



ALPHA PARK, CHANDLER'S FORD, EASTLEIGH

THE BUILDING MANUAL
(incorporating the Health & Safety File)

STORM DRAINAGE

Subcontractor Details

Company: RwpClearflow
Unit 1
Rotherham Close
Killamarsh
Sheffield
S21 2JW

Tel: 01142 471 800



Clearflow Products Ltd
Operations & Maintenance Manual

Unit 2, Alpha Park

At

Southampton

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1.0 Introduction

This manual has been prepared to provide a guide to the Operation & Maintenance of the Roof Drainage systems installed by RwpClearflow.

Contractors Details - UK

RwpClearflow
1 Stirling Court
Rotherham Close
Killamarsh
Sheffield
S21 2JU

Tel: 0114 2471800
Fax: 0114 2471806

E-mail: solutions@rwp-uk.com
Web: www.rwpclearflow.com

Contacts: Mr Paul Galligan.

Contractors Details - IRL

RWP (IRL) Ltd
8 Windmill Green,
Saintfield,
Northern Ireland
BT24 7NX

Tel: 02897 511 105
Fax: 02897 510 500

E-mail: al@rwp-irl.com
Web: www.rwp-uk.com

Contacts: Mr Alan Turner.

2.0 Design Criteria

2.1 Rainfall Intensity

All Roof Areas

Are designed to a rainfall intensity of 0.056 litres per second metre squared or 201.6 mm per hour for a two-minute storm duration in accordance with BS EN 12056..

2.2 Rainwater Outlets

RwpClearflow free issued the Rainwater outlets in the gutters. The outlets type is as follows:

All Gutter Roofs areas:

Stainless Steel

Please refer to RWPClearflow literature enclosed for full details on this outlet.

3.0 Installation Description

3.1 Method Statements

Please refer to RwpClearflow fully approved method statement prior to commencement on site.

3.2 Installations Description

Please refer to method statement issued and approved prior to works commencing on site.

3.3 Testing

Please find enclosed RwpClearflow Completion of Installation Certificate.

3.4 List of Suppliers

ITEM	MANUFACTURER/SUPPLIER	DETAILS
Siphonic & Gravity Rainwater Pipework & Fittings	Ebero Pipe Systems Ltd Burley Close Chesterfield Derbyshire S40 2UB Tel: 01246 563 153	SDR 26 PN4 HDPE Pipework & Fittings
Roof Drainage Design	RwpClearflow Unit 5 Norwood Ind Est Rotherham Close Killamarsh Sheffield S21 2JU Tel: 0114 2471800 Fax: 0114 2471806 E-mail: solutions@rwp-uk.com Web: www.rwp-uk.com	Roof Drainage
Roof Drainage Outlets	RwpClearflow Unit 5 Norwood Ind Est Rotherham Close Killamarsh Sheffield S21 2JU Tel: 0114 2471800 Fax: 0114 2471806 E-mail: solutions@rwp-uk.com Web: www.rwp-uk.com	Rainwater Outlets
All Bracketry	Fitlock Systems Unit A2 Parkgate Business Park Parkgate Rotherham, South Yorkshire Tel: 01709 780 910 BAPP Industrial Supplies Claycliffe Road Phoenix Works Barnsley S75 1LR Tel: 01226 388444	Metsec Unistrut Channel Erico Pipeclips Metsec Unistrut Channel Erico Pipeclips

4.0 Operation Procedures

Operation Procedures not applicable to RwpClearflow Scope of Works.

A routine maintenance schedule in Section 5, giving RwpClearflow recommendations to keep the RwpClearflow Roof Drainage System working at optimum efficiency. This should be undertaken three times per year, generally March, July and November.

5.0 Planned Maintenance

5.1 Maintenance Schedule

NOTES

Risk Assessment

A risk assessment must be carried out, the form completed and signed prior to commencing work. Control measures must be taken if dictated by the result of the risk assessment. Due regard must also be given to the Residual Hazards detailed in the appropriate section of the Health & Safety File. Circumstances may dictate the issue of a "Permit to Work" and a written "Safe System of Work" Procedure.

Warning

Before commencing maintenance work on any items of plant ensure that the associated supplies have been isolated and locked off and that all control and ancillary circuits have been made dead.

Skills

Activity must only be performed by qualified Service Personnel with a demonstrable training record in the servicing of this type of equipment who are equipped with proper clothing, tools, etc.

Manufacturers Literature

These general maintenance guidance notes must be read in conjunction with the particular manufacturers recommendations: - Refer to companion manufacturer's literature documents.

Health & Safety

All work must be carried out in accordance with the Health and Safety at Work Act 1974, any other Associated Guidance Notes and associated legislation and HSE Guidance Publications.

