



WATER NEUTRALITY

Ofwat Innovation Fund

Water Breakthrough Challenge

Lina Nieto – Water Net Zero Manager

Affinity Water

Taking care of your water

We are the UK's Largest 'Water Only' Supplier

- *Supplying clean drinking water for over 170 years*
- *Operating across 4,500km² in South-East England*
- *3.89m customers using 948million litres of water each day*
- *8-9% of the world's rare chalk streams in our area*
- *Among the lowest in the UK for total annual average rainfall per person*



Water Crisis

River Ver 2022

The climate emergency and population growth threaten our water security

People use more water in warmer weather

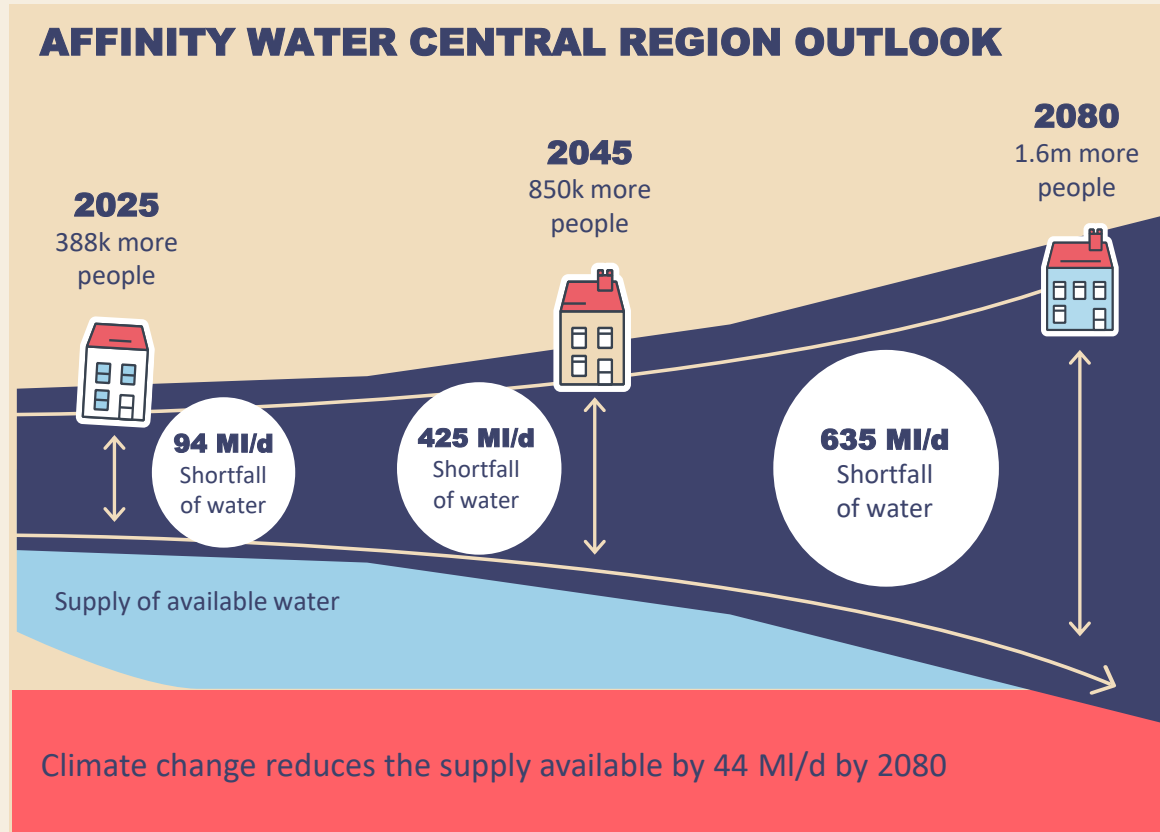
Global warming is expected to intensify water demand, particularly during increasingly hot summers, stressing existing supplies

Availability of water is lower in warmer weather

Severe and prolonged droughts are forecasted to deplete groundwater and reduce river flows by 50-80% by 2050, threatening reliable water access



The future if we do nothing



“Water is our silent partner”

THE BUILDING BOARDROOM | REGIS

Building

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FOCUS

A vision for 150,000 homes but no water to supply them. Does Gove's Cambridge 2040 plan stand a chance?

