

Ground Source Heat Pump



Tessa Guy, Director, Baystar Energy



Who are Baystar?

Our company was originally formed of three individuals who have over twenty years of combined experience in heating systems engineering, and construction.

- **Tessa Guy** – Mechanical engineer who has worked closely with developers and housebuilders on project finance.
- **Jonny Starmer** - A quantity surveyor specialising in commercial construction and a full member of the Chartered Institute of Building
- **Jason Bayliss**- Experienced heating engineer who specialises in Renewable and energy systems and controls
- 6 office staff and a specialist system designer, 8 full time installers and a regular local sub-contracting team of ground workers & electricians



Turnkey installation

Our technical expertise lies in low energy technologies and heat pumps:

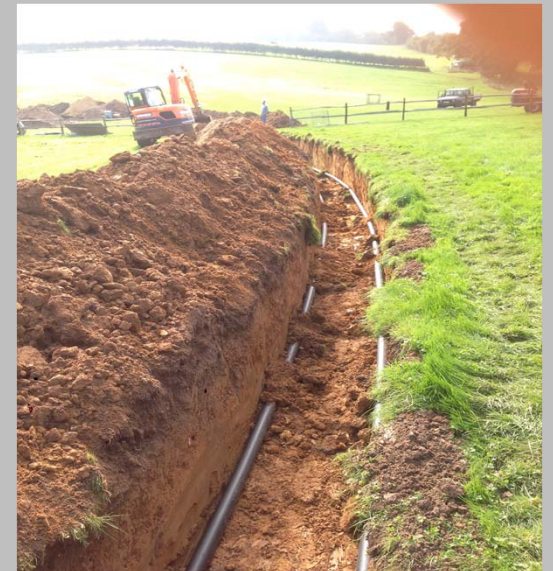
- Consultancy & Design Services
- Groundworks and Pipe Fitting
- Mechanical & Electrical Installation
- Maintenance & Facilities Management



We provide a complete solution including consultancy, design, installation and servicing for both renewable and energy efficient systems.

Portfolio of WORKING!! HP installations

- Scale challenges and complexity of heat pumps systems & controls
- 100% success in terms of delivery and results
- Ground breaking retrofit projects that involved minimum disruption
- Created high comfort factor and future proofed energy costs
- Delivered the expected results in terms of savings and performance



Domestic– Ground Source Horizontal Collector

Ground collector for large domestic house and annex providing all heating and hot water

A 50kW system of heat pumps using horizontal collector was installed at this large rural property to provide fuel security, reduce heating costs and provide income from the Renewable Heat Incentive (RHI).



