Site: 1 Oakwood Cottage, Hooklands Lane, Shipley, Horsham
Prepared by: Phil Allen
Approved by: Neil Jaques
Date: 08/11/2024

motion
232 High Street
Guildford
Surrey
GU1 3JF

Tel: 01483 531000
http://www.motion-uk.co.uk

1.0 Introduction

1.1 The technical note has been produced by Motion on behalf of their client, Chris Marshall, to assist in the discharge of Condition 3 of planning consent DC/24/0079, which is for the change of use of a residential annexe to a separate residential dwelling.

1.2 As part of planning application DC/24/0079 a Water Neutrality Strategy (WNS) was required to demonstrate how the proposed change of use would not increase water use within the Sussex North Water Supply Zone (SNWSZ). Motion produced this WNS, which proposed to retrofit a rainwater harvesting and recycling system into the dwelling for non-potable water uses.

1.3 This WNS was accepted by Horsham District Council, subject to conditions. In the schedule of conditions applied to planning consent DC/24/0079, Condition 3 stipulates the following:

Regulatory Condition: Within one (1) month of the date permission is granted, unless otherwise agreed in writing with the Local Planning Authority, full details of the water efficiency measures and rainwater/greywater harvesting system required by the approved water neutrality strategy (12.01.2024) shall be submitted to and approved in writing by the Local Planning Authority.

Reason: To ensure the development is water neutral to avoid an adverse impact on the Arun Valley SACSPA and Ramsar sites in accordance with Policy 31 of the Horsham District Planning Framework (2015), Paragraphs 179 and 180 of the National Planning Policy Framework (2021), its duties under the Conservation of Habitats and Species Regulations 2017 (as amended), and s40 of the NERC Act 2006 (Priority habitats & species).

1.4 The WNS produced for DC/24/0079 calculated the potential rainwater yield and sized the rainwater harvesting tanks in accordance with BS EN 16941-1:2018. The dimensions and volumes of the tanks were shown in Appendix J of the WNS and a typical layout of a domestic rainwater harvesting system was included in Appendix I, but the WNS did not provide detailed information on the rainwater harvesting system.

1.5 Therefore, to expand on the information provided in the WNS and provide sufficient detail to discharge Condition 3 of DC/24/0079, this technical note will present detailed information on the proposed rainwater harvesting system.

2.0 Rainwater Harvesting System

2.1 Table 5.1 of the WNS presented the calculation for the achievable rainwater yield of the dwelling and, subsequent to that, the requisite rainwater harvesting tank size to provide 35-days supply (9.6% of the annual demand). For ease of reference, this information is below in Table 2.1:

Table 2.1: Rainwater Harvesting Yield, Demand and Storage Figures

Roof Area	Annual Average Rainfall	9.6% Annual Rainwater Yield	9.6% Annual Water Demand	Required Rainwater Tank Size
70.7m^2	858.7mm	4,196.28 litres	2,585.99 litres	3,400 litres

2.2 It is proposed to use a 3,400-litre SDS rainwater harvesting tank (details in Appendix A) and utilise a SDS rainwater harvesting system, a typical layout of which can be seen in Appendix B.

2.3 Using the product specifications available from SDS and the tank specified in Table 2.1 and Appendix A, a suggested layout of the rainwater harvesting system within the proposed residential dwelling at Oakwood Cottages has been produced. This can be seen in Appendix C.

2.4 The plan in Appendix C shows the suggested installation location of the rainwater harvesting tank, as well as the suggested locations and connectivity of the rainwater harvesting tank to:

- The M&E (mechanical and electrical) apparatus required by the rainwater harvesting system;
- The existing roof water pipes (RWPs), which will be disconnected from the below-ground drainage and will feed the system;
- The connected fixtures and fittings that will use recycled rainwater, and;
- The existing mains water supply system.

2.5 As mentioned above, the proposed layout is suggested and is subject to advice from M&E specialists to ensure that all electrical equipment and controls are suitably and safely connected/located. SDS will also input to the final design to ensure that the correct switches, pumps, filters and monitoring equipment is specified for a system serving a single property. Finally, plumbers will be needed to make sure that the existing connections from the mains water to the toilets and washing machine are removed, and then replaced with the recycled rainwater connections. A plumber will also be required to make a connection from the existing mains supply system to the rainwater harvesting system, which is required when drought extends beyond 35 days or in the rare event that the system fails and a back-up water supply is needed.

3.0 Summary

3.1 This technical note and the details and plans in the appendices have provided further details of how the rainwater harvesting system functions, which specific rainwater harvesting components are needed, and how these components will be located and connected within the proposed residential development at 1 Oakwood Cottages.