Daily/Weekly Tasks

Routine Daily/Weekly inspections and tasks must form part of the maintenance routine and actions arising

must be dealt with.

Specialist Equipment

It is recommended that a Maintenance Contract is placed with RwpClearflow for the specialist maintenance of the roof drainage systems.

Main Tasks applicable

Removal of debris off the roof.

Checking Rainwater outlets, removal of debris if required.

MAINTENANCE SCHEDULE		SHEET 1 OF 1
EQUIPMENT/SYSTEM: Roof Drainage Systems		
LOCATION: Roof Level		
REF.	TASK	
1	Check Roof Areas for debris such as leaves etc and remove from the roof ensuring it is NOT SWEEPED INTO THE OUTLETS	
2	Check all Leafguards for debris collecting around them, and still attached to the outlet, remove from the roof ensuring it is NOT SWEEPED INTO THE OUTLETS . If the leafguard is damaged contact RwpClearflow for replacement.	
3	Check for Blockages in the outlet Remove leafguard, clean if necessary. Remove debris, sediment etc, remove baffle plate and clean, thoroughly wipe out the outlet bowl, replace baffle plate and leafguard whilst ensuring no debris enters the system.	
4	All pipes should periodically be visually inspected for damage or leakage, paying particular attention to pipe joints.	
5	Internal brackets to be checked for soundness and degradation. CAUTION: If brackets are found to be loose, check that on tightening the pipe is not distorted.	
6	Check gaskets and seals on outlet. Note any deterioration in the gaskets, seals etc.	

5.2 Fault Finding

Adherence to structured fault finding methods will result in quicker identification and rectification of the fault and the avoidance of a repetition.

It is recommended that the following steps be taken when fault finding.

1. OBSERVE THE FAULT.

Visually determine what the fault is and the extent of the fault noting the exact location if possible by gridline reference.

2. OBSERVE THE EQUIPMENT.

Look for physical damage. These will often point to the cause of the fault especially with regard to the cladding and membranes

3. RESEARCH ANY RECENT WORKS.

Faults often occur following modifications to the system and after routine maintenance (if not carried out correctly).

Reference to the maintenance log may point to the possible cause.

4. KEEP A RECORD.

Maintain a clear, detailed and accurate log of all observations and actions. This is particularly important should the fault re-occur or other related problems develop. It will be especially useful in tracking down intermittent faults and should be shown to any specialist attending.

5. CALL FOR ASSISTANCE.

In the event of not being able to identify or rectify a fault, or if the fault continually re-occurs after repairs are carried out, call for specialist assistance. Do not attempt a repair if you are at all unsure of what you are doing.

POSSIBLE FAULTS

RwpClearflow has delivered a complete system in accordance with its quality procedure, however if faults are discovered then contact should be made immediately with RwpClearflow.

It would be beneficial to RwpClearflow if as much information is available, such as fault, the exact location i.e. gridline reference and any additional information.

Possible faults are as follows:

Fault	Possible Cause	Solution
Damaged leafguards/outlets	During maintenance	Inform RwpClearflow for replacements
Water Ingress	Blocked Gutters/ outlets	Routine maintenance

6.0 Spares

RwpClearflow SPARES POLICY

In order to eliminate any possible conflicts with warranties, RwpClearflow recommend that any spares required during the life of the building should be obtained direct from them.

All repairs must only be carried out by RwpClearflow. In the first instance notification should be given in writing direct to RwpClearflow.

7.0 Safety Procedures

The main hazard associated with RwpClearflow's installation is the height aspect as the activities involve being on a roof of a building. However the following items must be considered:

1. As with all works residual risks are involved, however if others carry out any works on RwpClearflow's scope of works then a competent contractor must determine these risks and produce a safe system of works as required by law. They must consider the risks involved with the tasks such as working at heights, protection of themselves and others etc. and provide measures to control or eliminate them.
2. They must consult and gain consent from RwpClearflow of their safe system of work that involves any aspects of their works, not only to carry out the works but also as not to invalidate any warranties.
3. Details on certain maintenance tasks are in the Operation and Maintenance file. A fully trained and competent contractor must only carry these out.

If there is any doubt over any tasks carried out by others then do not hesitate to contact Rwpclearflow on UK 0114 2471800 or IRL 02897 500 105

COSHH Regulations

In accordance with regulations 6 - 12 of the Control of Substances Hazardous to Health regulations 1988, we have considered our obligations and responsibilities.

We do not consider, after appraisal that in connection with our fabrication or insulation work that any of our materials are considered as hazardous as defined in the above regulations.

With very few exceptions our works have been carried out in the 'open air' and not in confined or none ventilated areas, therefore minimising any risk from inhalation or ingestion of dust vapours etc. from any hazardous materials.