Separate annex

Trenches for coils

Plant room



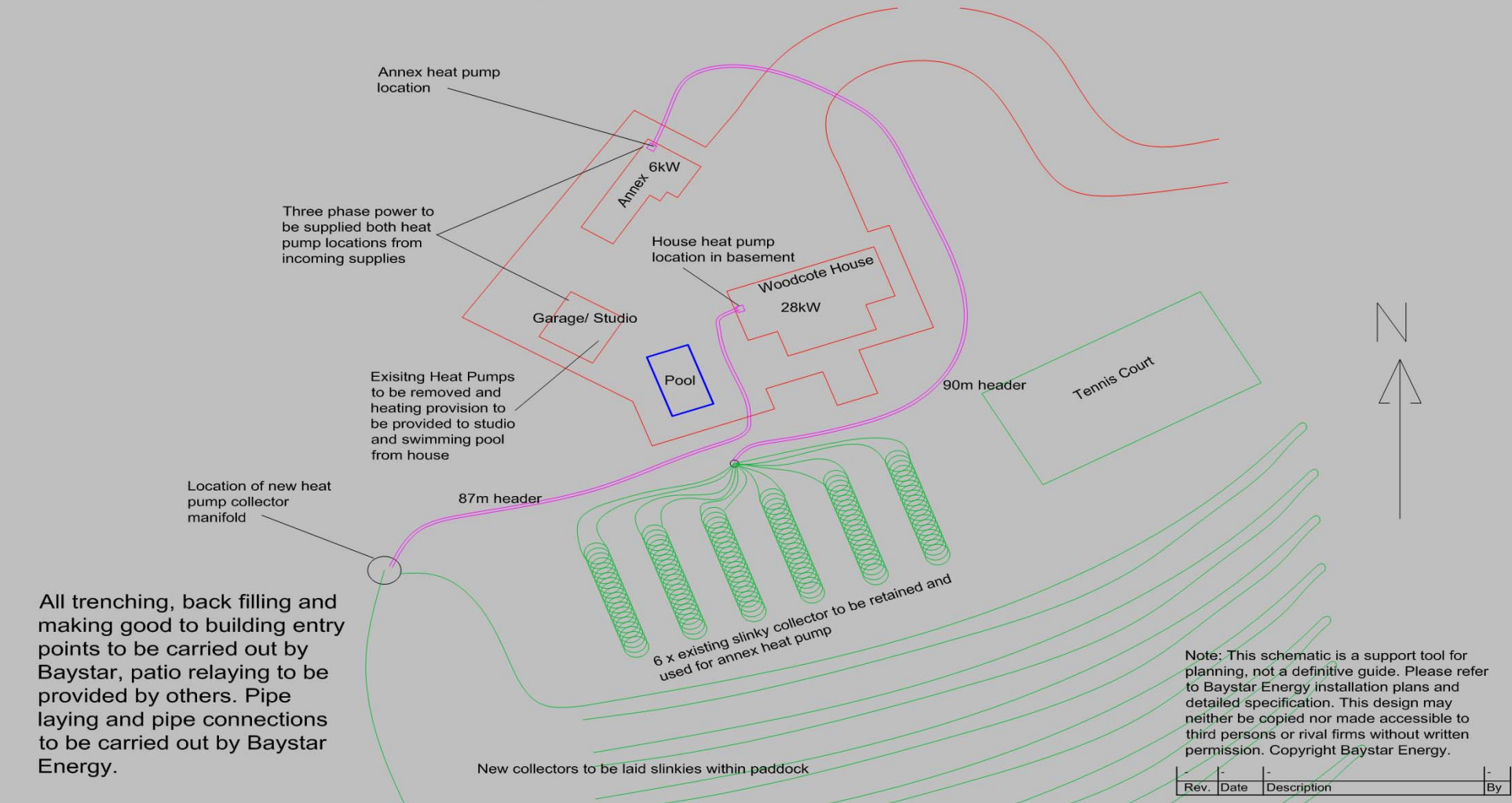
Fuel Cost Saving - Up to 50% c. £3k (based on est. electric)

RHI Payments
- £7,000 every year for 20 years, index linked to inflation



For further details see our website-
www.baystar.co.uk

System Design



Rev.	Date	Description	By
-	-	-	-

Client Mr & Mrs Jones	Drawing Title Collector & Header Schematic	Scale NTS	Drawing Number JS.Tat.01
Project Woodcote Heat Pump Layout		Date 18.07.13	
		Drawn J.Starmer	

