Anglian Water Non-Household Services

Water Efficiency Study – Report Template

Version	Date	Amendment
1	13th January 2026	Published

Executive Summary

This should consist of a summary of overall site water use, presentation of the water mass balance constructed for the site, presentation of the overall water savings tables, and a recommended action plan for the site. The executive summary should also highlight other key conclusions at the site, e.g. if the site greatly deviates from benchmarked water consumption levels or has significant leakage.

Main sections of the report:

1 Introduction: This section provides background information about the site and outlines the scope of work.

To include:

- A site visit by a suitably qualified engineer (see Study Assurance document) – duration expected at 3 days on-site.
- An initial discussion with appropriate site staff to understand site operation and water use patterns.
- A guided site walk through to observe key assets and equipment in operation.
- Ultrasonic flow metering of key site flows where possible and over an appropriate time period.
- Construction of a schematic drawing showing main water using areas and a water mass balance for the site.
- Identification of relevant water efficiency measures for the site, categorised by Stage 1, Stage 2, Stage 3 (see below).
- Production of the report.

2 Site Information and Water Consumption: This section includes general site information, overall site water consumption, wastewater discharge, other water costs. Where available logger or AMR data to be shown in graphical format to show annual consumption pattern and continuous flow where present. Table 1 below shows an example table to present this information.

Utility	Annual Consumption/ Generation (m3)	Average Cost/m3	Annual Cost (£)
Water (mains)			
Borehole			
Sewage Discharge			
Trade Effluent Discharge			

Table 1 - Site water consumption, wastewater discharge, other water costs

2.2 Assumptions

While every effort shall be made to make the figures reported as accurate as possible, some assumptions are required to allow e.g. estimation of water savings. These assumptions include but are not limited to:

- The site's operation during the site visit reflects the normal site operation on a day to day basis.
- Data provided by the site is accurate and reflects actual site operation.
- Information provided by the site during the site visit is accurate and reflects actual site operation.
- Investment costs for water efficiency measures are estimated based on the assessors experience and reasonable contact with
  vendors. These costs may change based on e.g. vendor visits to site for costing.
- The simple paybacks presented in the report are calculated as estimated investment cost ÷ annual financial savings. No potential capital allowances or funding are to be factored in to the investment cost.
- Savings are based on current costs for water, trade effluent discharge, and estimated energy costs.
- Guidance on how to calculate energy costs can be found here: DUAL-BRANDING-TEMPLATE---Water-Efficiency-Advice-Leaflet-for-NHH-Customers---1- (2).pdf
- Carbon savings are based on the UK Governments carbon factor data, available at https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting. These factors are updated annually, the latest being as follows:

At 2026		
kg CO2e per unit	Energy Type	Unit
0.19553	Grid electricity	kWh
0.18296	Natural gas	kWh
0.027288	Gas oil	kWh
2.75541	Gas oil	litres
0.26808	Diesel (100% mineral diesel)	kWh
2.66155	Diesel (100% mineral diesel)	litres

Source: Greenhouse gas reporting: conversion factors 2025 - GOV.UK

Government conversion factors for company reporting of greenhouse gas emissions - GOV.UK

Please specify any other assumptions used in the report and reference the basis or source from which it has been taken.

Assessors should take a holistic approach to evaluating water and cost savings, ensuring that all relevant factors are considered, such as the costs of water heating and treatment. These operational costs can significantly impact the business case for efficiency measures. For example, while installing a reverse osmosis (RO) plant may reduce water consumption, its high electricity demand must be factored into the analysis.

3 Water Use and Schematic: This section presents a schematic diagram of water use across the site, showing all water in and discharges from the site. This is a way for organisations to check how they use water, find areas to save water, and make plans to improve efficiency. It considers all water sources, and leads to practical recommendations for saving water and possibly recovering useful materials from used water.

The water efficiency study shall include the following scope :

- Determine total site water use and associated costs (water, wastewater, trade effluent).
- Identify where, how and why water is used. To include, but not limited to, domestic use, process use(production, steam, cooling, cleaning, heating) etc.
- Estimate water volume used at key points of use and discharged from site. This should be aided through the use of temporary ultrasonic flow metering where possible. Factors which determine the potential to do this include pipe material and condition, pipe diameter, pipe layout (e.g. sufficient straight pipe lengths, availability of power, and others).
- Identify water quality requirements at each point of use.
- Identify water saving options, including a relevant selection from recover, recycle, reuse options.
- Carry out supply pipe leak testing where not unreasonable to do so.
- Provide a water use schematic diagram.
- Calculate an overview water balance that accounts for a minimum of 90% of the water in to the site.
- An estimate of continuous flow using available meter and logger data– legitimate use and leakage.
- Provide a site specific water benchmark or key performance indicator (KPI) e.g. m3/tonne product, and comparison against industry benchmarks where available. A site specific benchmark will include all water types e.g. Mains, borehole, reuse.

