MANCHESTER SCHOOL OF ARCHITECTURE

community food + growing hub

wildbrook strategy guide

WILDBROOK

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LOCAL FOOD FIRST
COMMUNITY FOOD GROWING and LOCAL FOOD SOLUTIONS

MSA LIVE 25

Introduction

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Partners

Local Food First CIC (LFF), in partnership with the Oldham Council Community Food Growing Project, are renovating an abandoned community allotment in Oldham to create the Wildbrook Community Food and Growing Hub. This site aims to improve access to affordable and nutritious food, principally through growing projects along with improving access to green space and nature. This is crucial as the neighbourhood of this site is in one of the most deprived areas in England and Wales and displays high levels of health inequality and food insecurity. As the capacity and demand to grow more produce increases, LFF is aiming to create a rainwater capture scheme to store and distribute water across the site and this project will explore creative design solutions to support this aim.

Biographies

Dave is a co-founder of LFF with a specific interest in the links between growing, cooking and nutrition and the role these can play in a sustainable future. Dave is passionate about supporting a fair food system for all, where issues such as food security, the impact of food on climate change and inequality are fully addressed. Before founding LFF, Dave worked in various community food support roles, ran an organic fruit and veg delivery business and spent many years retailing wine. He tries to make wine out of the grapes he grows in Stockport, but not with much success!

Lina is a co-founder of LFF, a community-driven initiative focused on sustainable food growing and waste management. Passionate about the environment, Lina is dedicated to exploring how local food production and responsible waste practices can contribute to a more sustainable future. Before founding Local Food First, Lina worked in various community food support roles. Her background also includes running a convenience store in Colombia, where she developed a deep understanding of food systems, and over 20 years in the accountancy sector, where she was a committed sustainability champion who advocated for eco-friendly workplace practices, encouraging businesses and work colleagues to adopt greener habits and reduce their environmental impact. Lina's work continues to focus on education, engagement, and action, empowering communities to make sustainable choices in food growing, waste reduction, and environmental responsibility.

Wildbrook Community Food and Growing Hub

Wildbrook Community Food & Growing Hub was developed in 2023 on the former Community Allotment site in the Fitton Hill area of Oldham. In March 2023 an exciting new partnership between Oldham Council Environmental Services and Local Food First (a Community Interest Company) opened the gates after eight years of closure to revitalise the overgrown and derelict growing site. The project aims to improve access to healthy and affordable food in the Fitton Hill area and give local people an opportunity to grow.

The site has raised beds, two polytunnels and an orchard of over 150 fruit trees. In 2024, a wildflower meadow was planted and a wildlife pond dug out, with plans underway to create an outdoor education shelter, as well as to redevelop the building.

Produce from the site is used to support Oldham Foodbank through the Community Food Growing Project, based at Alexandra Park, with volunteers also being able to take a share of the produce home. The Community Food Growing Project at Wildbrook welcomes volunteers at regular weekly sessions and for social value corporate volunteering. Through the Community Food Growing Project, volunteer teams at Wildbrook Community Food and Growing Hub work together to maximise growing potential and benefit the local community. Local Food First operates a fruit and veg bag scheme for residents, with a weekly collection from the site at Wildbrook.

The task was set out for us, Manchester School of Architecture students, to assist in the progression of a design by exploring how we can best produce a rainwater collection and distribution strategy guide building upon the facilities already available on site. Working with the current landscape, we are identifying the potential of this site and providing thorough research and suggestions that would allow the volunteers at Wildbrook to effectively water the produce across the land without having to go too far to collect the water needed.

Site Visits

Image Below "Initial Visit":
Drone shot of site in February 2025

Image Below "During Action Weeks":
Drone shot of site in May 2025

Image Top (Left):
Polytunnels

Image Middle-Top (Left):
Roof structure in the composting area

Image Middle-Bottom (Left):
Wildlife pond

Image Bottom (Left):
Existing rainwater collection at building + chalkboard display documenting more-than-humans found on site