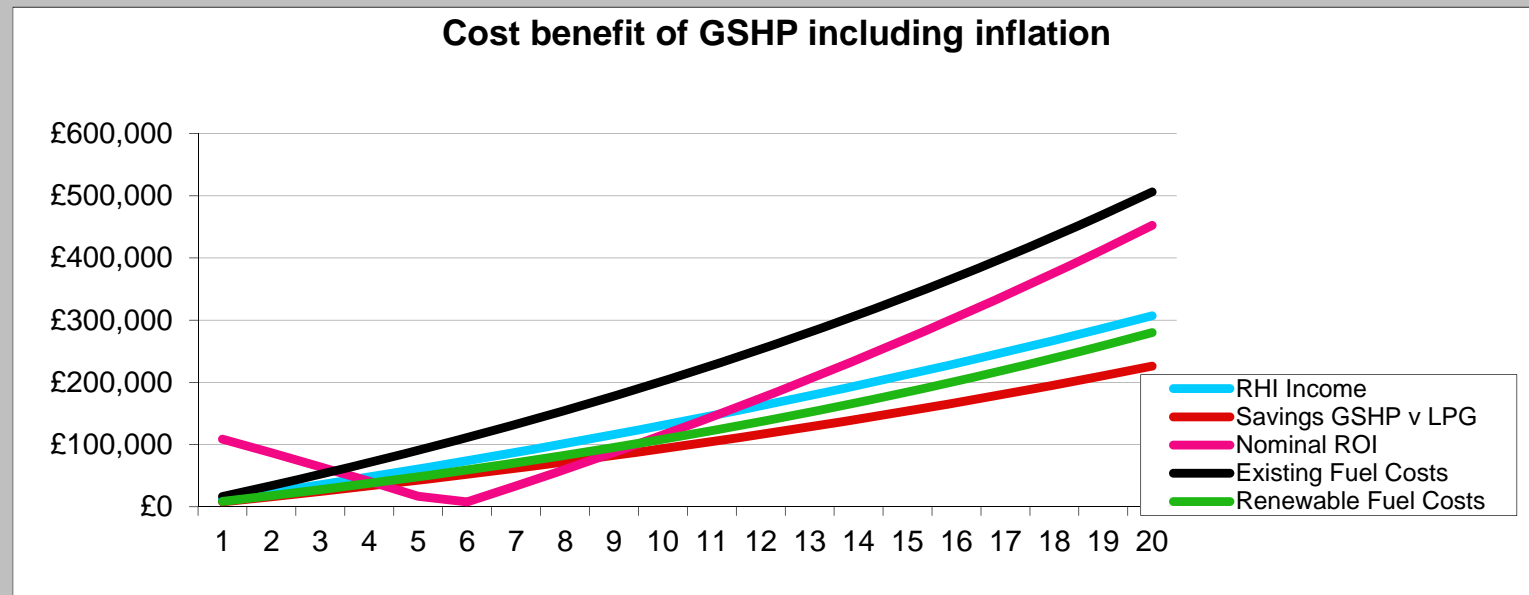


Cost benefit graph

50% saving on heating costs

ROI 18%

Payback 6 years



makes *incredibly* Good Financial Sense!!



50kW Heat Pump



New fuel bill £3,000 p.a



RHI : £7,000



Old Oil Boilers



Oil £6,000 p.a



Cash back £0

System Installation

Installation starts at the manifolds



Construction of the chamber

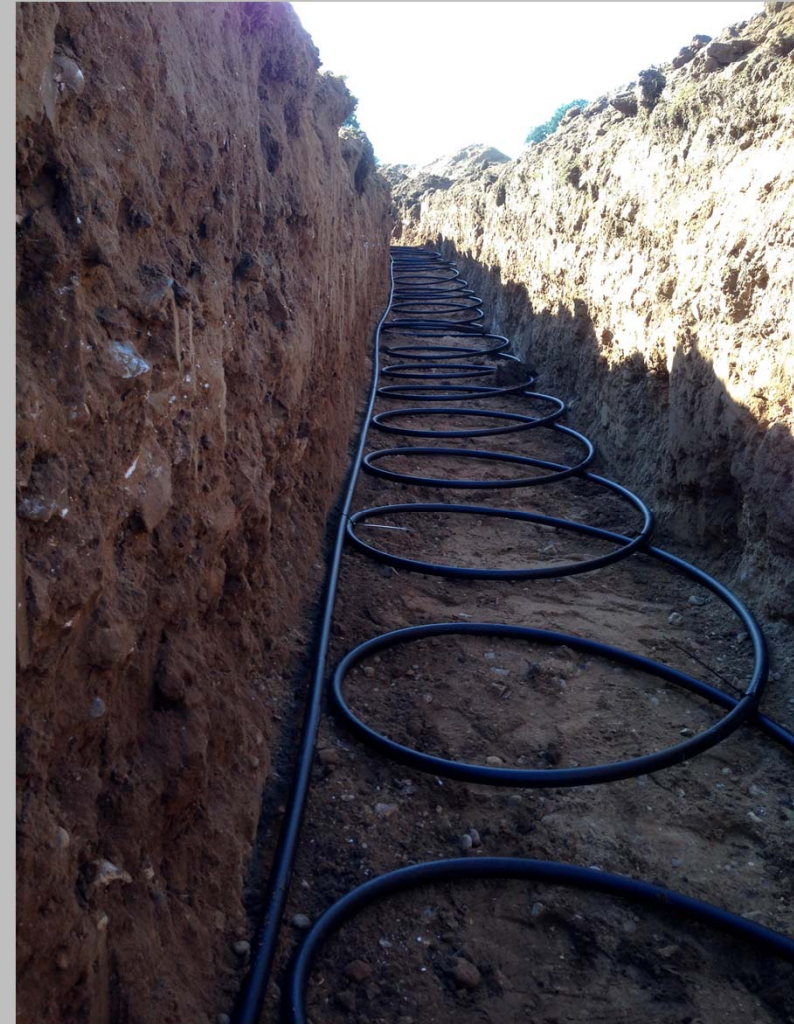


System Installation

Header pipe



Collector loop construction



System Design

Pipe tails connected to each manifold chamber

Manifold chambers connected in a reverse return arrangement



System Design

Careful backfilling around manifolds



Landscaped and topsoil put back



System Design

Chalky challenges!