Where alternative water sources are used each study shall produce an evidenced site-specific benchmark as follows:

  - A mains water supply KPI
  - An alternative supply (e.g. borehole) KPI
  - A total water KPI

The benchmark KPI's will be used to monitor ongoing water efficiency.

3.1 Calculation of site-specific benchmark or key performance indicator (KPI)

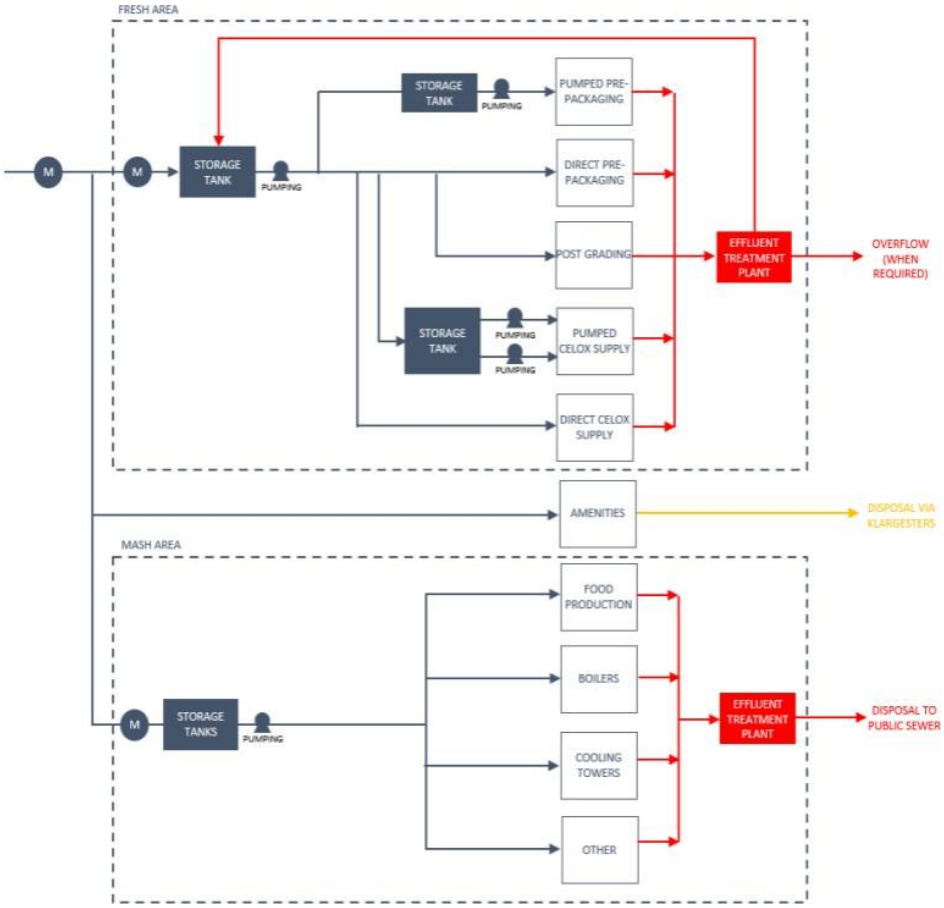
Water consumption may vary over a period of time and be dependent on a number of variables, such as production levels (tonnes of production, shift patterns etc) or number of people at the premises (i.e. staff, customers etc).

To ensure like-for-like comparison for continuous improvement and establish a base-line figure, consumption data should be normalised and water use expressed in terms of production (volume of water used per tonne/unit of production output) or workforce (volume used per employee). This benchmark of water use can be used to monitor consumption and reductions in water usage. To account for seasonality, business activity cycles, growth and other variables, consumption data over the last 12 month period shall be used to calculate the benchmark figure.

Recording water consumption data will help to identify leaks and eliminate wastage. Leaks will be evident if meter readings are unreasonably high and the water use recorded exceeds the demand associated with systems, processes and equipment on site.

An example of a Water Use Schematic for an industrial site are shown in Figure 1 below:

Figure 1 – Example block diagram showing inputs and outputs for an example industrial site.