By Daniel Gayne | 20 March 2024

f x in e

🔍 📖

People

Crisis hits housebuilding in West Sussex over 'water neutrality' rules


A crisis has hit housebuilding in West Sussex because of 'water neutrality' rules.


By Sarah Page
Published 21st Feb 2024, 15:51 BST


f x e


BENEFITS OF THE PROJECT


OBJECTIVES


 Helping customers across reduce their consumption through installation of water saving devices and providing guidance on water wastage reduction activities through behavioural change initiatives.

 Ensuring no lost water through recycling across the sites so that we save on average 109,000 litres every year for each water neutral home built.

 Carbon savings equivalent to around 11 tonnes of CO2e per year.

 Annual savings on water and energy bills of around £1700 per business.


 Establish an innovative and collaborative approach that can be rolled out in future projects.

 Sharing the learnings at multiple sector forums and supporting the establishment of water neutral sites across other locations in the UK via publication of a Water Neutrality Blueprint.


INTENDED OUTCOMES

SHORT TERM


Deliver the world's first water neutral new development in collaboration with a NAV

 Prove the technological, commercial, and operational business case for a water neutral new development for both the incumbent water company and the new entrant.

Create an evidenced and scalable plan – the 'Water Neutrality Blueprint'


 Share a practical and applicable blueprint for water neutrality with other UK water companies.


Partner with customers to design solutions

 Support our customers to reduce water wastage at a community level which will ensure we can offer better levels of service in the long term.


LONG TERM:

Improve delivery of new developments across cross-functional businesses


 Facilitate better cooperation between new development stakeholders that are currently working together but not able to facilitate an outcome.

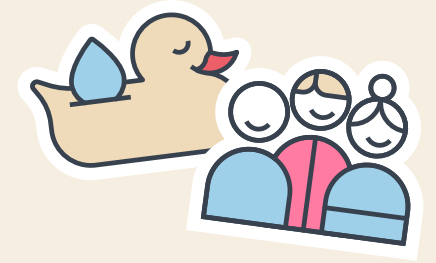
 In the longer term our project incentivises UK based manufacturing to serve the developing home market sharing benefits with the wider supply chain.

Open the market to new entrants

 Support the removal of barriers to entry for NAVs and promote competition to deliver customer benefits.

Develop water best practice and align with other customer service offerings

 Engage with the UK energy sector and globally with water providers to consolidate best practice.



ABOUT OUR PROJECT - WATER NET ZERO

AT SCALE WATER NEUTRAL NEW HOUSING DEVELOPMENT



Ofwat Innovation Challenge
funded



~ 2,000
homes



Minimise
demand

+



Offsetting

+



Trading



WHAT ARE WE DOING?

Across 3 sites we are proving the technological, commercial and operational business case. We will share our findings in the **Water Neutrality Blueprint**

1

Technology

Water reuse, smart metering and water saving technology installed at build

2

Behaviour change

Best practice behaviour change campaign, basic water saving gadgets to lower demand

3

Tech + behaviour change

The best of both approaches to create a blueprint for water neutrality in new housing developments