Pea shingle



Pipe and Ground Works

- Continued ground loop
- Trenching & Pipe Runs
 - Working around obstacles
 - Route work

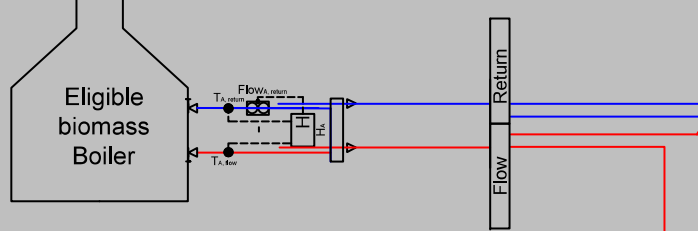
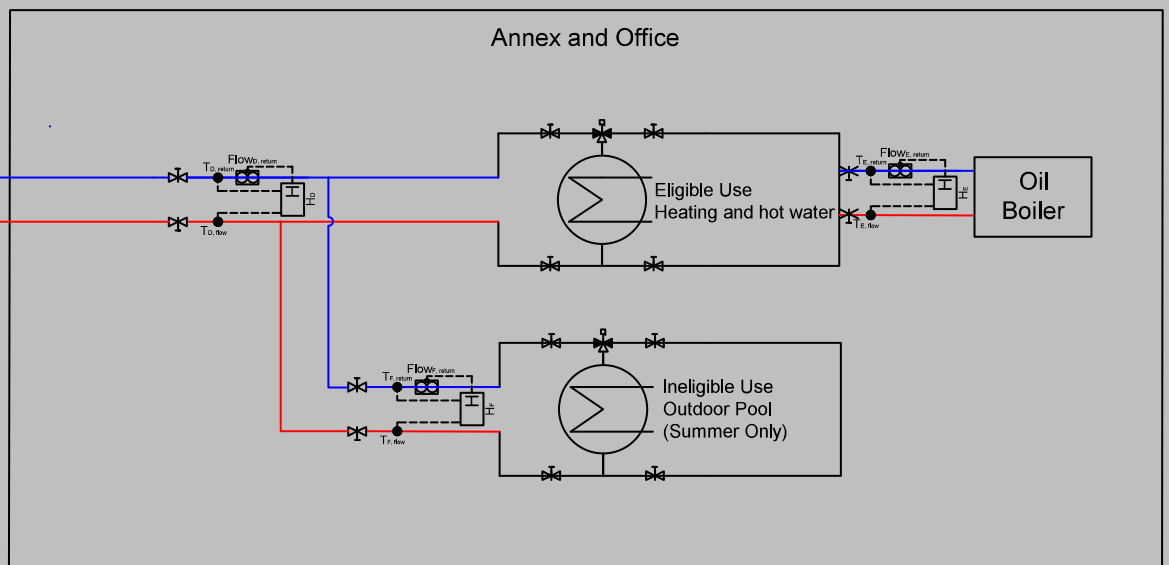
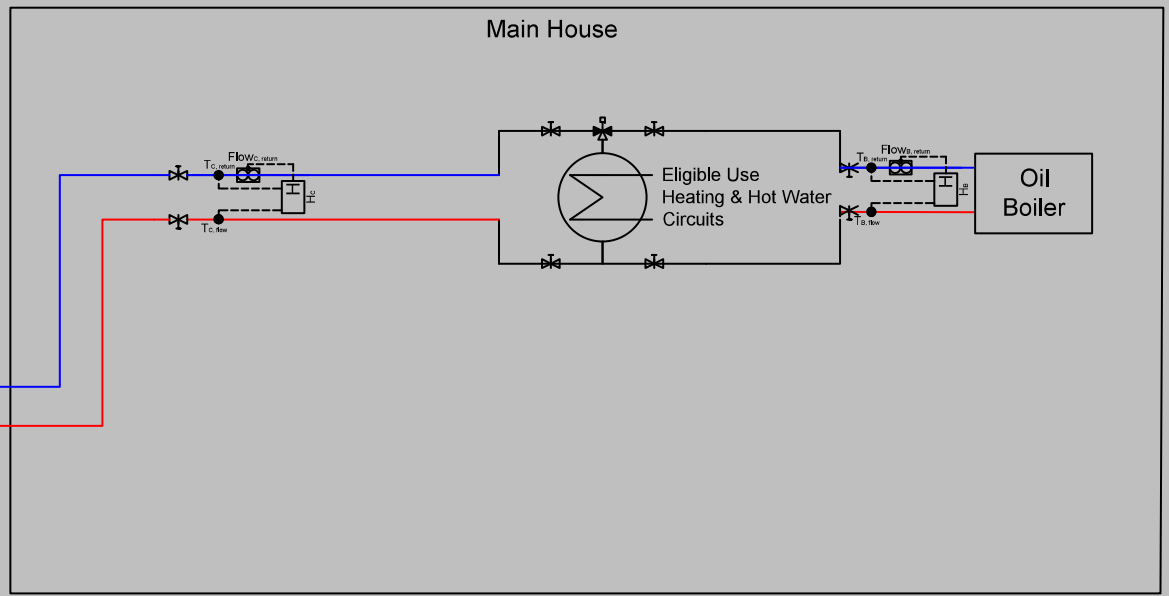