3.2 This provides the LPA with robust detail of how the rainwater harvesting system will integrate with the existing plumbing and fixtures and fittings and will be able to supply the non-potable uses with a supply of recycled rainwater.

3.3 As discussed, the final layout and connectivity of the rainwater harvesting system will be subject to input from SDS, M&E specialists and plumbers, and this advice will come at the installation stage.

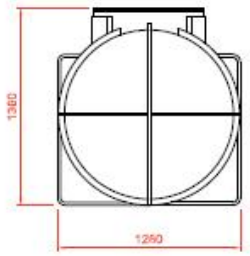
3.4 Therefore, this technical note and the information within it has provided sufficient detail for Condition 3 of DC/24/0079 to be discharged.

Appendix A

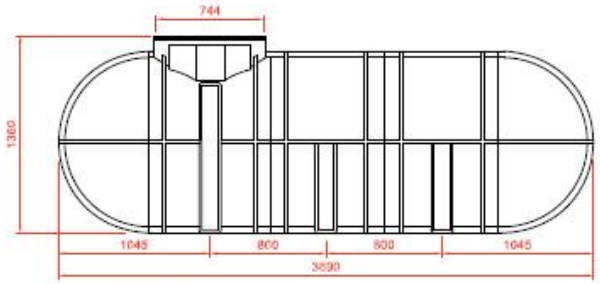
SDS 3,400-litre Rainwater Tank Details

SDS 3,400 Litre Rainwater Harvesting Tank

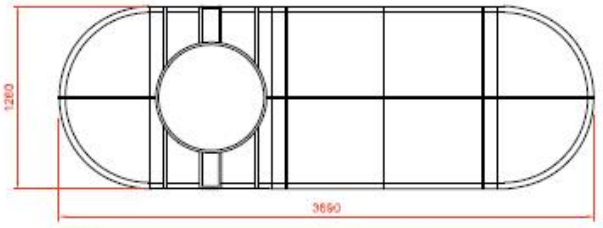




END ELEVATION



SIDE ELEVATION



PLAN

Client	SDS	Details
Project Name	3,400 Litre Tank	
Type	Standard Detail	
Date	-	
Drawing no.	-	
Revision	A	

Notes:

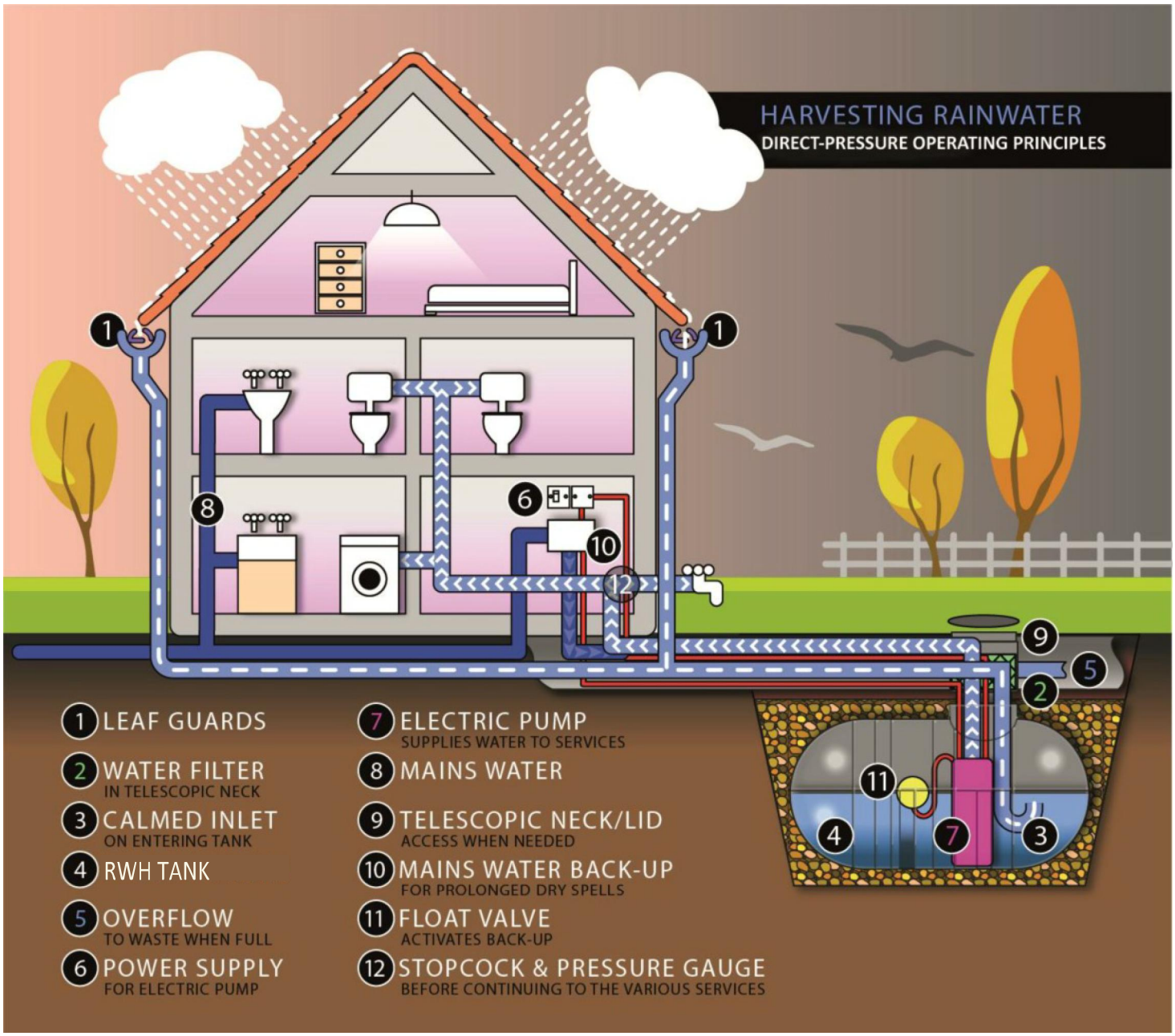
This Drawing is to be read in conjunction with all relevant Architect, Engineers and Specialists drawings and specifications.

