to surface waters, including coasts and estuaries	Requirements for discharge to groundwater
Residential roofs	Very low	Removal of gross solids and sediments only	
Individual property driveways, roofs (excluding residential), residential car parks, low traffic roads (eg cul de sacs, home zones, general access roads), non-residential car parking with infrequent change (eg schools, offices)	Low	Simple index approach Note: extra measures may be required for discharges to protected resources	
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	Simple index approach Note: extra measures may be required for discharges to protected resources	Simple index approach Note: extra measures may be required for discharges to protected resources. In England and Wales, Risk Screening must be undertaken first to determine whether consultation with the environmental regulator is required. In Northern Ireland, the need for risk screening should be agreed with the environmental regulator.
Trunk roads and motorways	High	Follow the guidance and risk assessment process set out in HA (2009)	
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured, industrial sites	High	Discharges may require an environmental licence or permit. Obtain pre-permitting advice from the environmental regulator. Risk assessment is likely to be required.	

Pollution hazard indices for different land use classifications				
Land use	Pollution Hazard Level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very low	0.2	0.2	0.05
Individual property driveways, roofs (excluding residential), residential car parks, low traffic roads (eg cul de sacs, home zones, general access roads), non-residential car parking with infrequent change (eg schools, offices)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	0.5	0.4	0.4
Trunk roads and motorways	High	0.7	0.6	0.7
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured, industrial sites	High	0.8	0.8	0.9
Indicative SuDS mitigation indices for discharging to surface waters				
Type of SuDS component	TSS	Metals	Hydro-carbons	
Filter strip	0.4	0.4	0.5	
Filter drain	0.4	0.4	0.4	
Swale	0.5	0.6	0.6	
Bioretention system	0.8	0.8	0.8	
Permeable pavement	0.7	0.6	0.7	
Detention basin	0.5	0.5	0.6	
Pond	0.7	0.7	0.5	
Wetland	0.8	0.8	0.8	
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1in1 year return period event, for inflow concentrations relevant to the contributing drainage area.			

- With the use of bioretention features and permeable paving the pollution mitigation indices override the pollution hazard indices. Therefore, pollution mitigation is provided by the proposed system.

2.5 **S4)** Amenity value will be added to the site as follows:

- The bioretention areas will create landscaping to provide amenity value.

2.6 **S5)** A Green Infrastructure Statement will be prepared for the full application

2.7 **S6)** Operation and maintenance will be considered within a complete plan provided separately at the appropriate time

3.0 Proposed Foul Water Drainage Strategy

- 3.1 Foul drainage shall be conveyed via gravity to the existing connection with the combined water sewer, subject to confirmation by Welsh Water of flow capacity.
- 3.2 The 70 residential units will produce 3.5l/s peak flow (4,000l/dwelling/day) and the commercial space on the ground floor will add approximately 0.01l/s peak flow (0.7l/s/Ha) which can be considered negligible for this application.
- 3.3 The foul network for this site will combine with the surface water prior to exiting the site to maintain the current discharge location & pipework.

Appendices

Appendix A

REVISION NOTES:	
1.	
2.	
3.	

THIS LAYOUT SHOWS INTENT ONLY.
SAB APPROVAL AWAITED.



P1	Initial preliminary issue	R.A	10.09.24
REV:	DESCRIPTION:	BY:	DATE:

STATUS: **PRELIMINARY**



THE DRAYCOTT GROUP

SITE:

THE GAIETY CINEMA,
CITY ROAD CARDIFF

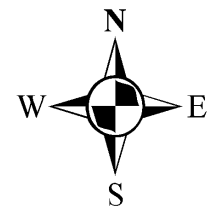
TITLE:

SuDS Concept Plan

SCALE AT A1: 1:100	DATE: Sept 2024	DRAWN: R.A	CHECKED: -
PROJECT NO: ES24.007	DRAWING NO: 03.00		REVISION: P1

Appendix B

Gaiety Cinema, City Road, Cardiff, CF24 3BP



LEGEND(Representative of most common features)

Waste network:	Foul chamber	Surface water chamber	Combined chamber	Combined sewer overflow	Special purpose chamber	Treatment works	Pumping station	Outfall	Lamphole	Storm Overflow	Rising main	Gravity sewer	Private sewer	Private sewer subject to Sect. 104 adoption agreement	Private Sewer Transfer	Lateral Drain	Inspection Chamber

NB: Sewer symbol colour indicates the type.

RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former S24 sewers (for indicative purposes only)

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation.

Dŵr Cymru Cyfyngedig (the Company) gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

**EXACT LOCATIONS OF ALL APPARATUS
TO BE DETERMINED ON SITE.**

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