Plant Room



- Heat pumps
- Buffers
- Compatible cylinders

METERING



Eligible vs ineligible



Domestic!– Water Source Lake Collector

**Ground breaking ground source!
Lake collector for country estate
providing all heating and hot water**

A 90kW cascade system of heat pumps using 18 loop lake collector was installed at this working shooting & equestrian estate to provide fuel security, reduce heating costs and provide income from the Renewable Heat Incentive (RHI).



Pond loops ready to sink



Central manifold by
Baystar



Collector pipe from 18
loops



Fuel Cost Saving - Up to 50% c. £8k (based on est. electric)

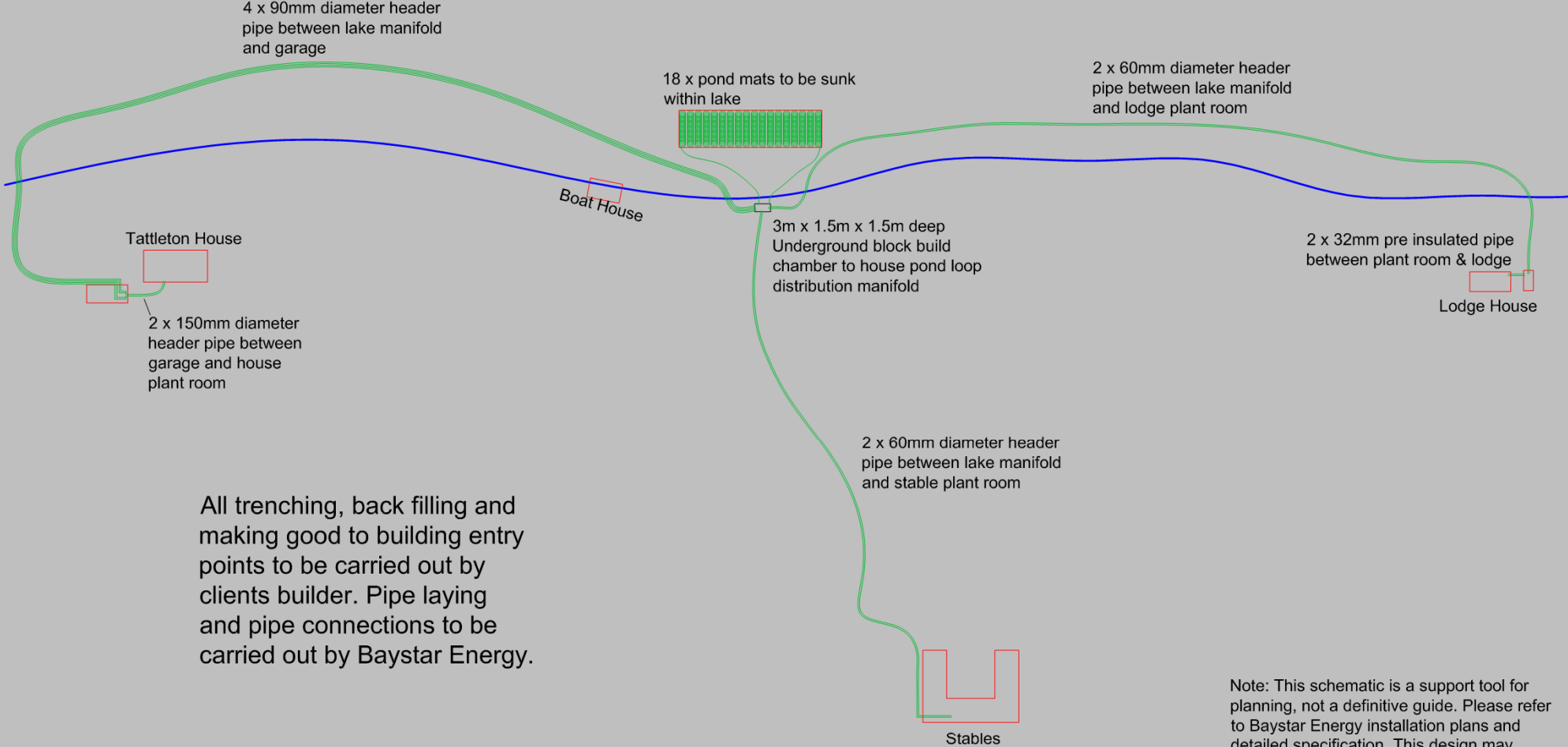
RHI Payments
- £14,000 every year for 20 years, index linked to inflation