OFFSETTING

OUTCOMES

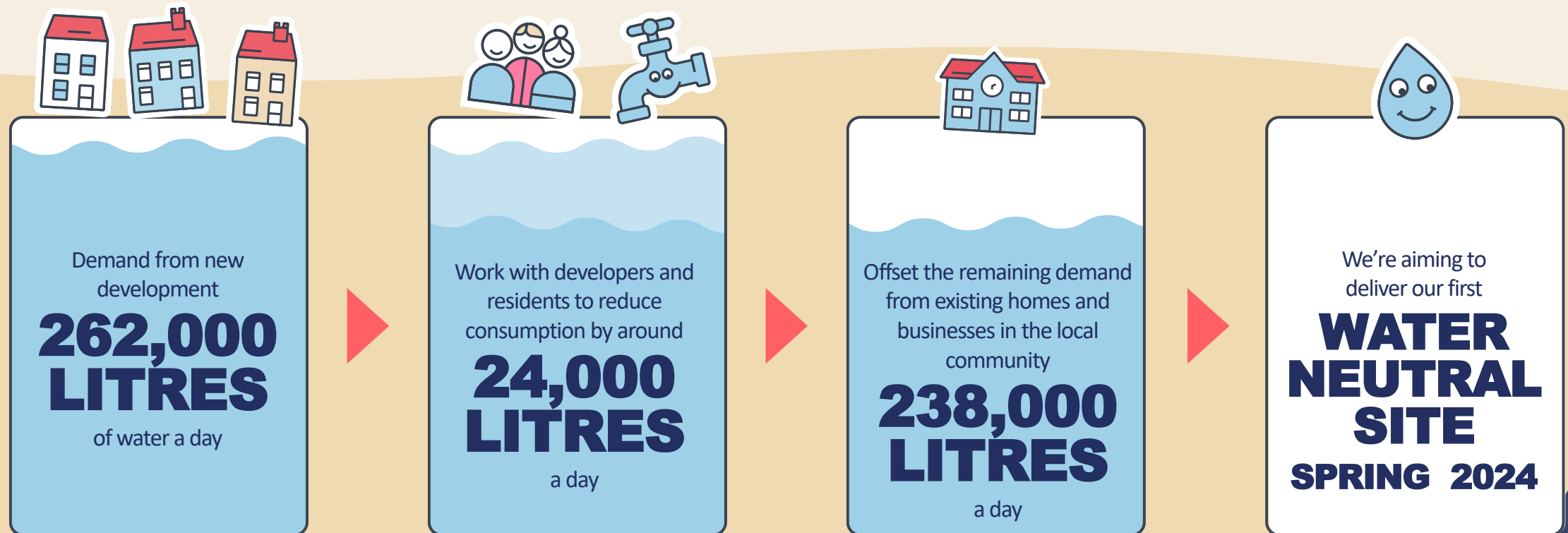
Community level water usage reduction

Solutions designed in **partnership with customers**

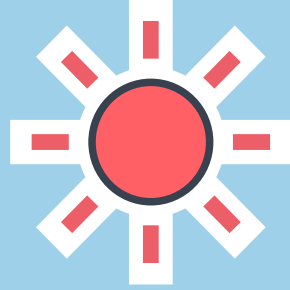
Shared practical and applicable tools
blueprint

WHAT IS WATER NEUTRALITY?

Being 'water neutral' means reducing water use from a local community, so when new homes are built no additional water is taken from local reserves



AIM OF THE PROJECT



To keep the local community's total water-use the same as before the new homes were built.



WHY?

More new houses means more demand on our already overstretched water supply, so we need to find a way to make house building sustainable for future generations and our environment.



RECAP

The UK housebuilding targets are ambitious – 300,000 a year.

But we are already 'water-stressed' in many parts of the UK, and we need to find a sustainable way to supply these new houses.

This project is designed to work out the **best way to create 'water neutral' housing developments** - meaning the area will use the same amount of water as before the new homes were built. Then roll it out nationally to all new housing developments.



*We're testing this in
Houghton Regis' Bidwell
West development,
using a campaign called
Bidwell Water Savers*

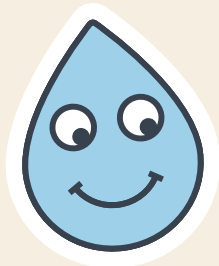
Working with homeowners



We find Non-Households with high water consumption and work collaboratively with them to retrofit water efficiency tech + identify potential leaks



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HOW?

We've been asking residents to pick one or more water saving pledges and stick to it.

That's all. Simple.

97%










claim to be sticking to their pledge

(April-July 2023)

PICK YOUR BIDWELL WATER SAVER PLEDGE

Your Water Saver pledge shouldn't be difficult or involve making significant changes to what you normally do. It's about doing one new thing, as often as possible over the next few months – and sticking to it. So simply pick whatever you think will be easiest!

| | | | |
|---|--|---|--|
|  <p>200 LITRES</p> <p>Use a watering can instead of a hose in the garden</p> <p>PLEDGE NOW</p> |  <p>200 LITRES</p> <p>Wash the car with a bucket instead of a hose</p> <p>PLEDGE NOW</p> |  <p>20 LITRES</p> <p>Use the small button to flush the toilet</p> <p>PLEDGE NOW</p> |  <p>10 LITRES SAVED</p> <p>Fill the bath an inch less than usual</p> <p>PLEDGE NOW</p> |
|  <p>16 LITRES SAVED</p> <p>Shower for 2 mins less than usual</p> <p>PLEDGE NOW</p> |  <p>36 LITRES</p> <p>Wash up in a bowl, rather than under a running tap</p> <p>PLEDGE NOW</p> |  <p>20 LITRES</p> <p>Turn off the tap while you brush your teeth</p> <p>PLEDGE NOW</p> |  <p>35 LITRES</p> <p>Run the washing machine full in eco mode</p> <p>PLEDGE NOW</p> |

CAMPAIGN OUTTAKES

96%

of residents surveyed
had heard of Bidwell
Water Savers.



