

# Nomination for SWIG Awards 2015 Domestic Building Category

## Stanner Hill House, Surrey - Making the impossible possible

### Introduction

Stanner Hill House is the last in the run of houses up a long hill with a generally poor mains supply which worsens to a trickle at this hill top house.

Every drop of mains supply is needed to maintain the needs of the house itself and to refill its domestic storage.

Previously tankers and bowsers were used to bring water onto the site, but of course proved unsustainable in every way for long term supply.

With no mains supply at all available for landscape irrigation an innovative solution was needed.

The garden design was ambitious and valuable with a requirement of a substantial and reliable water supply to allow the plants to thrive rather than merely survive.



**This project demonstrates how payback / return on investment (ROI) depends on the perspective used.**

Here, the owners held a high priority for beautiful landscaped gardens which shifted their view of ROI from 15 years to 3 years! Without rainwater harvesting and storage such a landscape was not possible.

The scale of the project is exceptional and is an inspirational example of what can be achieved to manage the risk of water supply with 60,000 litres of harvested rainwater available for landscape application allowing up to 4 weeks of zero rainfall.

**Define What** - Define what the project aimed to achieve and highlight the innovations used, describing how the water saving system(s) work.

The aim was to ensure the constant availability of water for the landscaped grounds and to be independent of using mains water supply for any external use.

There are no other surface water sources available and a borehole option was rejected due to the cost and risk of successful and continuous supply from the water table.

Then the water only needs to be pumped from the storage tank to the irrigation system which covers the entire landscaped area.

**Define Why.** Describe why the project was undertaken and what limitations were met. Stanner House is in a water stressed area of Surrey.

The clients brief was zero demand on potable water whilst ensuring the lush, landscaped areas would have an independent, reliable, low risk water supply.

**Define How** - If water savings have been achieved please state in m<sup>3</sup> and compare to an industry benchmark if one exists.

Provide details on how each element of the project contributes to the sustainability of water and what the overall outcome of the system has been.

- Large scale rainwater harvesting was designed and installed with 60000litres capacity.
- Gravity fed collection system without reliance on pumping water to storage.
- Avoiding any use of potable water at all.
- Keeping the landscape fully watered.

To irrigate a site like this, the overall water demand in one season would reach over 750,000 litres, (750m<sup>3</sup>).

By capturing and utilizing rainwater we are eliminating the usage of potable water altogether. Therefore the saving is in the order of 750,000 litres per year - approximately £2000 per year

**Do the water saving measures result in reduced CO<sub>2</sub> emissions than if you had used mains water? Please provide details.**

The potable cold water carbon footprint is equivalent to 0.07kg of CO<sub>2</sub> per 000 litres. Avoiding using 750,000 litres of water, we are saving 52,500 kg CO<sub>2</sub> emissions.

**Calculate payback periods of the technologies used.**

Rainwater harvesting components total cost £29000

Total annual saving on water supply £ 2000

**a. Payback period 15 years** allowing the owners' benefit from beautiful landscaped gardens

**b. Risk management value: 3 years payback**

Without this the annual saving on lost plants/ labour to preserve the amenity is realistically £ 20,000 to £40,000 i.e. clients' view of payback is two or perhaps three years.