Image Top (Right):
Compost tutorial by Lina

Image Middle-Top (Right):
Composting + Planting oxygenating pond plants

Image Middle-Bottom (Right):
Planting seedlings

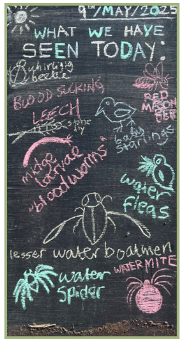
Image Bottom (Right):
Watering plants

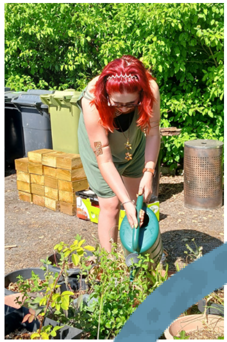
Initial Visit

We first visited Wildbrook in February 2025 and toured the site and all its facilities with our collaborators, Dave and Lina. Working with the charity Fareshare, Wildbrook curates food parcels designed to provide support for communities experiencing food insecurity. We saw Wildbrook's facilities, including polytunnels, raised planting beds, a smaller orchard, composting stations and plans to expand much further. Dave and Lina shared with us their plans to renovate the existing building to support their indoor programmes, including a community kitchen and co-working space. We looked into existing challenges on the site that pertain to distributing water across the growing hub. We also discussed plans for our Action Weeks with the collaborators, forming a plan for the outputs requested for the scheme.

During Action Weeks

We visited Wildbrook with the whole team (joined by the BA1, BA2, and MLA students) in May 2025, seeing it in its fully green and blooming state! Dave and Lina toured around the growing hub and explained to us what has been done, what has been updated since last time, and what they are hoping to do in the future. We discussed challenges in terms of irrigating the different growing and production areas, as well as identifying how we can design water collection and redistribution programmes that are flexible and adaptable for future developments and expansion. Whilst on our site visit, we volunteered and supported Dave and Lina through several activities, such as composting, planting seedlings, and watering the plants, allowing students to get hands-on, gain a deeper understanding of the work that LFF do, observe the way spaces are used, and identify challenges in transporting water across the site.





Process

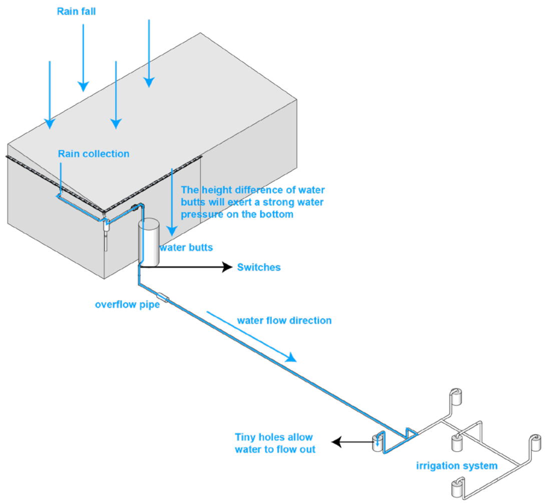
Research

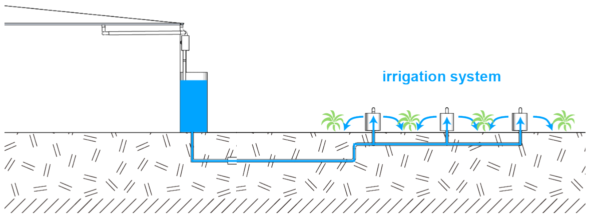
During the first few days, we began researching water collection and redistribution programmes designed to combat the water distribution problems currently faced on site. We presented our findings to one another and explored precedents and ideas that could be relevant for Wildbrook.

Case Study: Castle Community Centre Rain Garden

We looked into the Rain Garden System set up by Castle Community Centre (located in Barbers Lane, Northwich) as it offers relevancy to Wildbrook in terms of feasibility of construction and efficiency in its operation.

The principle of communicating vessels was employed to channel rainwater into the rain garden, enabling localized infiltration and retention of stormwater. To adapt this principle for agricultural irrigation, control valves were installed at the bottom of the storage tanks. When the tanks are positioned significantly higher than the irrigation zone, opening the valves allows gravitational potential energy to generate hydrostatic pressure, which forces the water through perforated irrigation pipes connected to the field. This configuration creates a gravity-fed irrigation system that operates without the need for mechanical pumping.





Install the water butts with isolation valves and overflow pipe // Excavate the pipe trenches// Set up the irrigation system // Perforated irrigation pipes in the irrigation system gradually drips water out onto the field.