3 OUT OF 4

residents surveyed
stated the campaign
changed their
behaviour.

73%

of respondents
remember hearing
about the campaign via
email.



“ I think it's definitely
we've made significant
changes that I think will stick
with us now. ”

Female resident, living with husband
and two children.



BEHAVIOUR CHANGE RESULTS



Total households:

908

Estimated occupancy 2.48



Pledge taking households:

382

33
litres

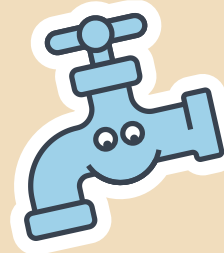


Non-pledge taking households:

526

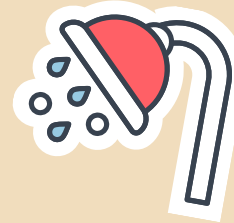
23
litres

5-MONTH CAMPAIGN: 1ST APRIL TO 31ST AUGUST



Average saving
per household
post-campaign

25
litres



Post-Campaign Litres
per person per day

105
litres



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HOW DOES OFFSETTING WORK?



We find Non-Households with high water consumption and work collaboratively with them to retrofit water efficiency tech + identify potential leaks



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OFFSETTING PERFORMANCE

 **908** water Neutral Homes



48

retrofits
completed



2

Customer Side
Leaks Fixed



246k+

litres being
saved per day



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THE ROADMAP TOWARDS WATER POSITIVE

