

Integrated Health Projects
Paterson Redevelopment Project
Surface Water Drainage
Maintenance Plan

PRP-ARUP-Z01-XX-RP-C-0007

P02 | 12 November 2021

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

This maintenance plan refers to the surface water drainage network and integrated SuDS for the Paterson Redevelopment Project and has been written with reference to CIRIA C753 SuDS Manual 2015.

The network consists of a number of drainage features, including a blue roof, below ground attenuation tank, flow control chamber and multiple drains and access chambers.

The maintenance schedules included in this document have been provided as guidance to the and should be read in conjunction with the manufacturer's maintenance documents for further details of the maintenance process required for individual components.

2 Maintenance Plan

The tables below detail the anticipated frequency of maintenance for the proposed drainage network.

2.1 Channel drains, slot drains and gullies

Regular Maintenance	Frequency
- All above ground elements should be visually inspected for broken elements. - Inlets should be inspected to determine the depth of sediment and debris accumulation and cleared where necessary	Monthly
Occasional Tasks	Frequency
Channel drains - All grates should be inspected to ensure they are secure and that no elements of the locking system are broken. - Grates should be lifted according to manufacturer's instructions, and channels cleared of any obstructions. Refer to Birco 150 maintenance details for more information.	Annually

Slot drains Access drains through access chambers. Introduce a jet hose (80-150 bar) and a suction hose. Protect the channel inlets to prevent spray back and activate hoses, suction hose will remove debris and water from drains. See ACO Qmax150 Maintenance Guide for more information.	As needed
Remedial Work	Frequency
- If any drains become blocked, drain rods or high-pressure jets should be used to clear the obstruction. - Broken elements should be safely removed and repaired if possible or replaced.	As needed

2.2 Access chambers

Regular Maintenance	Frequency
Visually inspect access covers for structural damage and remove litter or debris.	Monthly
Occasional Tasks	Frequency
Covers lifted to visually inspect condition of access chambers and presence of silt or debris, remove as necessary.	Annually
Remedial Work	Frequency
Replace/ repair loose covers.	As needed

2.3 Flow control chamber

Regular Maintenance	Frequency
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Remove any litter or debris.	Quarterly
Occasional Tasks	Frequency
Chamber should be visually inspected, and any sediment removed where necessary. Refer to Hydro-Brake Optimum maintenance details for more information.	Biannually
Remedial Work	Frequency
- If a blockage occurs, access the internal chamber using the pivoting bypass door to remove obstruction. - Any damage as a result of vandalism, tampering or accidental damage which could pose risks to H&S or hydraulic performance should be repaired in accordance with manufacturer's specification.	As needed

3 Specialist Design

The network includes an attenuation tank and a blue roof, the design of which has been undertaken by specialist consultants.

The maintenance plan for the Bauder blue roof is contained in Appendix A.

The maintenance regime for a geo-cellular stormwater crates is shown below.

Attenuation Tank		
Maintenance Schedule	Required Action	Recommended Frequency
At commission	Inspect all areas to ensure free from construction debris and silt	Once at Commission
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial actions.	Monthly for 3 months then 6 monthly
	Debris removal from catchment surface (where may cause risk to performance)	Monthly
	Where rainfall infiltrates into blocks from above, check surface filter for blockage by silt, algae or other matter. Remove and replace surface infiltration medium as necessary.	Monthly (and after large storms)

	Remove sediment from pre-treatment structures	Annually or as required
Remedial actions	Repair / rehabilitation of inlets, outlet, overflows, and vents.	As required
Monitoring	Inspect / check all inlets, outlet, overflows and vents to ensure in good condition and operating as required.	Annually and after large storms

Any pollution event to water or land should be reported to the Environment Agency (0800 80 70 60).

Any blockages/ damage to public sewers should be reported to the sewerage undertaker.

4 Appendix A

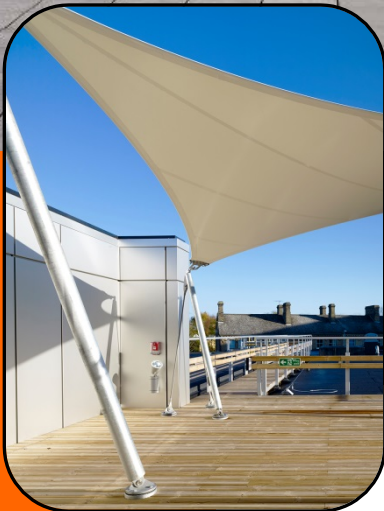
Maintenance of Bauder Blue Roof

Maintenance of a blue roof is critical to the viability to its function. It is recommended that:

1. Following any significant storm event, the outlets should be visually inspected to ensure no blockage has occurred.
2. Following any significant traffic or remedial works that take place on or around the roof, each of the outlets should be visually inspected to ensure all drainage holes are clear and free draining.
3. Quarterly each outlet, should be inspected and cleared of any build up or debris. All leaf litter mainly autumnal visit, should be removed from the roof surface. Debris must be removed from the roof and not simply flushed down rainwater pipes.
4. Cut back tree limbs that overhand the roof to five at least a 1 metre clearance, this will significantly reduce any risk of any blockage to outlets.

It is recommended during maintenance visits to visually inspect the waterproofing system at all upstands, to ensure it is firmly adhered to the detail that it is waterproofing. See pages 6 to 8 for further information.

The system also consists of the bituminous waterproofing system with hard landscape finish. See pages 9 to 11 for further information on maintenance requirements for this system.