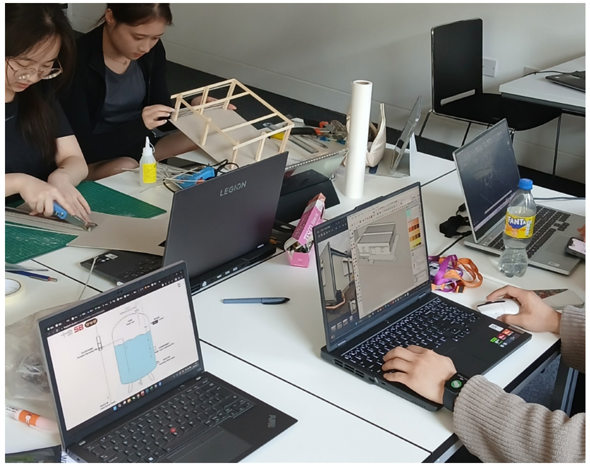
Analysis

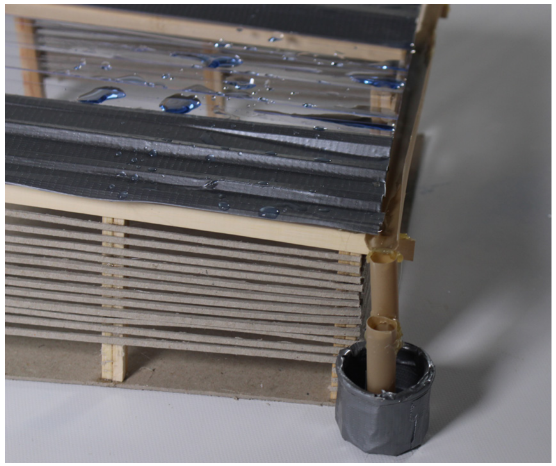
After the site visit, we compiled all the observations noted down by the students to form a plan of action for collecting and distributing water across the site. Collating all the information onto a diagrammatic site plan, we held a brainstorming session to discuss the collection and utilisation of water resources on the site and presented our strategy through a masterplan. We then formed groups to work on the individual roof systems across the site to propose the most suitable water collecting system for it.

Synthesis

We planned for the outputs to be included in a comprehensive guide/ booklet to deliver to the collaborator and generated the necessary drawings and visuals required to effectively communicate the designs suggested for each roof system. We worked in a variety of media, some sketching by hand, some physical modelling, and some modelling digitally through several software.

During the Actions Weeks, we worked in a production line where some focused on the research, others on the design, and the rest on the layout of both the collaborator document and this publication. A physical experiment was conducted for one of the rainwater collection systems. The results of this physical model demonstrated that the setup was highly successful, effectively collecting and harvesting rainwater.





Click here to view a video of the physical experiment.

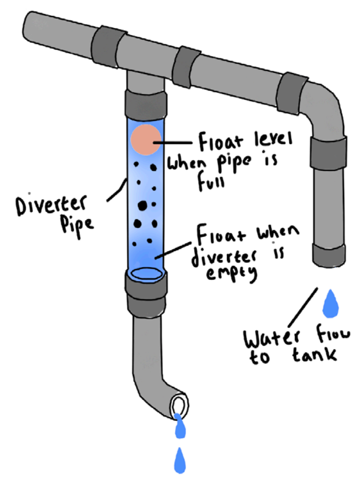
Proposal

Strategy Plan

On this site, we divided the water demand into three types. The first type is direct irrigation water, which does not require additional filtration and purification. The collected rainwater is directly stored in water tanks. The second type can meet the simple needs of food cleaning, which requires the connection of a simple filtration system when collecting rainwater to reduce bacteria and debris in the water. The third type is water sources that can be used for drinking.