If further works by others have been completed after the installation of RwpClearflow, Pipe work, COSHH / risk assessments should be obtained from installers.

8.0 Manufacturers Literature

Please find enclosed RWP Clearflow literature.

9.0 As Built Drawings

Please find enclosed RwpClearflow As Built Drawings :

C4245 – C02 Rev AF

C4245 – C04 Rev AF



Rotherham Close, Norwood Industrial Estate, Killamarsh, Sheffield, S21 2JU

Tel: 0114 247 1800 Fax: 0114 247 1806

Email: solutions@rwp-uk.com Web: www.rwp-uk.com

Technical Information Submittal

Outlet Type;

CL90 Siphonic Rainwater Outlet.



Outlet Dimensions;

Width of Flange:	Aluminium & Stainless Steel:	308mm.
	PVC flange :	380mm.
	TPO Polypropylene Flange:	380mm.
Width at neck:	218mm Dia.	
Depth of Taper:	64mm Dia.	
Width at base:	90mm Dia.	
Overall Depth:	134mm Dia.	
Outlet Cut Out:	225mm Dia. for metal outlets, 290mm for PVC / TPO Flanged Outlets	

Outlet Flow Capacities;

Gravity Conditions:	max 8.10 l/s (refer to BSEN12056-3:2000 table 8)
Siphonic Conditions:	max 35.0 l/s using RWP Cover Plate and Baffle Assembly.

Outlet Materials;

Stainless Steel:	For welding or mechanically fixing into gutters.
Aluminium:	For welding or mechanically fixing into gutters.
PVC Flange:	For welding into gutters and / or flat roofs using PVC based membranes (eg Trocal SGMA, Trocal S, Sarna S, Alkor, WBP, FDT & Brass.)
Polypropylene Flange:	For welding onto TPO Membrane

Availability;

All outlets available ex-stock, next day delivery.

Connection;

All outlets connections use a flexible band seal connection.



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Complete Rainwater Systems

- Siphonic & Gravity Options
- Rainwater Harvesting & Attenuation
- In House Bespoke Design
- Technical Support Service
- Third Party Accredited Analytical Design Software
- Site Surveys
- Project Management & Installation
- In House Fabrication Workshop
- Prefabricated Pipe-Work Systems
- Pipe-Work Materials in HDPE, Aluminium, Cast Iron & Steel.
- Thermal & Acoustic Pipe-work Insulation
- Materials ex Stock

RWP 'Clear-flow' Siphonic Rainwater Outlet

Our proactive approach to climate change has led RWP to develop the Clear-Flow siphonic rainwater outlet.

Siphonic rainwater systems were first developed in Scandinavia and were introduced into the UK in the 1980's and early 1990's when rainfall patterns were vastly different to those we were currently experiencing.

Using our extensive knowledge of the siphonic industry RWP has developed a high flow capacity siphonic rainwater outlet – Clear-Flow- which is capable of taking flows up to 46 L/S per outlet [nearly twice the amount of some earlier siphonic

outlets]. The product has been developed to work with all modern day construction methods and material types, allowing the outlet and adjoining siphonic system to be used in virtually any new build or refurbishment.

As with all correctly specified and designed siphonic systems, benefits are gained by the client in the reduction of underground drainage runs, simpler co-ordination (due to the horizontal nature of the system) and considerably reduced pipe sizes when compared to conventional gravity installations. Due to Clear-flow's design of the outlet, debris which could build up around the leaf guards or grills causing blockage are washed away through the Clear-flow outlet and the high velocity siphonic pipe work below.

RWP Total Rainwater Drainage Solutions

"Rain to Drain & Reclaim"

RWP's rainwater harvesting systems are offered as a total solution package to your buildings rainwater drainage and harvesting requirements, in a one stop shop design and supply package. The in-house design team work together to offer a

complete bespoke system, speeding up the design, co-ordination and supply service. This is complemented with the inclusion of the RWP above ground in-line 'Giraffe' leaf filter. The giraffe leaf filter is installed above ground either in the vertical or horizontal axis and can be easily maintained within a clean and dry environment, without the safety concerns arising when accessing manhole filters.

Clearflow Products Ltd

Unit 1, Norwood Industrial Estate
Rotherham Close
Killamarsh, Sheffield
S21 2JU

Phone: 01142 471 800 Fax: 01142 247 1806

E-mail: Solutions@rwp-uk.com

Visit: www.rwp-uk.com

RWP (IRL) Ltd

8 Windmill Grange
Saintfield, County Down
Northern Ireland
BT24 7NX

Phone: 02897 511 105 Fax: 02897 510 500

E-mail: Solutions@rwp-irl.com

Visit: www.rwp-irl.com



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1. Installed as a sealed unit.