4 Water Balance: This section summarises the results of the water balance prepared from the water meters at the site, detailing water use categories and quantities. Where practical, temporary flow measurement shall be used to determine water use where sub-meters are not present. The water mass balance shall account for a minimum of 90% of the total site water use, as follows:

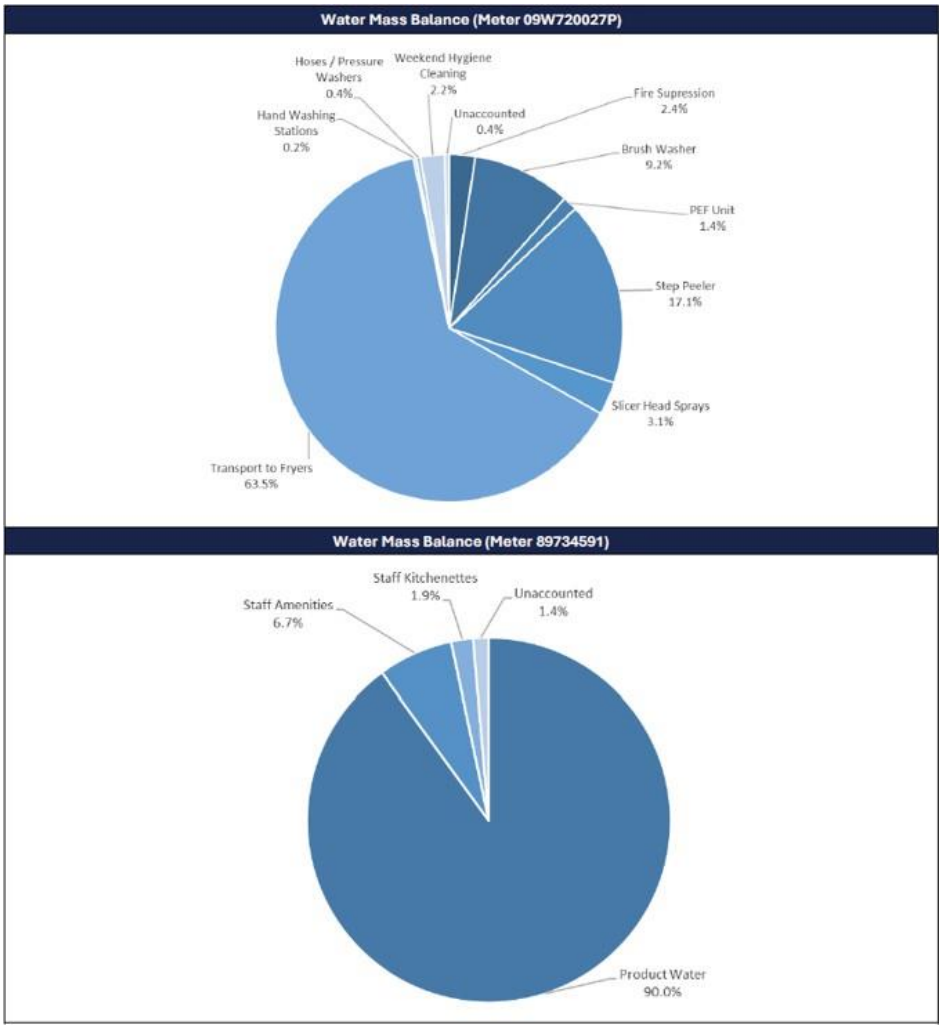
- Identify water supplies (include all sources such as mains supply, borehole, rainwater and reuse);
- Investigate key water uses, for example cleaning vehicles and washing;
- Identify key sources of wastewater and effluent;
- Consider other water losses (in products and by-products, emissions to atmosphere, spillages, leaks and overflows, slurry and sludge wastes etc);
- Quantify water use and effluent through direct measurement and monitoring using flow meters or a bucket and stopwatch;
- Calculate from other measurements such as water-in-product
- Calculate from manufacturers' published information;
- Calculate from typical use information;
- Estimate from knowledge of the operation, process or use of equipment.

Potential discrepancies that may arise when there are significant differences between the inputs and outputs in a water balance could include and where relevant should be noted:

- **Products and by-products**: Water may be incorporated into the products being manufactured or retained in by-products.
- **Emissions to atmosphere**: Water may be lost through emissions such evaporation during various operations.
- **Spillages, leaks, and overflows**: Accidental losses of water.
- **Slurry and sludge wastes**: Water may be lost in waste materials like slurry and sludge.
- **Water leaks**: The site may have undetected leaks leading to water loss

An example water balance presentation is shown in Figure 2 below.

Figure 2 Example water balance



5 Water Savings Measures: This section provides a range of potential water savings measures for the site, including an assessment of water efficiency based on:

Stage 1 – minimum requirements focused on-site implementation of sub-metering and basic operational good practice including water management aimed at improving understanding of water use onsite, which is typically a precursor to other targeted measures.