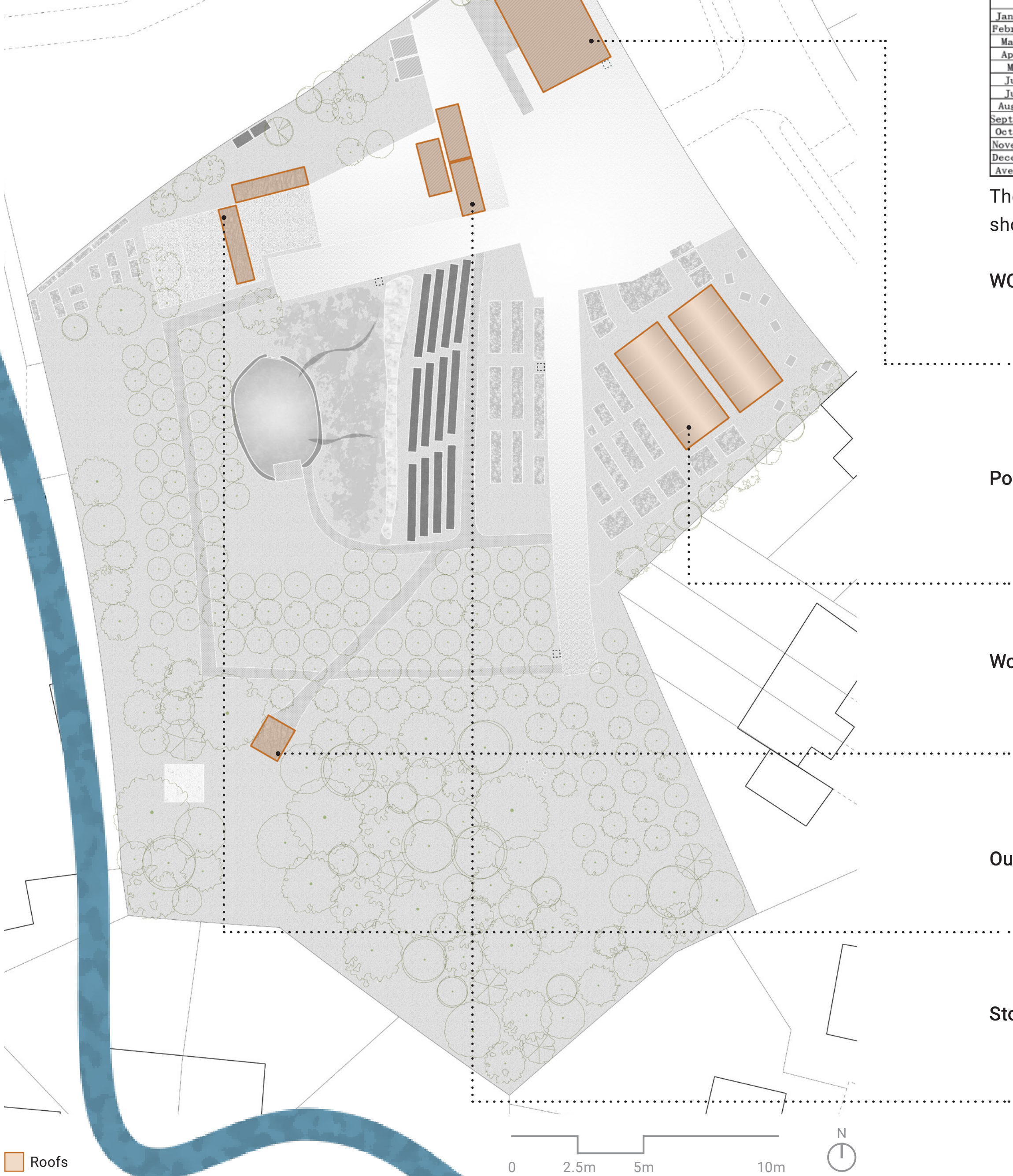
The masterplan displays what existing and proposed roof systems can be utilised at Wildbrook for rainwater collecting. Furthermore, it suggests locations for water butts and stand-alone tanks that can be installed throughout the site —offering flexibility for further expansion and their implementation to this design water network/irrigation system should LFF need to add more in the future. After determining these three water usage patterns, we selected different rainwater collection schemes based on the existing buildings on the site and their uses. For the polytunnels, the existing water tanks belong to the second mode. We will incorporate the first mode to collect rainwater more directly for irrigation. For the woodland shelter, the second rainwater collection mode was chosen. Since it is far from the existing tap water outlet, we planned to offer a drinking water source nearby as well. For the outdoor kitchen, we propose the second rainwater collection mode, which enables simple cleaning when using this area. A drinking water source is also planned here to support cooking needs. The WCFGH building has a relatively complete existing water supply system, however, it can be further refined to best optimise rainwater harvesting. The building has a kitchen planned inside, and nearby veg wash station, toilets, and enough space to collect and store a larger mass of rainwater, thus, the second mode is best for this location.

Making Rainwater Drinkable



There are several effective methods to make rainwater drinkable. It's important to avoid toxic roofing materials such as asbestos and lead-painted surfaces. Regularly cleaning the roof is crucial to prevent contamination. One useful method is to install a First Flush Diverter, which discards the initial litres of water that may contain debris before it enters the storage tank. Although more expensive, a filtration system can offer a more thorough approach. This includes a leaf and debris filter, a sediment filter to remove small particles, and an activated carbon filter to eliminate chlorine and organic pollutants. Disinfection is essential and can be achieved using UV lights or by boiling the water for at least 1 to 2 minutes. Unscented bleach may also be added in small amounts. The water tanks must be well-sealed, aerated, stored in cool/shaded areas (to prevent algae growth), and cleaned every few months to maintain their quality.