Do not scale from the drawing in either paper or digital form. Use written dimensions only.

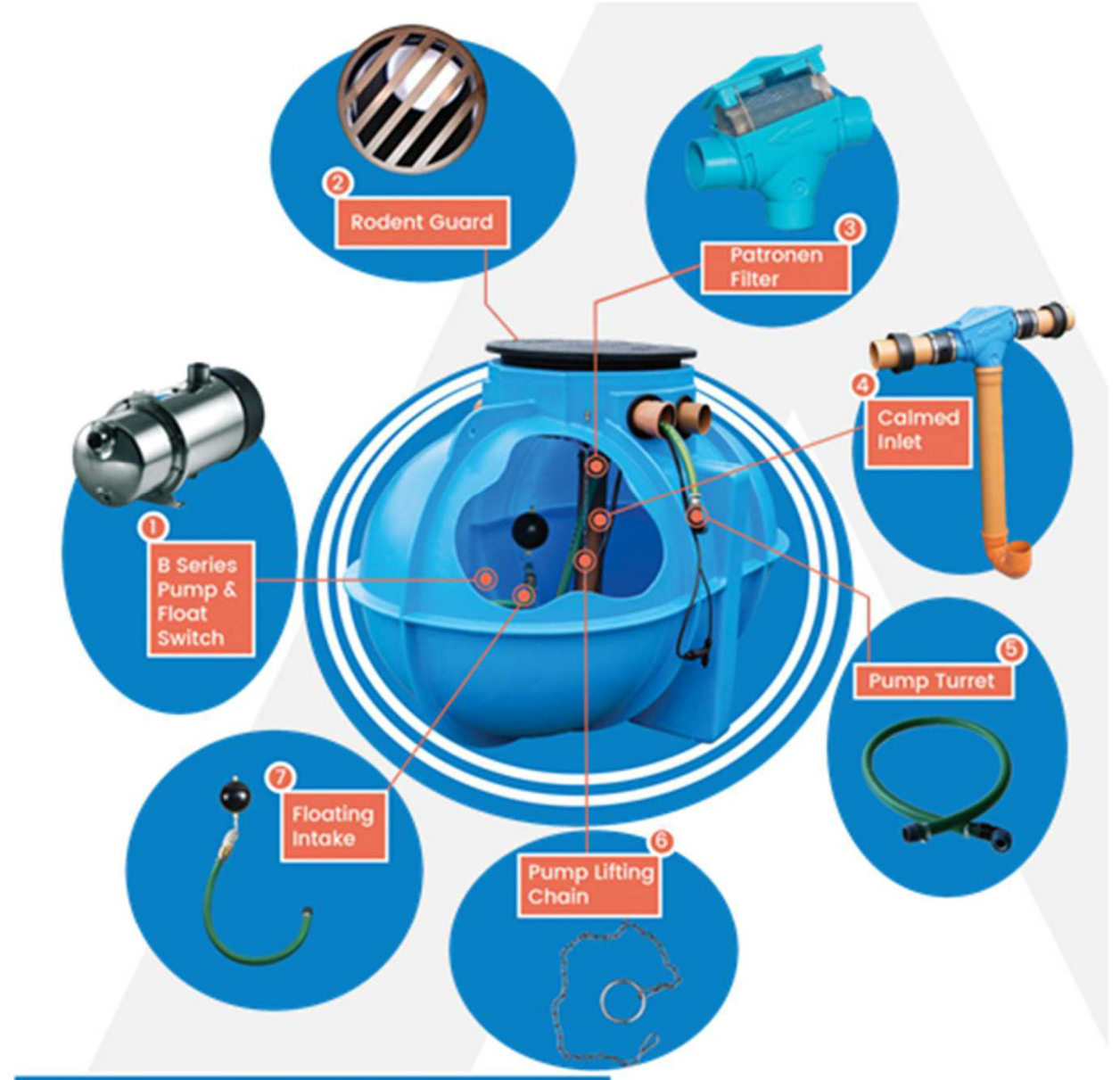
SDS Water Infrastructure Systems

Appendix B

Typical Domestic Rainwater Harvesting System Layout


HARVESTING RAINWATER
DIRECT-PRESSURE OPERATING PRINCIPLES
1 LEAF GUARDS
2 WATER FILTER
IN TELESCOPIC NECK
3 CALMED INLET
ON ENTERING TANK
4 RWH TANK
5 OVERFLOW
TO WASTE WHEN FULL
6 POWER SUPPLY
FOR ELECTRIC PUMP
7 ELECTRIC PUMP
SUPPLIES WATER TO SERVICES
8 MAINS WATER
9 TELESCOPIC NECK/LID
ACCESS WHEN NEEDED
10 MAINS WATER BACK-UP
FOR PROLONGED DRY SPELLS
11 FLOAT VALVE
ACTIVATES BACK-UP
12 STOPCOCK & PRESSURE GAUGE
BEFORE CONTINUING TO THE VARIOUS SERVICES

DIRECT PRESSURE SYSTEM HOME & GARDEN





Inside the Household

Top Up Controller

Automatic mains water top-up Controller kit for rainwater tanks with pump isolation and alarm. The system detects when the tank contents level is running low and initiates a mains top up procedure to ensure the tank never runs out of water supply.

SDS Ltd, Clearwater House, Castlemills, Biddisham, Somerset, BS26 2RE
T: +44 (0)1934 751303
E: info@sdslimited.com

SYSTEM:

A Direct Pressure System is the most popular, cost effective and risk-free option for rainwater harvesting. It can be used for both garden and household applications, for example, it can be used in buildings with a small block of toilets, and for garden irrigation and machine washdowns. The system sends pressurised water straight from the external tank directly to the application. If the water level in the tank gets too low, the top up controller will activate a mains top up so the tank doesn't empty.

COMPONENTS

P Series pumps are stainless steel pumps with plastic coverings and are suitable for domestic water systems, rainwater harvesting, tanks, surface irrigation and tank transfer.

The rodent guard protects the internal water from rodents and large debris which could contaminate the water entering via the overflow.

The PF filter is designed with a level drop, this along with its very smooth surface structure allows excess dirt to be rinsed straight through to the overflow. The filter cartridge mesh is stainless steel within plastic housing and is self-cleaning, though regular inspection is recommended.

The calmed inlet removes the kinetic energy from the water as it enters the tank. This means that as the water enters it doesn't stir up the contents of the tank.

The turret set provides the connection between the pump and the pipework leading to the various external applications. They are made from a flexible plastic so can easily deal with the pressurised water coming from the pump.

The pump lifting chain aids in servicing the pump as it allows the pump to be easily pulled up towards the top of the tank.

A floating intake ensures that no water from either the bottom or the surface of the tank is taken in. Meaning only clean water passes through the system and is pumped into the household.