Stage 2 – recommendations for specific water saving measures with an estimated simple payback period of less than 4 years (including all implementation cost and resulting water, energy and carbon savings). This will be focused on process efficiency and optimisation; that is, using less water to deliver the same processes onsite.

Stage 3 - recommendations for specific water saving measures with an estimated simple payback period of greater than 4 years (including all implementation cost and resulting water, energy and carbon savings. This will be focused on larger scale options which could be considered once metering and optimisation efficiency measures are completed.

For the purposes of the Trial, Stage 3 recommendations are for information only to inform potential future sustainable water saving opportunities.

Please provide supporting information and a concise narrative that demonstrates the overall business case for an identified initiative, ensuring a holistic evaluation of its benefits.

Stage 1 - Basic operational good practice including but not limited to, monitoring for improvement, behavioural change, integrity and losses, operational equipment changes/upgrades. Examples are given below:

- Installation of sub-metering to improve water balance accuracy, prioritise water saving activities in high use areas, measure the impact of water saving activities, facilitate further optimisation of process control.
- Activities to increase employee awareness regarding saving water.
- Installing high pressure low volume triggers on hoses used for cleaning;
- Vehicle washing with buckets instead of hoses;
- Using scrapers/squeegees/brushes to clean floors instead of hoses;
- Identification of continuous flow;
- Fixing leaks and overflows,
- Reducing water pressure;
- Using appropriate water types for the task in hand (for example, not using hot water unless it is necessary);
- Lagging water supply pipes (both hot and cold);
- Reducing losses through evaporation;
- Optimisation of domestic water use e.g. taps, toilets, showers, urinals.

Stage 2 - Process Optimisation, with Return on Investment <4 years (Including but not limited to):

- Optimisation of existing on-site water treatment processes for re-use;
- Implementing and optimising cleaning-in-place (CIP) systems;
- Spray/ nozzle optimisation;
- Optimisation of water transport/carrier systems;
- Tray wash optimisation;
- Flow control/management;
- Optimisation of boiler house (see guidance document);
- Optimisation of Cooling Towers (see guidance document).

6 Conclusions and Recommendations: This section summarises the recommended measures for the site, categorising them into Stage 1 (high confidence and low risk – basic operational good practice), Stage 2 (water saving initiatives with less than 4 year simple payback).

The tables below are examples of how to present the recommendations - Potential volumetric and financial savings will include consideration of process water, domestic water, sewage, reduced water heating, trade effluent, energy and carbon.

Stage 1

Measure	Water Savings (m3/year)	Energy Savings (kWh/year	Carbon Savings (tonne CO2 e/year	Financial Savings £/year	Estimated Investment Cost	Simple Payback (years)

Stage 2

Measure	Water Savings (m3/year)	Energy Savings (kWh/year	Carbon Savings (tonne CO2 e/year	Financial Savings £/year	Estimated Investment Cost	Simple Payback (years)

Stage 3

Measure	Water Savings (m3/year)	Energy Savings (kWh/year	Carbon Savings (tonne CO2 e/year	Financial Savings £/year	Estimated Investment Cost	Simple Payback (years)

The table below shows an illustration of potential water efficiency study recommendations:

Measure	Savings (m3/year)	Energy Savings (kWh/year)	Carbon Savings (t.CO2e/year	Financial Savings (£/year)	Estimated Investment Cost	Simple payback (years)	Stage
Sub metering, water management and employee water awareness activities	6919	3,460	3.1	17,508	25,250	1,44	1
Leakage identification and elimination	10,120	5,060	4.5	25,900	31,000	1.20	1
Overflow identification and elimination	1314	0	0.45	49,932	1,500	0.03	1
Optimised domestic water use: taps, toilets, showers, urinals	340	0	0.12	12,909	1500	0.12	1
Water pressure reduction	5,840	2,920	2.6	14,946	13,500	0.90	1
Brush washer optimisation	1,030	515	0.5	2,635	4,100	1.56	2
Step peeler optimisation	5,834	2,917	2.6	14,932	3,500	0.23	2
Transport to Fryer optimisation	15,938	7,969	7.1	40,790	9,550	0.23	2
Water Recycling	69,464	173,660	12.4	136,099	2,000,000	14.70	3

7 Appendix: The appendix includes proposed flow metering locations with photos, photos of before and after interventions, additional details and supporting information for the recommendations.

Action Plan Template and sign off - **Information to be provided by 30th November 2026**

Action Plan Template

Company					
Prepared by		Position		Date	
Action ref.	Action description	Benefit		Stage	Date for completion
1					
2					
3					
4					
5					
6					
7					
8					
Comments					
Reviewed by		Position		Date	
Approved by		Position		Date	
Document ref.		Version no.		Location	
Next review					