Roof-Based Water Collection Systems

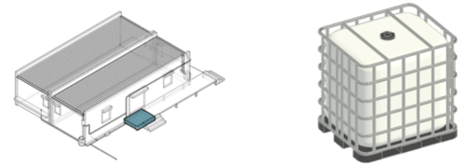


Year-round Rainfall + Collection

Month	Rainfall (mm)	Collectable Rainwater from WCFGH Building (m³)	Collectable Rainwater from Polytunnel (m³)	Collectable Rainwater from Woodland shelter (m³)	Collectable Rainwater from Compost (m³)	Collectable Rainwater from Outdoor kitchen (m³)	Collectable Rainwater from Outdoor kitchen (m³)	TOTAL (m³)
January	80.00	10.00	3.60	1.98	0.94	2.16	1.17	19.84
February	60.00	7.50	2.70	1.49	0.70	1.62	0.88	14.88
March	65.00	8.12	2.93	1.61	0.76	1.76	0.95	16.12
April	55.00	6.87	2.48	1.36	0.64	1.49	0.80	13.64
May	60.00	7.50	2.70	1.49	0.70	1.62	0.88	14.88
June	70.00	8.75	3.15	1.73	0.82	1.89	1.02	17.36
July	75.00	9.37	3.38	1.86	0.88	2.03	1.10	18.60
August	85.00	10.62	3.83	2.10	0.99	2.30	1.24	21.08
September	75.00	9.37	3.38	1.86	0.88	2.03	1.10	18.60
October	90.00	11.25	4.05	2.23	1.05	2.43	1.32	22.32
November	95.00	11.87	4.28	2.35	1.11	2.57	1.39	23.56
December	90.00	11.25	4.05	2.23	1.05	2.43	1.32	22.32
Average	75.00	9.37	3.38	1.86	0.88	2.03	1.10	18.60

The precipitation is the highest in November and the lowest in April. The size of the water tank should be determined according to the month with the maximum precipitation.

WCFGH Building



Water tank size: 1.5 m³

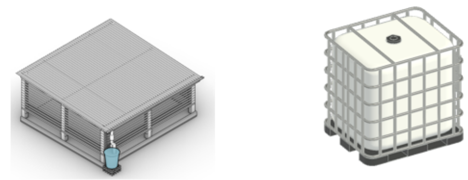
The rainwater that can be collected by the WCFGH building in November: **11.87 m³**
The required size of the water tank (three-day capacity): **11.87/10=1.187 m³**

Polytunnels

Water tank size: 0.5 m³

The rainwater that can be collected by the Polytunnel in November: **4.28m³**
The required size of the water tank (three-day capacity): **4.28/10=0.428m³**

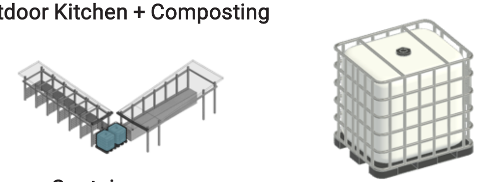
Woodland Shelter



Water tank size: 0.5 m³

The rainwater that can be collected by the Woodland shelter in November: **2.35m³**
The required size of the water tank (three-day capacity): **2.35/10=0.238m³**

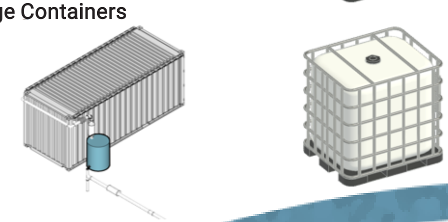
Outdoor Kitchen + Composting



Water tank size: 0.5 m³

The rainwater that can be collected by the Outdoor kitchen in November: **3.68m³**
The required size of the water tank (three-day capacity): **3.68/10=0.368m³**

Storage Containers

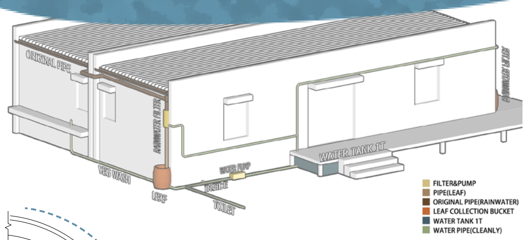


Water tank size: 0.5 m³

The rainwater that can be collected by the Compost in November: **1.39m³**
The required size of the water tank (three-day capacity): **1.39/10=0.139m³**

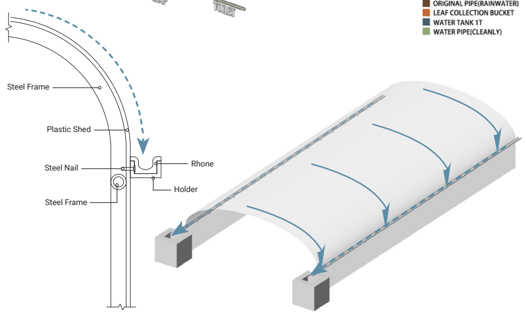
WCFGH Building

The rainwater collection system modifies the existing roof drainage, channelling rainwater through downpipes to a pre-filtration chamber. The clean water is directed to a 1-ton storage tank for reuse within the building.