ADDITIONAL SPECIFICATIONS

- Service duct
- Delivery hose (Options available)
- Top up controller
- Tanks sold separately
- Extra overflow on tanks 5600 – 10000

POPULAR USE:

- Garden irrigation
- Cleaning the car
- Washing windows
- Power washing drive/patio
- Outside tap and hosepipe
- Flushing toilets
- Drinking water (if tank is potable)
- Washing machine

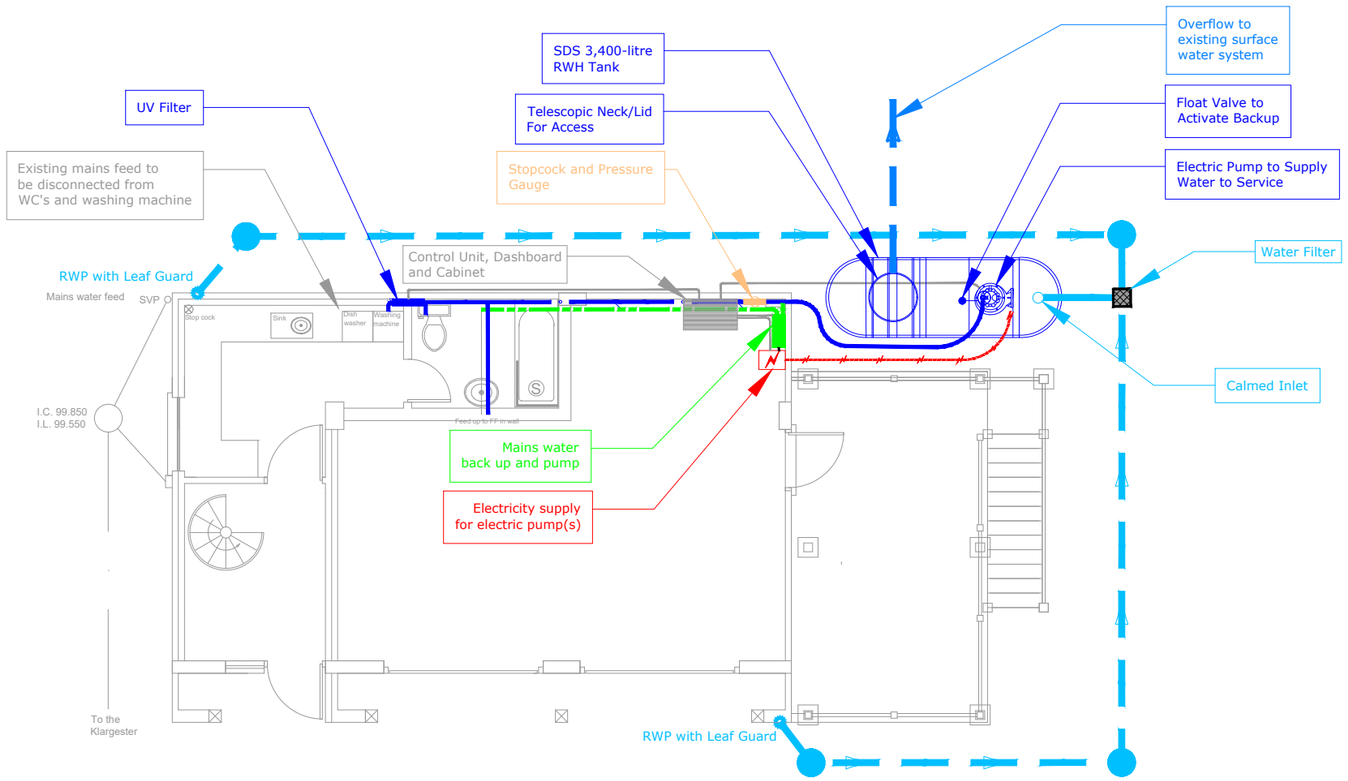




SDS Ltd, Clearwater House, Castlemills, Biddisham, Somerset, BS26 2RE
T: +44 (0)1934 751303
E: info@sdslimited.com

Appendix C

Proposed Layout and Connectivity of Rainwater Harvesting System at 1 Oakwood Cottages



0 2 4 6 8m

SCALE IN METRES
1:100

Notes

1. The layout and connection of the components shown are indicative only and not for construction
2. SDS should be consulted prior to final design
3. Connections to internal fixtures and fittings and from water supply should be designed by M&E Consultants

Rev.	Description	Drn	Chk	App	Date
P01	First Issue	PA	PA	NJ	07/11/2024

Drawing Status:

FOR PLANNING
NOT FOR CONSTRUCTION

motion
Guildford - Reading - London
www.motion.co.uk

Client:
Chris Marshall

Project:
Oakwood Cottage

Title:
Rainwater Harvsting Layout

Scale: 1:100 @ A1 (@ A3)

Drawing: 2410028-0500

Revision: P01

C:\Users\philallen\Motion\StaffSite - 1wssh2 2410028\Drawings\0500-Rainwater Harvesting-2024.dwg

© Crown Copyright. All rights reserved. Licence number 100043407