STEP 1

**BIDWELL
WATER USAGE
PRE-CAMPAIGN**

262k
litres per day

STEP 2

**BIDWELL
WATER USAGE
POST-CAMPAIGN**

238k
litres per day

STEP 3

**REMAINING DEMAND
OFFSET FROM
LOCAL COMMUNITY**

246k
litres per day

STEP 4

**LEAVE MORE
WATER IN THE
ENVIRONMENT**

8,000
litres per day



**BIDWELL
IS WATER
POSITIVE**



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WATER SAVINGS MARKET

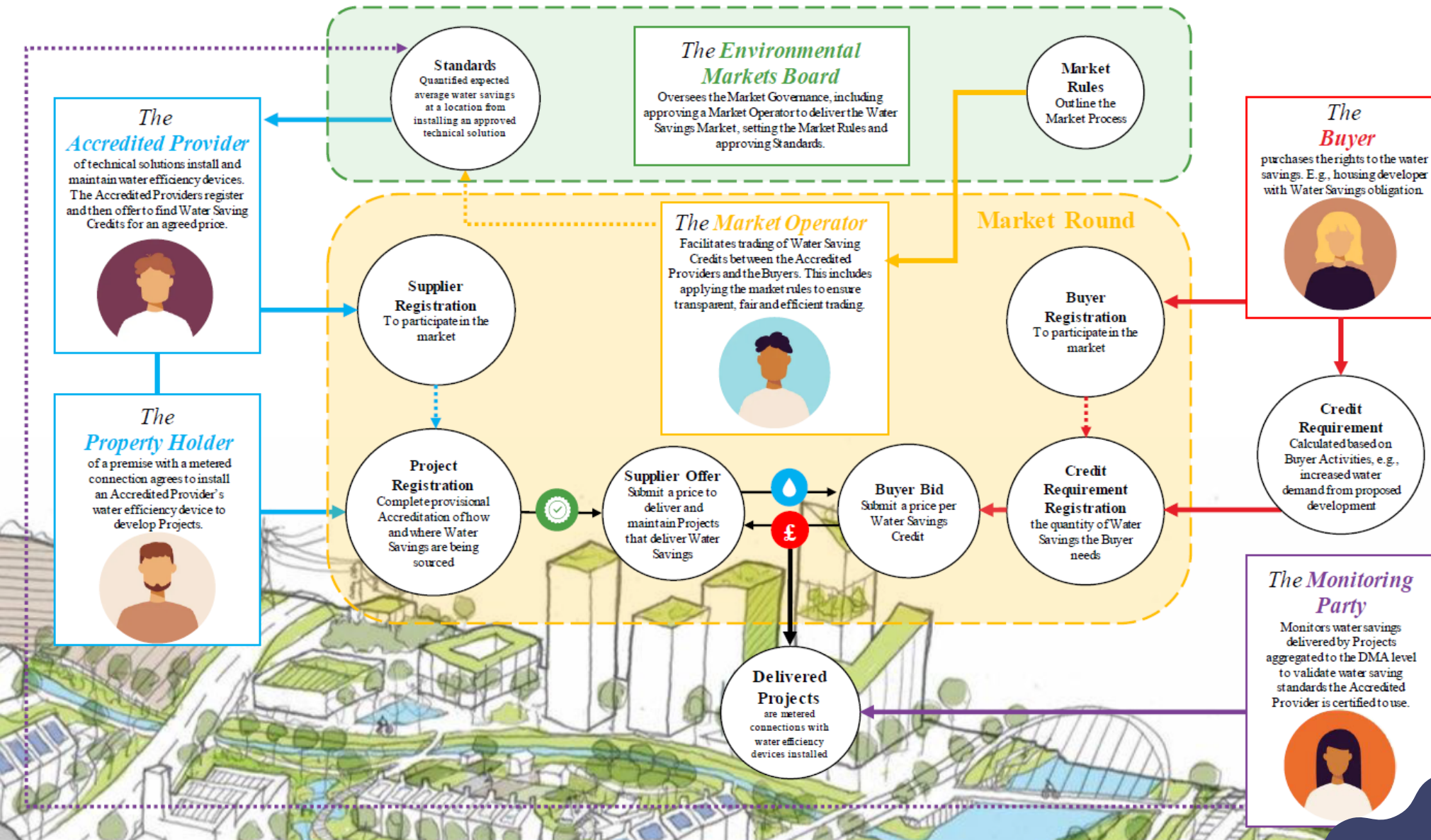
Utilising our learnings from offsetting we are working with Arup to develop a national approach for enabling any organisation to achieve their sustainability ambitions.



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WATER TRADING MARKET

ARUP



**MAKING BIDWELL
WEST THE WORLD'S
FIRST WATER
NEUTRAL HOUSING
DEVELOPMENT
OF ITS KIND**

COMPETENT PLUMBERS & APPROVALS

Making sure customers receive the best service
now and in the future



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THE IMPORTANCE OF WATER REGULATION

ENSURING COMPLIANCE

Overview of Regulation 4:

Regulation 4 sets the standards for water quality and safety, focusing on the materials and practices used in water supply systems to prevent contamination and ensure public health.

Goals of Regulation 4:

To protect public health by ensuring water supplied for drinking, cooking, and washing meets stringent quality standards.

Approved Contractor Schemes:

These schemes certify contractors who meet the high standards required for water system works, ensuring compliance with Regulation 4 and promoting best practices in water management.

Impact on Housing Developments:

Regulation 4 influences the design and construction of water systems in new housing developments, emphasizing the need for sustainable and safe water management solutions.



[The Water Supply \(Water Fittings\) regulations 1999](#)

APPROVED CONTRACTOR SCHEMES



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Case study

Candem

Camden Council's Local Plan

Major developments and high or intense water developments, such as hotels, hostels and student housing, should include a grey water and rainwater harvesting system.

How have they justified this?

Camden has Ground Water Source Protection Zones. The Environment Agency must protect groundwater sources used to supply drinking water from pollution. They've defined SPZs as zones which show the level of risk to the source from contamination.

Supporting paragraphs relating to water efficiency and reuse 8.55 – 8.56

The current Local Plan Policy CC3 'Water and flooding' states:

Policy CC3 Water and flooding

The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible.

We will require development to:

- a. incorporate water efficiency measures;
- b. avoid harm to the water environment and improve water quality;
- c. consider the impact of development in areas at risk of flooding (including drainage);
- d. incorporate flood resilient measures in areas prone to flooding;
- e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
- f. not locate vulnerable development in flood-prone areas.

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable.

The Council will protect the borough's existing drinking water and foul water infrastructure, including the reservoirs at Barrow Hill, Hampstead Heath, Highgate and Kidderpore.