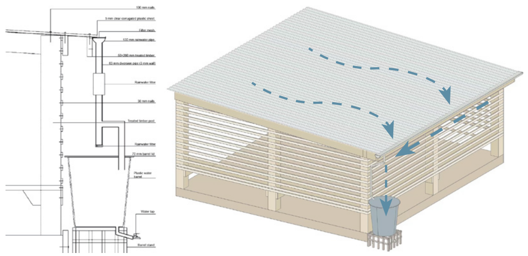
Polytunnels

Each polytunnel provides an effective water collection area of approximately 50 m². The system is designed to channel rainwater directly from the curved plastic roof into a basic storage setup. The collected rainwater is primarily used for irrigating crops within the polytunnel through drip irrigation.



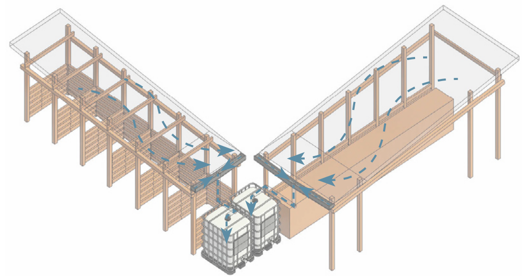
Woodland Shelter

The rainwater system retains the original roof design, directing water to a convergence zone. It passes through a coarse filtration mesh and a settling chamber before entering a 300-litre external storage tank.



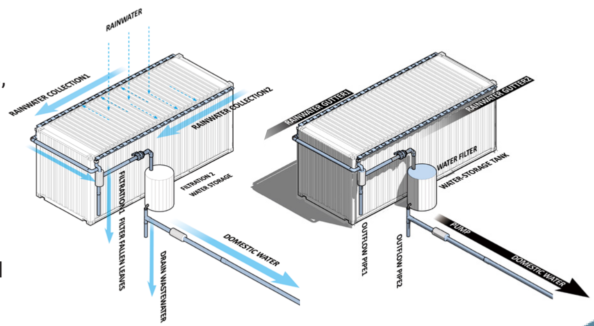
Outdoor Kitchen + Composting

Considering the amount of water we can collect from the existing sloped corrugated roof structure at the composting zone, we decided to combine it with a proposed roof for the outdoor kitchen. Rainwater flows down into a timber gutter and pipes, filtering and storing the water in two 1,000-litre tanks.



Storage Containers

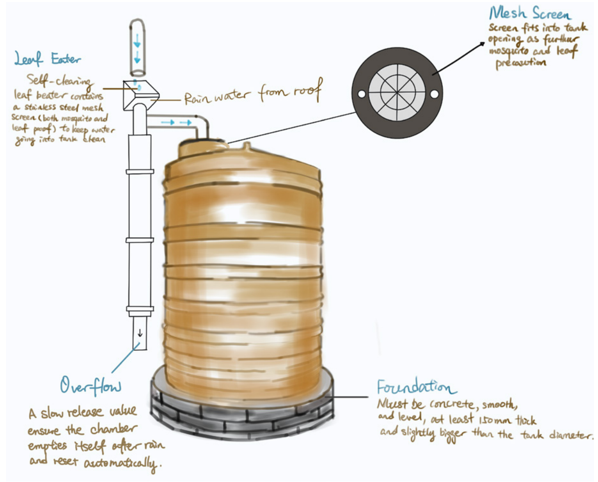
Rainwater flows across the corrugated roof panels and is captured by two linear gutters, channelling into vertical downpipes that lead to an external filtration chamber. The filtered water is stored in a 1,000-litre tank with gravity-fed drainage and a wastewater drain to safely discharge excess or unusable water, preventing system overload during heavy rainfall events.



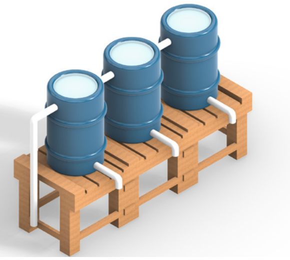
Water Butt Collection

Considering individual, easily-made water butts, various versions of storage proposed here can offer an idea of how these smaller water tanks can be useful across the site.