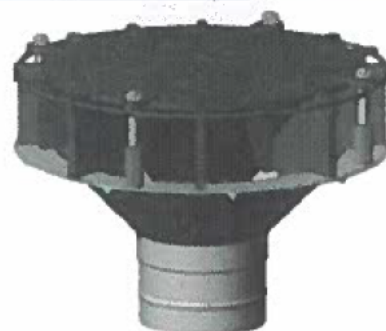
2. Invert lid to allow temporary drainage during construction process.



3. Interchangeable PVC and Polypropylene ring

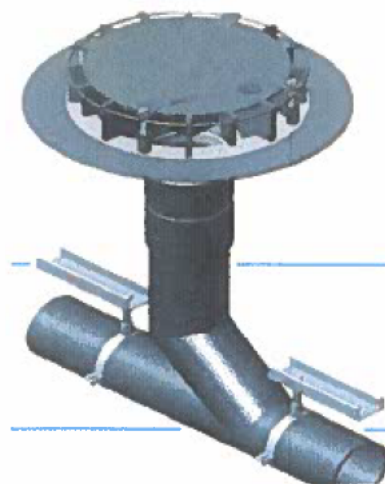
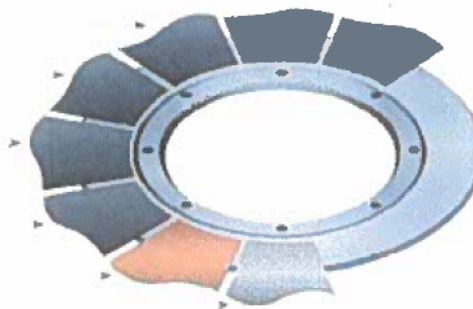


4. Aluminium / Steel / Asphalt



Clear-Flow is tested and approved for use with major substrates:

PVC
HDPE
Concrete
Asphalt
Steel
Aluminium





Hamilton Water Local
 100 King Road, Hamilton, Ontario L8N 2K5
 Tel: 905.571.2222 Fax: 905.571.2223
 Email: clearflow@hamilton.ca Web: www.hamilton.ca/clearflow

COMPLETION OF INSTALLATION CERTIFICATE

Project Title: Algonquin Park Sewerage System Date: 1-10-2017

Project Number: WATER 2

We hereby certify that the Clearflow Products and Features have been completed as follows:

Item	System Number			Comments
	101	102	103	
1. Cover all installed manholes with	☒	☒	☒	on 101, 102 and 103
2. Install 100% flow rate	☒	☒	☒	5.75 m/s
3. To the ground level	☒	☒	☒	on 101, 102 and 103
4. To the ground level	☒	☒	☒	on 101, 102 and 103
5. To the ground level	☒	☒	☒	on 101, 102 and 103
6. To the ground level	☒	☒	☒	on 101, 102 and 103
7. To the ground level	☒	☒	☒	on 101, 102 and 103
8. To the ground level	☒	☒	☒	on 101, 102 and 103
9. To the ground level	☒	☒	☒	on 101, 102 and 103
10. To the ground level	☒	☒	☒	on 101, 102 and 103
11. To the ground level	☒	☒	☒	on 101, 102 and 103
12. To the ground level	☒	☒	☒	on 101, 102 and 103
13. To the ground level	☒	☒	☒	on 101, 102 and 103
14. To the ground level	☒	☒	☒	on 101, 102 and 103
15. To the ground level	☒	☒	☒	on 101, 102 and 103
16. To the ground level	☒	☒	☒	on 101, 102 and 103
17. To the ground level	☒	☒	☒	on 101, 102 and 103
18. To the ground level	☒	☒	☒	on 101, 102 and 103
19. To the ground level	☒	☒	☒	on 101, 102 and 103
20. To the ground level	☒	☒	☒	on 101, 102 and 103
21. To the ground level	☒	☒	☒	on 101, 102 and 103
22. To the ground level	☒	☒	☒	on 101, 102 and 103
23. To the ground level	☒	☒	☒	on 101, 102 and 103
24. To the ground level	☒	☒	☒	on 101, 102 and 103
25. To the ground level	☒	☒	☒	on 101, 102 and 103
26. To the ground level	☒	☒	☒	on 101, 102 and 103
27. To the ground level	☒	☒	☒	on 101, 102 and 103
28. To the ground level	☒	☒	☒	on 101, 102 and 103
29. To the ground level	☒	☒	☒	on 101, 102 and 103
30. To the ground level	☒	☒	☒	on 101, 102 and 103

We warrant that the Clearflow Products and Features have been completed as follows:

Signature of Authorized Clearflow Representative: Date: Print Name:	Signature of Customer: Date: Print Name:
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