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Lake System Design


Hammer Pond



All trenching, back filling and making good to building entry points to be carried out by clients builder. Pipe laying and pipe connections to be carried out by Baystar Energy.

Note: This schematic is a support tool for planning, not a definitive guide. Please refer to Baystar Energy installation plans and detailed specification. This design may neither be copied nor made accessible to third persons or rival firms without written permission. Copyright Baystar Energy.

Rev.	Date	Description	By
-	-	-	-

	Client Mr & Mrs Stone	Drawing Title Lake Collector & Header Schematic	Scale NTS	Drawing Number JS.Tat.01
	Project Tattleton Estate, Lake Source Heat Pump		Date 25.09.12	

Lake System Design



Lake System Design

Installation starts at the manifold



Construction of the chamber



Lake System Design

Collector loop construction



Float on to lake and bolt together



Lake System Design

Central Manifold manufactured by Baystar

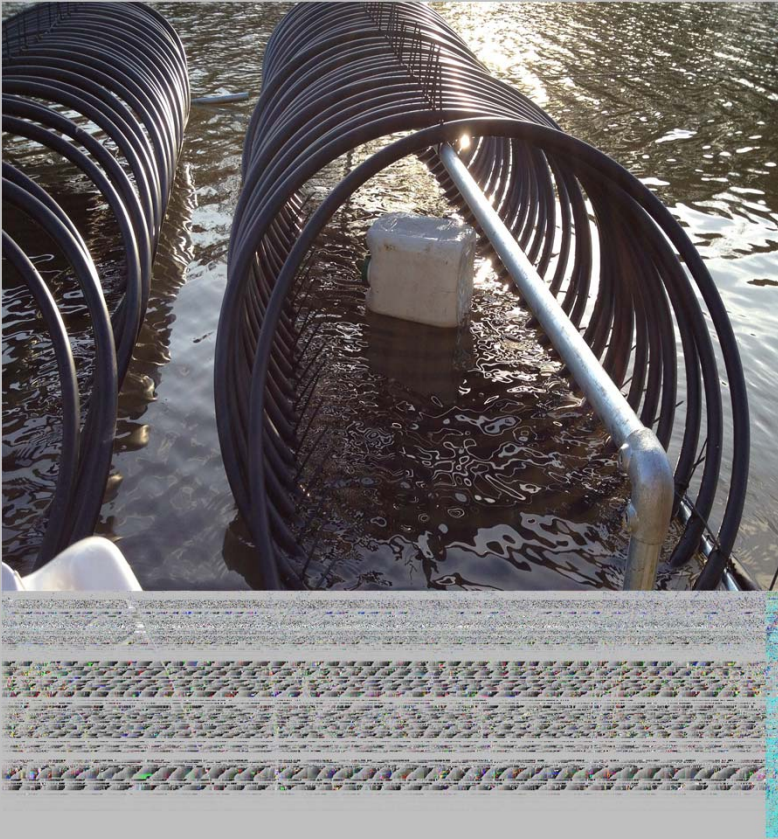


Flow and returns to collector



Lake System Design

Water source ready to sink



Post installation

- Controls
- Heating the building
- Cost- minimal servicing
- Cost- minimal breakdowns



- Making good

*Your property put back
exactly as we found it*

During installation



Post installation



- Making good

*Your property put back
exactly as we found it*

During installation



Post installation



'Making good' of all pipe runs & trenches.

*Your home put back
exactly as we found it*



Conclusion

- Thank you