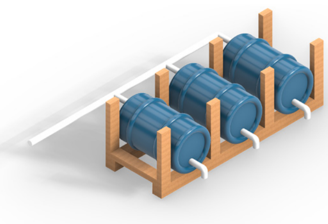
Water butts can be made with one pallet, some scraps of timber to form the frame, a collection cylinder (bucket, barrel etc.), some tubing to form overflow, and a tap. A grate would also be added to collect any debris and prevent blockage.



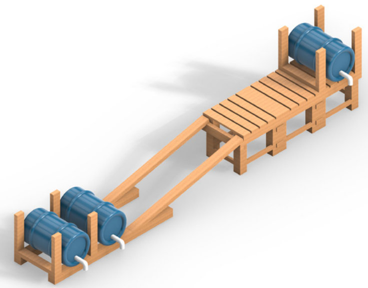
Key points to consider when building the storage frames are: the gravel of the stone slab foundation, cross bracing and height of the water container.



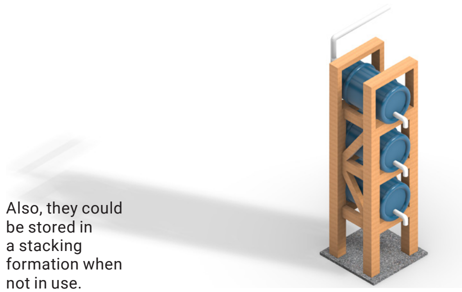
They could also be filled and stored in timber-constructed frames for the drier months.



Using timber planks, they could be transported when full.



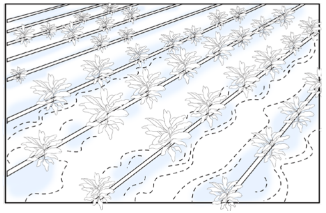
Also, they could be stored in a stacking formation when not in use.



Distribution Methods

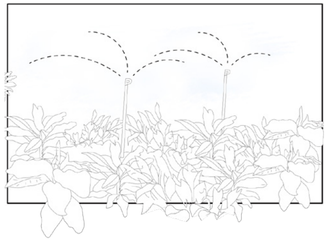
After collecting and storing the rainwater, the next suggestion developed was the distribution of the water around the site to irrigate the garden or growing spaces more efficiently. Methods like drip irrigation, gravity-fed drip irrigation and bucket feed system are proposed.

Drip Irrigation



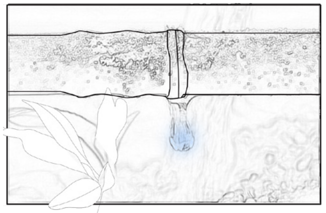
This method is an affordable and precise method for watering plants directly at their roots. It consists of pipes, valves, tubing, and emitters, minimizing water loss from evaporation and runoff. Setting it up involves raising a water tank, installing a filter, connecting the main hose, laying out the pipe, installing emitters, capping the end, and testing the flow.

Gravity-Fed Bucket System



This method uses a raised bucket filled with rainwater, relying on gravity to deliver water through tubing. It's simple, inexpensive, and perfect for starter gardens without pumps. To set it up, elevate the bucket on a stand, connect a hose to the bottom, and lay the tubing across the garden.

Sprinklers System



This method features rotating sprinklers that efficiently water large areas and connect to rainwater storage tanks. Easy to install and relocate, it may struggle in hot or windy conditions. For better efficiency, consider automating with timers. Start with selecting the right sprinklers, set them on risers for better reach, and add timers if desired.

Summary

The current irrigation strategy uses three methods: drip irrigation, gravity-fed bucket systems, and sprinklers, tailored to different crop needs and accessibility. Drip irrigation is favoured for raised beds and herb gardens due to its efficiency, while gravity-fed systems serve remote early-stage crops without power. Sprinklers are utilized for open-field areas prioritizing coverage.

Proposed plans focus on optimizing rainwater use across the site. Water from the WCFGH Building will support the vegetable washing station, toilets, and neighbouring herb garden. Rainwater from the Polytunnel will irrigate adjacent raised beds using gravity-fed systems. Water from the Outdoor Kitchen and Compost Area roofs will nourish open crop beds and compost, potentially through a drip-sprinkler hybrid setup. Runoff from the Woodland Shelter and Storage Containers will benefit the nursery area, while the orchards will rely on natural runoff. To improve efficiency, underground piping and smart valve controls will be implemented, adapting to rainfall and seasonal crop needs.