GREEN ROOFS

GENERAL MAINTENANCE INFORMATION

BAUDER INTENSIVE SYSTEMS

Hard landscaped roofs with paving or
decked surfaces

HARD LANDSCAPING ON BAUDER ROOF SYSTEMS

Paving and decked surfaces

Landscape Maintenance

Given the vast range of alternative landscapes and the specific requirements of the various structural, mechanical and horticultural components involved, it is necessary that a maintenance schedule for the soft and/or hard landscaping elements are prepared specific to each project and appropriate to each. This should be done by the landscape contractor responsible for the installation working in conjunction with the system component suppliers.

Where Bauder has supplied a guaranteed waterproofing system, it will have been installed by a Bauder approved contractor. The following guidelines are provided to ensure that the building owner can make arrangements for the ongoing maintenance of the roof, to maintain the integrity of the guarantee that we offer on the waterproofing system.

Preliminary Maintenance Procedures

The following procedures should be carried out at twice yearly intervals, in the spring and autumn, in order to ensure that the roof waterproofing is maintained in first class condition and that any potential problems are identified at an early stage.

- Remove any dead vegetation, leaf litter or debris from the roof surface, ensuring that any gutters, outlets, chutes and downpipes are free from blockages and that water can flow away freely.
- Where installed, remove the lids of all Inspection chambers or access grilles and ensure that all rainwater outlets and downpipes are free from blockages and that water can flow freely.
- Ensure that all protective metal flashings and termination bars to abutment upstands remain securely fixed in place. Advise the client of the need to repair or renew as necessary.
- Examine all lead counter-flashings, mastic sealant and/or mortar pointing for signs of degradation. Advise the client of the need to repair or renew as necessary.
- Check that all proprietary surfacing i.e. rubber playtop finishes, resin bound gravels, promenade tiles or paving slabs are securely fixed/ adhered to the roof surface and in good condition.
- Ensure that any new items of plant/equipment on the roof are mounted on suitable isolated slabs and that any fixings used to secure the plant/equipment in place do not penetrate the waterproofing. If in doubt, please contact Bauder for further advice.
- The building owner should keep a record of all inspections and maintenance carried out on the roof. Any signs of damage or degradation to visible elements of the waterproofing installation should be report to Bauder immediately, in order that arrangements can be made for remedial work to be carried out if necessary.

- Works to adjoining areas - When carrying out any maintenance to adjoining roof areas, care must be taken not to damage either the landscaping or the waterproofing system. If it is considered that
- either element has been affected, then Bauder should be contacted for advice. Any waterproofing damage caused after completion of the original installation may invalidate the guarantee.
- Alterations - Any unauthorised alterations to the waterproofing system will invalidate the guarantee. If such a situation should arise, then Bauder should be contacted so that they may advise on the alteration and how it should be incorporated without affecting the guarantee.

Please note: In the event of any query arising which it is thought may affect the condition of the system, then Bauder should be contacted. We cannot accept responsibility for any problem or failure due to use outside those parameters for which the system was designed or 'acts of god' beyond our control e.g. extreme weather conditions or damage through pests.



GENERAL MAINTENANCE

Bitumen Membrane Systems

Bauder Total Roof System, Bauderflex, Pro F, System Airtech, and BauderTHERM Stripes

BAUDER BITUMINOUS FLAT ROOF SYSTEMS

General Maintenance

The following procedure should be carried out after any building maintenance or heating, ventilation and air conditioning work on the roof or at twice yearly intervals (Spring & Autumn) or after major storms in order to ensure that the roof is maintained in first class condition, and that any potential problems are identified at an early stage. Any failures of the roofing system resulting from a lack of maintenance may not be covered under the guarantee. Reference should also be made to the guarantee documents to identify if there are any further inspections that may be required to ensure the continuation of the guarantee period.

- Ensure safe access can be gained to the roof and that relevant Health and Safety procedures are followed.
- Clear all debris from the roof surface, rainwater outlets, chutes, gutters etc. Debris must be removed from the roof and not simply flushed down rainwater pipes. Where installed, remove the lids of all Inspection chambers or access grilles and ensure that all rainwater outlets and downpipes are free from blockages and that water can flow freely.
- Cut back tree limbs that overhang the roof to give a 1 metre clearance outside the roof edge. This will significantly reduce blockage of drainage ways due to fallen leaves.
- Remove any vegetation growth that may have occurred, taking care not to damage the waterproofing.
- Ensure that all protective metal flashings (including lead counter-flashings) and termination bars to abutment upstands remain securely fixed in place, repair or renew as necessary.
- Examine all mastic sealant and mortar pointing for signs of degradation, and repair or replace as necessary.
- Check that all hard landscaping or proprietary surfacing finishes i.e. rubber playtop finishes, resin bound gravels, promenade tiles or paving slabs are securely fixed/ adhered to the roof surface and in good condition.
- Ensure that any items of plant/equipment that may have been introduced to the roof are sited on suitable isolated slabs, with additional surface protection beneath, and that any fixings that may have been used to secure them, do not penetrate the waterproofing.
- The Building owner should keep a record of all inspections and maintenance carried out on the roof. Any signs of damage, contamination or degradation should be reported to Bauder Limited immediately, so that arrangements can be made for remedial work to be carried out if necessary.
- Look for signs of contamination including oil or lubricant leaks caused by plant equipment which might degrade the waterproofing.
- When carrying out any maintenance to adjoining roof areas, care must be taken not to damage either the landscaping or the waterproofing system. If it is considered that either element has been affected, then Bauder should be contacted for advice. Any waterproofing damage caused after completion of the original installation may invalidate the guarantee.

- Any unauthorised alterations to the waterproofing system will invalidate the guarantee. If such a situation should arise, then Bauder should be contacted so that we may advise on the alteration and how it should be incorporated without affecting the guarantee.