8.55 Developments must be designed to be water efficient. This can be achieved through the installation of water efficient fittings and appliances (which can help reduce energy consumption as well as water consumption) and by capturing and re-using rain water and grey water on-site. Residential developments will be expected to meet the requirement of 110 litres per person per day (including 5 litres for external water use). Refurbishments and other non-domestic development will be expected to meet BREEAM water efficiency credits. Major developments and high or intense water use developments, such as hotels, hostels and student housing, should include a grey water and rainwater harvesting system. Where such a system is not feasible or practical, developers must demonstrate to the Council's satisfaction that this is the case.

8.56 Camden has Groundwater Source Protection Zones (see Map 6: Historic flooding and Local Flood Risk Zones on page 266). The inner zone is located within the south west of Primrose Hill Park and the outer zone covers a section of South Hampstead from Prince Albert Road to Swiss Cottage. These zones are to signal that there are likely to be particular risks posed to the quality or quantity of water obtained, should certain activities take place nearby. These zones should be taken into account when considering the environmental impact of a development.

Example:
Saving up to
10000m3 litres a
year
This example is for
an office of around
2000 people

Government policy



Next week we will have a new Government

*Refreshed priorities
New ideas*

Will they keep the Plan for Water?

- *Building Regulations consultation*
- *Amending the Water Supply regulation*
- *Mandatory Water Labelling*

What new changes will take place?

Environmental Incentives – Developer Services

Current Building Regulations set 110lpd for most of England & Wales.

New regime from April 2025



| Company | Water infrastructure charge 2022-23 (£ per connection) | Criteria for water efficiency discount – Achieving estimated usage of a certain level in litres per person per day (l/p/d) | Water efficiency discount (applied to infrastructure charge) – £ per qualified property |
|------------------------------|--|--|---|
| Anglian Water | 293 | N/A | N/A |
| Hafren Dyfrdwy | 411 | N/A | N/A |
| Northumbrian Water | 130 | 105 | 130 |
| Severn Trent | 363 | 100 | 280 |
| Southern Water | 0 | 110 | 230 |
| South West Water | 96 | N/A | N/A |
| Thames Water | 445 | Tiered discount: i) achieve 110 l/p/d; ii) discount for rainwater harvesting and grey water recycling; iii) water neutrality | Tiered discount offering: i) £200; ii) £1,000; and iii) £1,800 |
| United Utilities | 302 | 100 | 272 |
| Dŵr Cymru | 428 | N/A | N/A |
| Wessex Water | 199 | N/A | N/A |
| Yorkshire Water | 80 | 125 | The percentage discount will be equal to the percentage that the estimated water usage is below 125 l/p/d |
| Affinity Water | 366 | 110 | 84 |
| Bristol Water | 309 | 110 | 75% discount trial for selected developments |
| Portsmouth Water | 321 | 100 | 50% discount |
| South East Water | 633 | Discount offered for a smaller diameter connection (20mm instead of 25mm) | £50 |
| South Staffs Water | 305 | 100 | 40% reduction |
| Sutton and East Surrey Water | 312 | It offers a 15% reduction to infrastructure charges if bathroom fittings are A-rated OR grey water recycling or rain water harvesting is fitted. If both these conditions are met the reduction is 30% | |

Source: <https://www.ofwat.gov.uk/environmental-incentives-to-support-more-water-efficient-new-homes/>

https://www.ofwat.gov.uk/wp-content/uploads/2023/06/Environmental-incentives-conclusions-v1_with_covers.pdf

Collaboration between Affinity Water & LPAs

Affinity can:

- Provide you with water data to support your plans
- Participate in Water Cycle studies and early site allocation discussions from a sustainability perspective
- Work with you in planning policy guidance/statements related to water conservation
- Community events/ engagement/ Comms

LPAs can:

- Tell developers about our environmental incentives
- Include water reuse for major developments in their local plans
- Be an ambassador for water conservation

The Delivery team is led by Wholesale and Developer Experience Team (Affinity Water) with support from across the business.



Project Director
Dr. Gareth S. Barker



Water Neutrality
Manager
Lina Nieto



Water Neutrality
Technical Manager
Julian Webster

**SUPPORTED BY OUR
BRILLIANT PARTNERS:**

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |
| | | | | |

SHARE YOUR IDEAS

**BE PART OF
THE SOLUTION**

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