Future Developments

To improve water distribution, the locations of existing pipes must be investigated and replaced with new, efficient ones. Implementing passive irrigation aligned with the sloped landscape will ensure optimal watering for crops and support the wildlife pond.

The strategy plan is proposed to set up a flexible and organic foundation of a network that LFF can alter or expand onto. It allows for further development of any additional structures to allow for more rainwater collection systems, including additional water tanks and self-contained water butts. By exploring methods to make rainwater drinkable, LFF can tap into all the potential this site has to offer regarding rainwater harvesting and circular farming.

Plans are underway to create an outdoor education shelter, as well as to redevelop and renovate the WCFGH Building to provide further programming that can support the fight against food insecurity.

Final Presentation

On the second last day, we invited Dave and Lina and presented all the research results and the final documentation. We discussed the proposals and overall strategy, ensuring we could address any last-minute feedback from our collaborators. They were very satisfied with our work! A few minor changes were needed to the booklet before sending the final version to Dave and Lina. The presentation was a success, and we are extremely pleased with the positive comments we received.

Reflection

Over ten days, our collaborative journey was filled with moments of cultural exchange, deep learning, and achievement. From thorough research, brainstorming, and volunteering to concept development, modelling, and visual production, the two weeks cultivated a holistic design approach that relies on scientific research and technological evidence. Acknowledging each group member's skills and aspirations, tutorials on design tools and the integration of analogue/physical methods with digital technologies allowed students to tap into their creativity and express themselves through the design process. The iterative design development process was established by individual consultations, peer-to-peer resource sharing, and a cohesive production line to optimise a display of collective visual branding. We adjusted our action plan slightly as the duration of certain activities varied during the day. This allowed for more time allocated to producing outputs for the collaborators.

By encouraging constant feedback and active reflection within the group, our efforts led to a set of achievements during the final presentation day. Students attended the occasion and displayed the outputs culminating within two weeks, impressing the collaborators with the depth of research and sophistication in the suggestions made. The final strategy documentation provided for Local Food First will support the collaborators with a compilation of all information needed/relevant to Wildbrook and offer design proposals that they can share to gain much-needed funding and support to implement a rainwater collecting and harvesting system across the site. The document serves as a model for the potential and benefits of collaborative learning. Dave and Lina's enthusiastic reception of the work presented supports the significance of experiential/hands-on projects and real-world community engagement in architectural education. There is added depth for any student to be able to truly integrate and interact on-site, build relationships with collaborators, and understand the community's needs by allowing them to guide design proposals that will then have the potential to be implemented in real life.

We are deeply grateful to our dedicated students whose tireless efforts and creativity fueled the success of this project. We extend heartfelt appreciation to the invaluable contributions and expertise of our collaborators, Dave and Lina, whose support, guidance, and teachings have enriched this collaborative exploration and journey. The experience gained during MSA Live 25 has been enriching for us all. It reflects the importance of interdisciplinary collaboration, experiential learning, and real-world applications. Although our time technically ends after the Action Weeks, we established a long-lasting relationship with LFF moving forward. We will all carry the lessons learned, conversations shared (both relevant and not), and a sense of satisfaction with the achievements together.

ABOUT

Each year the MSA LIVE programme unites Masters Architecture year 1 and Masters of Architecture & Adaptive Resuse students with those in BA foundation, year 1 and year 2 and Masters Landscape Architecture 1 in mixed-year teams to undertake live projects with external partners to create social impact.

LIVE PROJECTS

All MSA LIVE projects are live. A live project is where an educational organisation and an external partner develop a brief, timescale, and outcome for their mutual benefit.

SOCIAL IMPACT

All MSA LIVE projects are for community benefit or have social impact. Social impact is the effect an organization's actions have on the well-being of a community. Our agendas are set by our external collaborators.

EXTERNAL PARTNERS

MSA LIVE projects work with many organisations: charities, community groups, social enterprises, community interest companies, researchers, practitioners and educators.

STUDENT-LED

Our MSA masters students take the lead in the project conception, brief development, delivery and co-ordination of a small project. Other cohorts joined for an eventful 2 weeks of activities at the end of the academic year.

KNOWLEDGE TRANSFER

Working in teams within and across year groups and courses; MSA students participate in peer to peer learning. In addition, collaborators, participants and students engage in the transfer of tangible and intellectual property, expertise, learning and skills.

LARGE SCALE

This year approximately 600 students from 6 cohorts in MSA have worked on 40 projects with partners.

QUESTIONS

For questions about MSA LIVE please contact the MSA LIVE team:
msalive@mmu.ac.uk

BLOG

live.msa.ac.uk/2024

SOCIAL

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